

II. Introduction

A. Project Scope

Can you pleasantly walk or easily find your way around your neighborhood on a bicycle? Do you have enough room to walk, or a safe place to bicycle along your roads? Do you need sidewalks or a safe bike route that would allow you to get to your preferred destinations? These are some of the important questions many suburban and urban municipalities are asking their citizens today. Because many Township, State and Interstate roadways were built or modified with the safety and comfort of motor vehicles in the forefront, many roadways remain hazardous and uncomfortable for pedestrian and bicycle use.

The result of this study envisions Whitemarsh Township as a truly walk-able, hike-able, and cycle-able place to live and work where each residence, business or institution is within close proximity to sensitively designed, safe, easy-to-use, and well-maintained pedestrian and bicycle routes. These routes would connect destinations within the Township and adjacent areas. When implemented, the recommendations of this study will provide choices for the people who live, work and travel on the roadways, public transit and trails of Whitemarsh Township. This study permits Whitemarsh Township to expand the capacity of the township's roadways and trail network to serve everyone, including motorists, pedestrians, bicycles and other users by accommodating all modes of travel. The goal of this expanded network is to improve the safety, convenience, accessibility and efficiency of the township's transportation system, to link together a network of open spaces, and to make it possible for everyone to easily partake in recreation activities in their own 'back yard'.

The Township of Whitemarsh includes within it a wide range of land uses. Generally, more intensive residential and commercial development is largely contained within a swath bounded by Barren Hill Road and Flourtown Road, in the western portion of the township. Most of the remainder of the township (its eastern half) is comprised of large undeveloped estates interspersed with single-family subdivisions. Fort Washington State Park and County parkland along Wissahickon Creek are also located here.

The road network in the Township is utilized not only by local residents, but by intensive automobile traffic coming from and going to adjacent municipalities. Recent years have seen an unrelenting increase in traffic. For example, PennDOT reports that in 2005 Bethlehem Pike carried 17,000 vehicles per day; Germantown Pike 18,000. In the past, when improvements were made to the road network, these have been geared toward moving large volumes of auto traffic with the safety and convenience of pedestrians and bicycles an afterthought, if indeed considered at all. As a result, many walkers and joggers within the township feel uncomfortable walking around the township and are unable to access the Schuylkill River and Green Ribbon Trails, and other desired destinations without the use of an automobile.



Butler Pike on a weekday afternoon at 2:00 p.m.

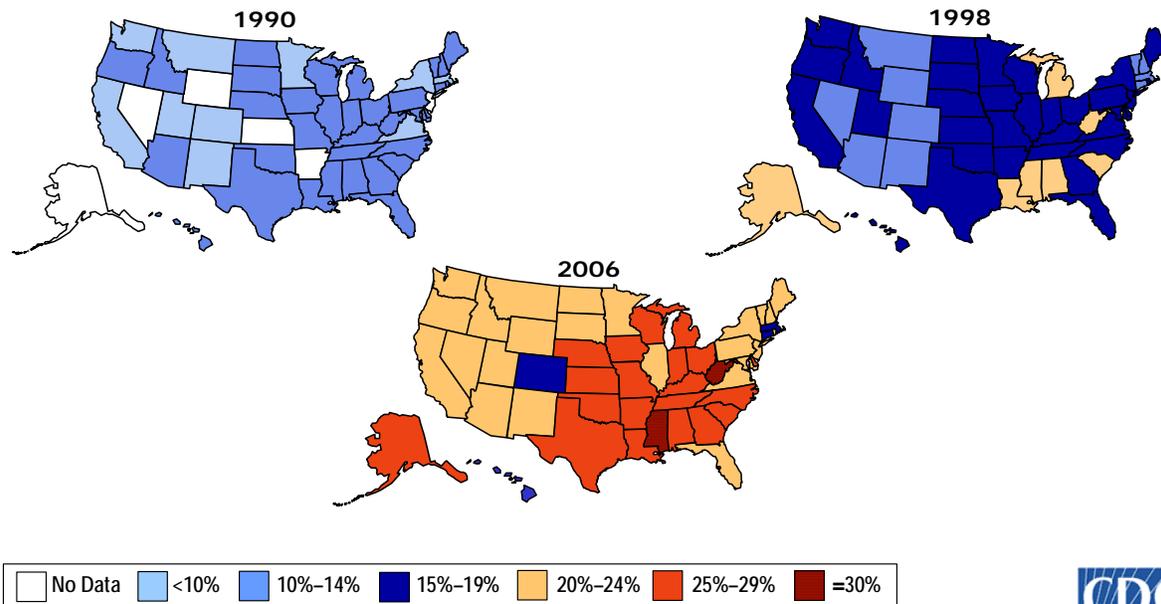
Throughout the Township cyclists can share the roads with vehicles but must do so with a “fend for yourself” mentality as the older roads are typically narrow and unsigned for cyclist's safety. The topography of the Township also presents challenges. At the east end of the township, the terrain drops off steeply to the banks of the Schuylkill River. In addition, the Township is bisected by an east-west series of ridgelines running generally parallel to the Pennsylvania Turnpike. These are, from west to east, Cold Point Hill, Militia Hill, Fort Hill, and Camp Hill. Most roadways circumvent this obstacle, the major exception being Joshua Road. Bicyclists on Joshua Road south of Militia Hill Road will encounter a severe climb and descent, made the more challenging by a narrow cartway already appropriated by automobile and truck traffic. Other roadways, such as Skippack Pike, are very heavily trafficked by automobiles and many cyclists feel uncomfortable and unsafe traveling and sharing these roads with vehicular traffic, especially during peak traffic hours.

Taking this into account, this study endeavors to develop a plan for a safe walking network of sidewalks and soft surfaced paths, which will link parks and natural areas with neighborhoods, business districts, schools and adjacent municipalities where possible. It routes cyclists away from steep grades where possible, and recommends facilities that parallel (rather than utilize) hazardous thoroughfares. It also recommends route signage, “share the road” signage, and striping of bike lanes, where possible, to improve safety. Working with the support of the public’s input and within the existing physical conditions of the township, this study presents Whitemarsh with a potentially easy to use, expanded, yet integrated transportation network.

Such an expanded network is essential for our schoolchildren, our graying population, the health-conscious, and the disabled, who cannot or do not choose to drive. Without safe access for all modes of transportation, transportation networks act more as a barrier to the physically challenged than a service. Additionally, our land-use and transportation choices have a direct relation to the physical activity and public health of our communities. For example, in 1990, the obesity rate of Pennsylvania was less than 14% and was of little concern for our adults, but within sixteen years, by the year 2006, over 20% of our state’s adults were over weight by 30 lbs of body mass or more. This increase in obesity follows the increase of automobile trips taken across the nation. The more automobile trips we take, the less physically active we become. During the second half of the 20th century, the growth of many suburban communities has focused on the transportation choice of the motor vehicle, leaving many gaps and physical barriers to contiguous walkways and bikeways, which, if balanced, would encourage physical activity. The inclusion of such a “green infrastructure” linking tracts of open space and town centers, offers the Township enhanced quality of life, sense of well being, recreation opportunity, and lifestyle amenities that may even enhance township property values.

Obesity Trends* Among U.S. Adults BRFSS, 1990, 1998, 2006

(*BMI ≥30, or about 30 lbs. overweight for 5’4” person)



Source: CDC Behavioral Risk Factor Surveillance System.

B. Project Partners

This project was funded by Whitemarsh Township.

The Township of Whitemarsh, Montgomery County, retained Campbell Thomas & Company Architects to perform the consulting work. Campbell Thomas & Co. is an environmentally and community oriented firm of architects and planners with an award winning record in “green” transportation, community planning and

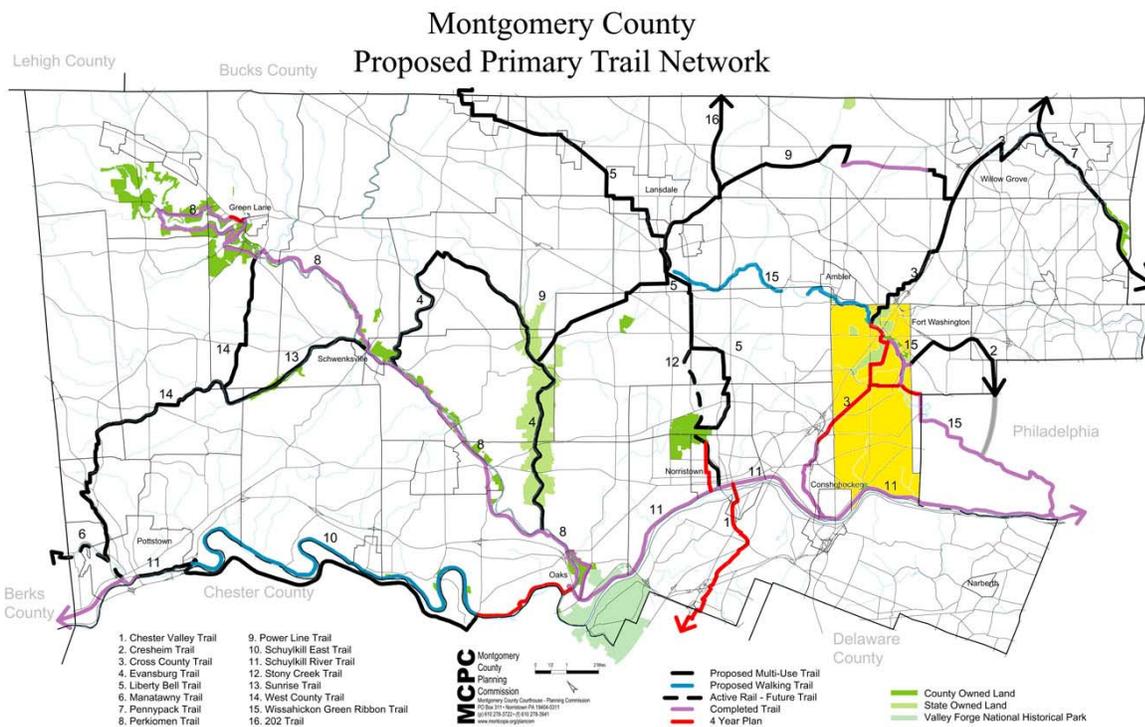
revitalization, accessibility, historic preservation and practical design and construction. The firm was founded in 1976 by architects Robert P. Thomas and James C. Campbell who originally met through volunteer work on a variety of transportation, preservation and conservation projects. The firm's mission has focused on developing projects that are socially, environmentally, and technology innovative and important such as this township-wide pedestrian and bicycle feasibility study.

C. Context

1. Regional Context

Suburban Philadelphia – Whitemarsh Township is located adjacent to the northwest edge of Philadelphia, close to that city's outlying neighborhoods of Chestnut Hill and Roxborough. Several major highways and two commuter train lines connect to the city, the central business district of which lies 10 miles to the southeast. More highways connect to the ring of suburban development that surrounds Philadelphia, of which Whitemarsh is a part. Two significant stream valleys also connect Whitemarsh to Philadelphia. Both the Schuylkill River and the Wissahickon Creek are beautiful natural corridors, and both either have or are planned to have multi-use trails along their banks.

Montgomery County Trail System – Montgomery County's long-standing history of trail development began in the late 1970s with the construction of the first phase of the Schuylkill River Trail, a designated National Recreation Trail from Valley Forge National Historical Park to Center City, Philadelphia. Today, Montgomery County plans a total of 160 miles of trails (see map, below). In addition to the Schuylkill River Trail, which runs along the river's edge in Whitemarsh Township, two other major multi-use trails in Whitemarsh Township are under construction or are being designed by the County. The Green Ribbon Trail runs along the banks of the Wissahickon Creek, through Fort Washington State Park, and through open space owned by the County. When final links are completed, this trail will act as an extension of Fairmount Park's world-class Forbidden Drive, a haven for walkers, equestrians, and bicyclists. In addition, a significant east-west multi-use trail is under development by Montgomery County: the Cross County Trail. This trail will parallel Norfolk Southern's Morrisville Line freight railroad, then follow the banks of the Wissahickon Creek to Fort Washington. This map locates Whitemarsh Township within the context of Montgomery County's trail network:



**Montgomery County's trail network includes three multi-use trails that pass through Whitemarsh.
Whitemarsh Township is highlighted in yellow**

2. Local Context

Development Patterns – As noted previously, the portion of the Township located to the west of Flourtown Road is mostly developed in a typical post-WWII suburban fashion, with some non-motorized mobility within subdivisions but limited connections between neighborhoods. However, because of previous thoughtful efforts by township officials, some of these areas are reasonably walkable or “pedestrian friendly” – there are sidewalks and some valuable paved trail connections have been built and are maintained between neighborhoods. The developments that have been built in the portion of the Township to the east of Flourtown Road tend to be more isolated, with fewer interconnections. Many of the neighborhood streets within those developments are safely walkable due to low traffic volumes, but the collector roads tend to be narrow and difficult to either bicycle or walk along.

Open Space – At the beginning of the twenty-first century, a significant portion of Whitemarsh remains undeveloped land, though only a portion of that is protected, and still less open to the public. The largest of the parks is Fort Washington State Park, occupying 500 acres of high ground in the central/eastern portion of the Township. Much of the Wissahickon Creek’s riverbanks and wooded floodplain also fall within park boundaries, with adjacent areas owned by Montgomery County. Farther south, the 450 acre Erdenheim Farm is private open space. Efforts are now underway to preserve that outstanding agricultural landscape and to ensure public access. Hope Lodge and The Highlands are each 300+ acre preserved estates whose grounds are open to the public. Hundreds more acres in the form of private country clubs and cemeteries are distributed across the Township; some of these are willing to negotiate easements for trail construction are some are not. Finally, Whitemarsh Township administers a series of township parks ranging from its centerpiece, Miles Park in Lafayette Hill, to small oases of open space nestled within subdivisions.

Links to Immediately Adjacent Municipalities – The links that currently exist for walkers or cyclists between Whitemarsh Township and adjacent municipalities, tend to be those created by the Montgomery County trail system. The Schuylkill Trail makes a direct connection with Conshohocken (and ultimately Norristown, Valley Forge, and points north), and with Philadelphia to the south. Once complete, the Green Ribbon Trail will provide connection to Springfield Township and Philadelphia’s Fairmount Park to the south, while the Green Ribbon Trail’s footpath will cross into Upper Dublin Township, then Ambler and ultimately North Penn to the north. Finally, the Cross County Trail will provide a link into Plymouth Township to the west, and Upper Dublin Township to the east.

This plan suggests construction of several additional sidewalk/sidepaths up to the township line; it is hoped that coordination with neighboring municipalities will result in their extension, resulting in seamless off-road travel. Projects that should continue in Springfield Township include the proposed multi-use trail along Thomas Road, and the sidewalks along Germantown Avenue and Andorra Road. Another is the proposed multi-use trail to Butler Pike opposite Plymouth Township’s Harriet Wetherill Park.

D. Goals and Objectives

1. General Objectives of this Study

- To gather information and public input for a potential path/bike/trail system that will link parks and natural areas with neighborhoods, business districts, schools and adjacent municipalities. This includes accommodations for multiple forms of transportation; walking, running, biking.
- To provide an assessment of existing natural and man-made site features, opportunities and constraints, potential links to neighborhoods, communities, and public lands within the township.
- To determine an appropriate location for the pedestrian and bicycle network that considers the results of the assessment of the local physical environment, historic and cultural resources, and adjoining properties.
- To present initial findings of legal feasibility, usage feasibility, and location feasibility; gather comments and describe methods of easement and/ or property acquisition.
- To establish recommendations for future steps toward planning and design, engineering and construction of the township-wide network.

- To provide probable costs for future construction and investigate potential funding sources.
- To present initial strategies for Implementation and Priorities of Development.

2. To enhance the Quality of Life throughout Whitemarsh Township

In preparing this study, the consultants and Township staff were told repeatedly that improving the ease and safety of walking and bicycling to many places is one of the key items needed to improve the quality of life in Whitemarsh Township. Creating these elements of a “green” transportation network will improve life for the Township’s residents by

- Making local travel a quiet, peaceful, un-congested experience, that is no less pleasant or practical than choosing to drive
- Making it possible to safely travel under one’s “own steam,” and to increase opportunities to exercise while performing necessary as well as pleasure travel
- Making it possible for Township residents to safely and enjoyably reach the Montgomery County Trail system, in place and being developed
- Considerably improving walking and bicycling opportunities for all, and particularly for those who are too young or old to drive, and anyone who chooses not to drive some or all of the time.

E. Benefits

Overall, creating a complete walking, bicycling and equestrian system in Whitemarsh will enhance the quality of life as noted in the previous section. In addition, and more specifically, such a system will

- Help to reduce congestion on the Township’s roads
- Encourage residents, workers and visitors to exercise while making trips to shop, to school, to visit and the like. Such an increase in physical activity will improve the health of the population.
- Increase the “sociability” of Whitemarsh, by increasing the incidental contact between neighbors and friends who pass each other on sidepaths and trails.

F. Characteristics and Projected Uses

TOWNSHIP CHARACTER

Whitemarsh Township’s character has evolved from its legacy as a primarily agricultural community. Divided into hundred acre farms, Whitemarsh was first settled by Europeans in the 1680s. Soon after, the quarrying of limestone commenced at several locations, with kilns constructed to produce quicklime, an essential ingredient in building mortar. Villages including Spring Mill and Plymouth Meeting appeared at the crossroads of the early road network; Germantown Pike was in use by 1687, Bethlehem Pike by 1698. In 1785, 5 inns, 5 grist mills, 3 paper mills, and 2 tanneries were located within the township.

During the 1800s railroads were constructed, and heavy industry inevitably followed, particularly in the far western portion of the Township. Two of the earliest railroads, the North Penn (today’s R5) and the Philadelphia, Germantown & Norristown (today’s R6) served passengers as well as freight. In the decade immediately before and after 1900, interurban trolley lines were constructed, their convenience spurring development along the routes they traversed. Lehigh Valley Transit Company trolleys served Bethlehem Pike. The Schuylkill Valley Traction Company’s transfer hub at Germantown Pike and Church Road in Barren Hill offered connections to Chestnut Hill, Manayunk, and Norristown.

There was relatively little change in the Township through the middle of the 20th century. Then, as in many suburban areas throughout the US, the Township experienced rapid development of residential units and related commercial and service uses during the post-WWII boom years. Farms and estates were developed into new residential neighborhoods as the Township’s population exploded from less than 5,000 in 1940 to over 12,000 by 1960. Growth continued at a somewhat slower rate after 1960, with the 2000 census showing a population of 16,700. Prior to this boom in development, the Township had been an easy place to walk or bicycle.

With the increase in population and traffic during the post-war years, and with roads being developed solely for the automobile with little attention to pedestrians or bicyclists, walking and bicycling became far more difficult and dangerous throughout much of the Township. This condition continues to this day and frustration with it is the driving force behind this planning effort.



An interurban trolley heads north on Bethlehem Pike in Whitemarsh Township, in 1909. The location is between Church Road and Valley Green Road. A side path (visible on the left side) accommodated pedestrians.



Precisely the same location in 2007. This study recommends restoration of the sidepath. In addition, Bethlehem Pike's pavement markings should be redesigned. A narrower center lane would allow width for new bicycle lanes along the curbs.

PHOTO SUMMARY – Trails / Sidepaths / Benches / Sidewalks / Bikelanes

The following is an annotated photographic summary of typical conditions and characteristics found around the township:

Location – Germantown Pike

Characteristics – Germantown Pike’s generous width can be traced back to its origins as a colonial road. Today it is lined with commercial uses for much of its length.

Relevance – A key commercial area and transportation corridor, high potential demand for both pedestrian and bicycle use is evident. But facilities are sporadic. Here a missing piece of sidewalk forces a pedestrian into the street.



Location – Ridge Pike

Characteristics – Maintained by Montgomery County, Ridge Pike has been striped for four lanes of traffic. The posted 35 mph speed limit is widely ignored.

Relevance – Pedestrians should be accommodated by the installation of continuous sidewalks on both sides, the length of the Township. Because of Ridge Pike’s high traffic volumes and speeds, Germantown Pike is a better choice for bicyclists.



Location – **Lafayette Avenue**

Characteristics – This narrow road (21 feet wide) represents the typical situation faced by pedestrians and bicyclists on many of Whitemarsh Township’s roads. In order simply to pass, the truck on the right has one wheel off the pavement. The reflector in the foreground has been knocked over.

Relevance – Share-the-road signage, enhanced pavement markings, or construction of sidepaths are among the improvements that should be considered on these roads.



Location – **Bethlehem Pike in Fort Washington**

Characteristics – Recent PennDOT reconstruction of this area has included 4-foot sidewalks immediately adjacent to travel lanes. Germantown Academy students utilize this crosswalk to gain access to SEPTA R5 trains.

Relevance – A narrower center lane would allow for installation of bike lanes, wider sidewalks, or the placement of sidewalks away from the heavily-travelled roadway.



Location – **Butler Pike at Whitemarsh Shopping Center / Ridge Pike**

Characteristics – Lack of sidewalks on Butler Pike and Ridge Pike, and a concrete “jersey” barrier at the corner of Ridge Pike make walking nearly impossible here.

Relevance – The need for sidewalks and pedestrian-oriented enhancements to traffic signals here is evident.



Location – **Cedar Grove Road**

Characteristics – Built in 1970, over a half mile of paved path parallels narrow Cedar Grove Road, from Wells Street to Hector Street. This forward-thinking effort was done to allow elementary school children to walk to school.

Relevance – The total width of the pavement on Cedar Grove Road is only 19 feet. Re-surfacing and widening the sidepath will offer pedestrians and bicyclists a safer alternative.



Location – **Flourtown Road from Joshua Road to Colonial Drive**

Characteristics – One-half mile of Flourtown Road has a total of 60 feet of width: a 40 foot roadway paralleled by a 20 foot service road, plus sidewalks.

Relevance – The service roads are of limited usefulness to bicycles, because they terminate just before each intersection. The eastbound lane of Joshua Road is currently striped tight against the edge of pavement, leaving no room for bicycles. Simply re-striping the centerline closer to the center of pavement would make bike lanes possible.



Location – **Green Ribbon Trail along Wissahickon Creek**

Characteristics – Much of this trail is already complete. Missing sections include an important link along busy Stenton Avenue. Once complete, this trail will offer a significant off-road alternative to bicyclists and walkers alike.

Relevance – Montgomery County's trail network includes three routes through Whitemarsh Township. Providing access them is a key goal of this study.



Location – **Green Ribbon Trail
along Wissahickon Creek**

Characteristics – *The Green Ribbon Trail runs adjacent to Wissahickon Creek. This section of Green Ribbon trail, south of Lafayette Avenue, is being improved by Montgomery County. When complete, it will be a wide, multi-use trail.*

Relevance – *The portion of the Green Ribbon Trail north of Lafayette Avenue is envisioned as remaining an earthen foot path, not suitable for bicycles.*



Location - **Center Avenue to Robin Lane**

Characteristics – *This short paved path is one of several thoughtful connections that have been built to connect Whitemarsh Township's neighborhoods. Intended mainly for foot traffic, its narrow width encourages bicyclists to go slowly or dismount.*

Relevance – *This path allows school children to walk to nearby Whitemarsh Elementary School. Without this connecting path, a walker or bicyclist would need to detour over half a mile, part of that along busy Joshua Road.*



PROJECTED USES

A complete walking, and bicycling system of trails and paths will encourage such activities as

- Bicycling for pleasure, and travel to local destinations
- Walking for pleasure, and travel to local destinations
- Linking with trains and busses: the complete trail system will connect with major bus, and and train routes such as the R5 and R6 Regional Rail lines.

G. Determination of Feasibility

The plan that follows is a series of recommendations that determine a feasible township-wide network of pedestrian and bicycle routes. The proposed network will be implemented piece by piece over time. The formula for determining the feasibility of each piece is a measure of three primary factors – Public Support, Financing and Constructability. It is important when determining the feasibility of each specific component of the plan, to weigh and balance these three factors.

Public Support – Given adequate public support over time, the township will be able to garner funding to accomplish the significant goals and visions of this plan and with continued public support will continue to provide valuable future enhancements that will add to the quality of life of the residents and visitors of Whitemarsh. In planning the network, this feasibility study determines a realistic demand and potential for such a network at the “larger township-wide planning scale” and prepares the Township for the next phases of preliminary design that includes landowner coordination, planning, and engineering that result in preparation of construction plans.

Specific and “smaller scale” projects and segments of the plan have not yet been evaluated for localized demand or public support. It is important not to overlook the importance of communicating and coordinating with landowners before they see a plan project proposed thru, on, or adjacent to their property. Proceeding in this diplomatic way will suggest a sensitive design and implementation approach that listens to the demands, needs and considerations of the various landowners.

Financing – To assist in the determination of financial feasibility, an opinion of probable cost has been provided that outlines the construction costs associated with each segment of the township-wide network. The overall implementation of the pedestrian and bicycle network requires three primary categories of cost – Design, Acquisition and Construction. Design and Construction cost have been estimated in the Preliminary Opinion of Cost Tables (Appendix B). Acquisition costs vary significantly and cannot be usefully evaluated in this planning level study.

A list of a variety of funding sources for trails, pedestrian and bicycle connection projects has also been included. The type of funding pursued for each specific project, – whether Federal, State, County or Local monies – will also determine the degree of public participation, level of design documentation and amount of environmental consideration necessary to meet the financing regulations. For example, a project using Federal funding will be required to meet more stringent social, environmental and technical regulations than a project implemented solely with township monies. Those trails, side-paths, and bike routes running along or crossing roads under PennDOT jurisdiction will require more review and documentation than those segments on township roads. Properties on the historic register or within flood plains will also require higher degrees of review.

Constructability – The network proposed here was visually scouted and data was collected thru a variety of methods to determine the construction feasibility of each recommended link. The plan was evaluated based on local knowledge and the judgment of design professionals. As specific projects move toward the design phase and more detailed knowledge of physical and environmental factors is developed, the feasibility of individual segments of the network may need to be re-evaluated.

The selection of various segments of the network was based on the relative ease or difficulty of construction. For instance, two projects may have similar support and financial feasibility but may have different physical restrictions. One segment may require a new bridge while the other may simply require an earthen bank to be re-graded for a short length in order to allow a particular connection to be made. The project that requires the bridge may be less viable due the cost involved in overcoming its physical obstacle. This study has also attempted to generally identify which segments of the network will be more “difficult to implement”.

Three separate jurisdictions are responsible for the roadways along which sidewalks or paths are proposed. The PennDOT "Type 10" map excerpted below uses colors to differentiate these. State roads are depicted as red lines, township roads are depicted as violet (purple) lines. County roads are labeled variously "County Rd" or "Co Rd." Ridge Pike, and Butler Pike east of North Lane, are the only county-owned roads in Whitemarsh Township. Red labels indicate the State Route number of each state-owned road.

