

trail priorities

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Upper Merion Township, Montgomery County

Township-Wide Pedestrian & Bicycle Network

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DRAWN BY: BCB
CHECKED BY: APT
DATE: NOV 2005
PROJECT NO.: UMT-TRAI
TITLE: PRIORITY ROUTES: TRAIL
DWG NO.: PRIOR 1

MAP KEY

- EXISTING SEPTA RT 100 RAIL SYSTEM
- TRANSIT STOP
- PROPOSED BRIDGE

PEDESTRIAN NETWORK

- PROPOSED ROUTE - ON EXISTING SIDEWALK / QUIET NEIGHBORHOOD STREET
- PROPOSED ROUTE - TO BE IMPLEMENTED AT SIDE OF ROAD
- PROPOSED ROUTE - DIFFICULT TO BE IMPLEMENTED AT SIDE OF ROAD
- PROPOSED MULTI-USE TRAIL - UPGRADE EXISTING PATH, ROAD, OR ABANDONED RAIL
- PROPOSED MULTI-USE TRAIL - TO BE IMPLEMENTED
- PROPOSED FOOT PATH
- EXISTING SCHUYLKILL RIVER / CHESTER VALLEY / VALLEY FORGE TRAILS (MULTI-USE)

BICYCLE NETWORK

- PROPOSED BIKE ROUTE (ON ROAD)
- PROPOSED BIKE LANE / WIDE SHOULDER
- PROPOSED BIKE ROUTE -- DIFFICULT TO IMPLEMENT

3. Priority Pedestrian (Sidewalk) Projects

Priority walking route projects that are to be built by the Township have been highlighted on the Pedestrian Priorities (Sidewalks) drawing (see *Dwg # PRIOR 2*) in YELLOW.

Priority trails identified on the Trail Priorities drawing (see *Dwg # PRIOR 1*) to be built by the Township are highlighted in BLUE and overlap with walking routes. Priority projects that are to be built by others continue to be highlighted in GREY.

- The prioritized pedestrian network will utilize 5.5 miles of Upper Merion’s existing sidewalks; indicated on the map in RED.
- The prioritized pedestrian network will only need to construct 2.3 miles of sidewalks/side-paths ; indicated on the map in PINK.
- The entire pedestrian network can be completed if 1.4 miles of special design considerations are solved; indicated on the map in ORANGE.

Pedestrian Network Ranking Priority System

The City of Eugene, Oregon, has developed a system that has been adopted by PennDOT to aid governments in ranking sidewalk projects in order of importance. Although local circumstances should always be of the highest priority, this point based system allows planners to objectively analyze sidewalk improvements. This study proposes the minimum pedestrian network to make the Township walk-able. In order to do this many segments of the system must be implemented. By following the table below and adding street classification points to the combined pedestrian attractor points* the Township can begin to set priorities for the development of segments of the pedestrian network. (*For example: pedestrian route may have more than one attraction, such as two commercial facilities making the combined pedestrian attractor points total 20.)

PEDESTRIAN SYSTEM PRIORITY RANKING SYSTEM	
CLASSIFICATION AND PEDESTRIAN ATTRACTORS	
<i>STREET CLASSIFICATION</i>	POINTS
Sidewalks needed on major arterials (not including limited access)	20
Sidewalks needed on minor arterials	15
Sidewalks needed on collector streets	10
Sidewalks needed on busy local streets (1000 ADT or above)	5
MAJOR PEDESTRIAN ATTRACTORS	
School Location - Sidewalks within a 1/4 mile radius of school	5
Typical School Walking Route - Streets located within a 3/4 mile to one mile walking radius and which provide a direct route and serve as a pedestrian collector for other streets (add to school location)	5
Parks and Recreation - Sidewalks within 1/4 mile radius of park and recreation facility	10
Commercial Facilities - Sidewalks within 1500 feet of commercial areas	10
Link to Public Transit - Sidewalks on streets that serve bus routes or regional rail lines. Proximity to stops/stations are also a priority.	10



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pedestrian priorities (sidewalks)

MAP KEY

- EXISTING SEPTA RT 100 RAIL SYSTEM
- TRANSIT STOP
- PROPOSED BRIDGE

PEDESTRIAN NETWORK

- PROPOSED ROUTE - ON EXISTING SIDEWALK / QUIET NEIGHBORHOOD STREET
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BICYCLE NETWORK

- PROPOSED BIKE ROUTE (ON ROAD)
- PROPOSED BIKE LANE / WIDE SHOULDER
- PROPOSED BIKE ROUTE -- DIFFICULT TO IMPLEMENT

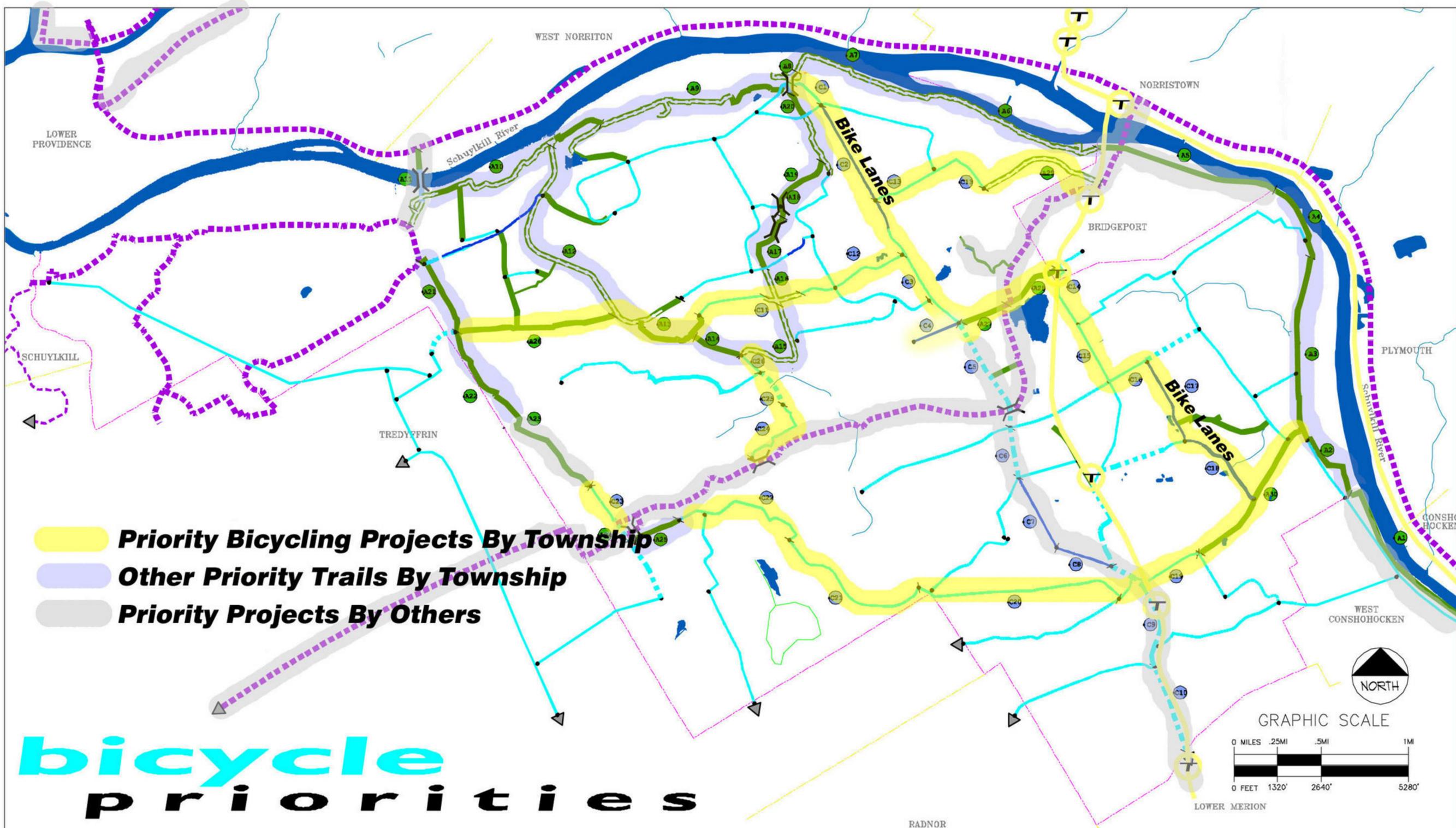
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CHECKED BY RPT
DATE NOV 2005
PROJECT NO. UMT-TRAI
TITLE PRIORITY ROUTES: PEDESTRIAN
DWG NO. PRIOR 2

4. Priority Bicycle Projects

As shown in the Bicycle Priorities map (see *Dwg # PRIOR 3*), while many routes and segments throughout the Township have been identified as recommended bicycle routes, it may not be cost effective for the Township to implement the entire system at once. Therefore, this study has identified a “bare bones” network prioritizing the minimum selected bike routes to make the Township more bike-friendly. This map shows only the prioritized routes of the bicycle network that double-up with certain segments of the multi-use trail network. Priority bicycle route projects that are to be built by the Township have been highlighted on the map in YELLOW. Priority trails, identified in on the Trail Priorities map (see *Dwg # PRIOR 1*) to be built by the Township are highlighted in BLUE. Priority projects that are to be built by others continue to be highlighted in GREY.

- The prioritized bicycle network will utilize 10.8 miles of Upper Merion’s existing roadways for “share the road facilities; indicated on the map in AQUA.
- The prioritized bicycle network will only need to construct 2.8 miles of bike lanes/wide shoulders; indicated on the map in DARK BLUE.
- The entire bicycle network can be completed if 0.5 miles of special design considerations; indicated on the map in THICK DASHED AQUA LINES.



bicycle priorities

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Upper Merion Township, Montgomery County

Township-Wide Pedestrian & Bicycle Network

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TITLE: PRIORITY ROUTES: BICYCLE
DWG NO.: PRIOR 3

MAP KEY

- EXISTING SEPTA RT 100 RAIL SYSTEM
- TRANSIT STOP
- PROPOSED BRIDGE

PEDESTRIAN NETWORK

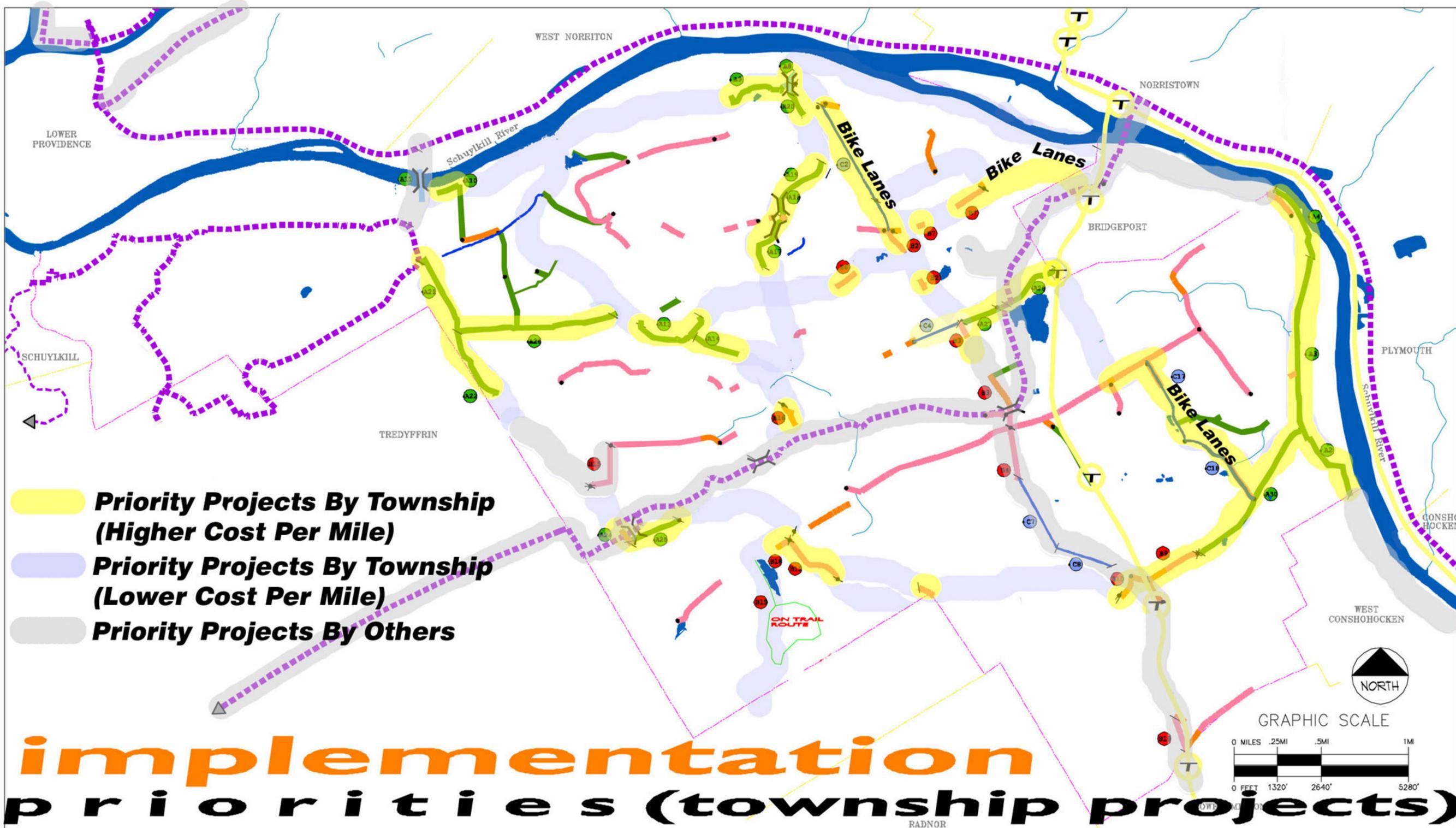
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BICYCLE NETWORK

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5. Priority Implementation Projects

As shown in the Implementation Priorities (Township Projects) map (see *Dwg # PRIOR 4*), only the prioritized segments of the trail, pedestrian and bicycle routes that need to be constructed at a higher capital cost. Priority projects that are to be built by the Township at a higher cost per mile have been highlighted in YELLOW. The remaining priority projects to be built by the Township at a lower cost per mile are highlighted in BLUE. Priority projects that are to be built by others continue to be highlighted in GREY.



implementation priorities (township projects)

MAP KEY		PEDESTRIAN NETWORK		BICYCLE NETWORK	
	EXISTING SEPTA RT 100 RAIL SYSTEM		PROPOSED ROUTE - ON EXISTING SIDEWALK / QUIET NEIGHBORHOOD STREET		PROPOSED BIKE ROUTE (ON ROAD)
	TRANSIT STOP		PROPOSED ROUTE - TO BE IMPLEMENTED AT SIDE OF ROAD		PROPOSED BIKE LANE / WIDE SHOULDER
	PROPOSED BRIDGE		PROPOSED ROUTE - DIFFICULT TO BE IMPLEMENTED AT SIDE OF ROAD		PROPOSED BIKE ROUTE -- DIFFICULT TO IMPLEMENT
			PROPOSED MULTI-USE TRAIL - UPGRADE EXISTING PATH, ROAD, OR ABANDONED RAIL		
			PROPOSED MULTI-USE TRAIL - TO BE IMPLEMENTED		
			PROPOSED FOOT PATH		
			EXISTING SCHUYLKILL RIVER / CHESTER VALLEY / VALLEY FORGE TRAILS (MULTI-USE)		

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DATE: NOV 2005
PROJECT NO.: UMT-TRAI
TITLE: RECOMMENDED ROUTES: PEDESTRIAN
DWG NO.: PRIOR 4

D. Analysis of Expense and Revenue

The analysis of expense and revenue is really a question of how the proposed network facilities will operate. Are there admission fees for the users of a new sidewalk? Must you be a member to walk on a trail or ride on a bike route? The most likely answer is no.

The proposed network is not conceived to be supported by fee based activities, such as an annual membership or seasonal usage fee. The Township must be aware that financing this trail network will fall more on the public expense side than on the public revenue side; however, pathways and bikeways can add to the success of the local private sector and the associated tax revenues.

Economic Impact of Walking and Bicycling Facilities

Trails, side-paths and bike routes have offered many communities greater prosperity by opening new means of transportation and by attracting recreational tourists. For example, on the northern Outer Banks of North Carolina a ribbon trail and regional bicycle network attracted 680,000 visitors in one year who bicycle in the area. This number represents 17% of all tourists in the area but a study has concluded that bicyclists generate an economic impact of \$60 million dollars annually. In this case, over a 10 year period, \$6.7 million dollars of public funds were used to widen shoulders around the region and create multi-use paths to make a safe haven for recreational bicyclists. Bicyclist spending in the area has created and supported over 1,400 jobs. The annual economic impact of the cyclist is nine times what it cost to build the facilities (see North Carolina Department of Transportation, *Pathways to Prosperity: The Economic Impact of Investments in Bicycle Facilities: A Case Study of the North Carolina Northern Banks*: April 2004).

Closer to home, in 1998, the half-finished Great Allegheny Passage generated a direct economic impact of \$14 million dollars per year and raised property values. Trails and Greenways enhance the natural beauty of communities while also enhancing property values – in some cases up to a 9% increase - and have been shown to “make adjacent properties easier to sell.” (see Rails to Trails Conservancy, *Economic Benefits of Trails and Greenways*: 2004). With the huge success of the Schuylkill River Trail, the Philadelphia Bicycle Network, and the increasing variety of regionally significant trails, the already popular destination of Upper Merion Township has the potential of tapping into economic impact of the estimated 500,000 annual Schuylkill River Trail users. In many instances, small trail related businesses, such as snack stops, bicycle rental facilities, and cafes have already developed to serve the Schuylkill River Trail users and will most likely create new business opportunities within the Township.

1. Maintenance and Management Plan

Overview and Description

The successful operation of the Multi-Use Trail Network, the Bicycle Network, and Pedestrian Route Network will rely on a continued and regular program for maintenance of the trail, routes and support facilities. It is recommended that Upper Merion Township develop a *Maintenance and Management Program*. A *Maintenance and Management Program* will not only ensure a quality recreational or travel experience for the user but is also an essential ingredient of a risk management plan for the operator of the networks. Sufficient manpower and monetary resources must be devoted to a regular maintenance schedule in order to meet these goals.

The **9.0 mile Schuylkill River Trail West**, the **10.0 miles of Priority Multi-Use Trails**, and the **4.1 miles of Other Trail Network Segments** (totaling 23.1 miles in trail length) will consist of a “paved surface” trail, several major bridges, numerous smaller bridges and culverts, and trail amenities such as signage and access control devices all requiring regular maintenance.

The **10.9 miles of Priority Pedestrian Network** of concrete sidewalks, the **24.5 miles of Other Pedestrian Network Segments** (totaling the 35.4 miles of pedestrian network) when completed will have approximately **134 major network intersections** and **8 major mid-block crossings** each requiring pedestrian route way-finding signage, any necessary safety lights for these pedestrian crossings, general safety signage throughout, and will require the development of a maintenance plan by either the public agency or the adjacent private landowners.

The **13.5 miles of Priority Bicycle Network**, and the **32.5 miles of Other Bicycle Network Segments** (totaling the 46 miles of bicycle network) when completed, will have approximately **87 major network intersections** requiring bike route way-finding signage, general safety signage throughout, striping of 3.9 miles of roadway, a bicycle parking facility plan, and a plan to keep the bicycle lanes debris-free.

Maintenance Goals

The maintenance program for the Schuylkill River Trail, Local Multi-Use Trails, the Bicycle Network, and Pedestrian Route Network should provide for a safe, clean, attractive facility for use by cyclists, hikers, joggers, dog walkers, roller bladders, horseback riders, and all other users. The majority of maintenance expenses will fall on the Township.

Schuylkill River Trail West and Other Multi-Use Trails Management Plan

The proposed Schuylkill River Trail West and the local connections are essentially a linear greenway or linear park connecting a series of riverfront lands and Township parks. Using precedents set in the development of the Schuylkill River and Perkiomen Trails, preliminary maintenance and operation of the Schuylkill River Trail West should be the responsibility of the Upper Merion Township Park and Recreation Department or, if possible, integrated it into the operations of the Montgomery County Trail System. Within the Montgomery County Trail System, Upper Perkiomen Park currently maintains portions of the Perkiomen Trail and the Schuylkill River Trail while other park entities maintain other sections of the trail. This creates a partnership of responsibility between several parks.

This study recommends that maintenance of the Schuylkill River Trail West be similar in nature to that agreement. The park rangers and maintenance personnel currently responsible for the operation and maintenance of Hueser Park, should share in the operational and maintenance responsibilities of the trail corridor with Upper Merion Boat House personnel and Walker Park personnel. The divisions and extents of responsibility will need to be agreed upon before the trail can open.

Upper Merion Township is ideally suited for channeling the efforts of local organizations, governmental units, businesses, civic groups, and individuals in planning, decision-making, and preparing for the management of the trail. Ultimately, a public agency should own and operate the trail to assure that maintenance and operation funds are dedicated as needed.

The Township's operation budget may only be large enough to take care of the general safety of users and other increased amenities such as additional landscaping or plantings may be left out of the plan. The most practical thing to do to get started on trail maintenance is to enter into agreements with clubs and organizations to adopt segments of the trail. These should be formal cooperative agreements that clearly define the roles and responsibilities of each party. Developing an effective maintenance management system is an on-going process. As the Township works with these groups, new and more effective maintenance methods and techniques may be developed. It is important for people to recognize that creativity and experimentation with different approaches will help to improve maintenance operations.

Schuylkill River Trail West and Other Multi-Use Trail Maintenance Requirements

The following table identifies major maintenance tasks required for the operation of the Schuylkill River Trail West and other multi-use trail facilities. A description, frequency and general comments for each activity are outlined in the table that follows. Both short-term periodic maintenance tasks, such as mowing, and long term tasks, such as trail resurfacing, are considered.

MAJOR MAINTENANCE TASKS - SCHUYLKILL RIVER TRAIL WEST/MULTI-USE

ACTIVITY	DESCRIPTION	FREQUENCY	COMMENTS
Mowing	4' 0" min. wide each side of trail	3-4 times annually	flail type mower best for less debris on trail
Pruning	Prune woody vegetation 4' 0" back from sides of trail – 14' 0") vertical clearance – remove invasive vines	Annually	Vegetation Management Program may reduce this task long term
Removal of Tree Limbs	Evaluation/removal of unhealthy or dead limbs	Annual	
Signage	Maintain boundary signs at 1/10th mile intervals; Maintain directional & informational signs	Paper signs - annually Permanent signs - periodically as required	
Access Control	Replace damaged access control devices	Periodically as required	Estimated frequency: 10% annually due to vandalism
Trail Surface (if Hard Paving)	Resurface	Every 10 years	
Trail Surface (if Soft Surface)	Repair surface damage from vehicles, erosion, etc.	Periodically as required	
Drainage Structures	Clean inlets, keep swales clear of debris	Minimum - Annually	Complete rehabilitation during construction dramatically reduces this maintenance task after storms
Litter Pick Up	Trailside-litter pickup Access area litter pickup	Weekly or as required Weekly	
Trash Collection	Removal of trash from receptacles at access areas	Weekly	Problems with non-user trash. Some agencies do not have trash containers at access points for this reason
Trail Bridges	Inspection by P.E. every 2 years Maintenance of bridge to ensure structural integrity	Bi-annually by Upper Merion Township Engineering Consultants	Inspection by staff during normal cycle to identify possible problems
Major Bridges	Various Proposed Ped/Bike Bridges Proposed Ped/Bike Bridge over Norfolk Southern	Bi-annually but Varies	Township to provide Inspection Program or share with adjacent municipalities or County
Graffiti Control	Repaint bridges/abutments as required	Annual/spot basis	Possibly include trail logo/name

Schuylkill River Trail West and Other Multi-Use Trails Maintenance Costs

Information regarding maintenance costs for trails is difficult to obtain. We have found that maintenance cost tracking for trails is not done either because the trail is too new or because it is maintained as part of a larger facility such as a park. Even though each governing body has its individual resources and approaches to maintaining trails, we were able to obtain some per mile costs for trails similar to those proposed in Upper Merion.

Montgomery County has put together a basic estimate for the maintenance of one mile of paved trail over a one year time period. This number includes the estimated labor cost for two maintenance staff who mow, trim, prune, remove trash, repair fences, and do minor repairs to areas of erosion, etc. We have not included the annual equipment costs as there is no real way to compare the County’s numbers to Upper Merion’s resources. Labor alone can cost up to \$8,000 dollars per annum per mile, for a 10’ wide paved trail with 2’ grass shoulders, according to Montgomery County. If one includes equipment charges, a mile of trail can cost Montgomery County as much as \$29,700 per year. This seems excessive for Upper Merion.

Chester County has published some maintenance costs for the 3 mile Struble Trail in the 2005 Rails to Trails Conservancy publication entitled “*Rail-Trail Maintenance & Operation: Ensuring the Future of Your Trail – A Survey of 100 Rail-Trails*”. This budget includes Labor, Equipment Costs, Materials Costs, and Transportation Costs with a grand total nearing \$19,600 per year. If evenly distributed per mile, this would mean that Chester County spends approximately \$6,500 per year per mile on the maintenance of the Struble Trail.

Additionally, the 2001 Rails to Trails Conservancy publication entitled “*Trails for the 21st Century*” estimates a typical Annual Maintenance Cost for a paved trail to be about \$6,500 per mile.

For the purposes of this study, we suggest that Upper Merion anticipate approximately \$7,000 per mile per year for multi-use trail maintenance. If there are special maintenance considerations, such as bridges or tunnels that are in need of repair, this cost can be doubled. Once the trail is in operation the managing agency will have to develop a tracking system to document maintenance costs.

During the first year after development, if we use a figure of **\$7,000 per mile** to estimate maintenance costs, the **19 miles of Priority Multi-use Trails** will require a maintenance budget nearing **\$133,000 per year**, not including bridge structures. This figure should be re-evaluated at the end of the first year to determine its accuracy, particularly in light of the bridges along the trail, and should then be adjusted accordingly. This "per mile" cost could be used for fundraising purposes as well as to solicit volunteer help for trail maintenance.

If all of the recommendations in this study are implemented, the entire **23 miles of Multi-Use Trail Network** will **total \$161,000** per year in maintenance costs.

MULTI-USE TRAILS MAINTENANCE COST

COST PER MILE PER YEAR	PRIORITY TRAILS MILEAGE	PRIORITY TRAILS COST PER MILE PER YEAR	OTHER TRAIL SEGMENTS MILEAGE	OTHER TRAIL SEGMENTS COST PER MILE PER YEAR	TOTAL YEARLY MAINTENANCE
\$7,000	19 miles	\$133,000	4 miles	\$28,000	\$161,000

Pedestrian Network Management Plan

The proposed Pedestrian Network is essentially an extension of the existing Township-wide sidewalk and pathway system and will most likely maintain the established management framework already in use by the Township. Adopted in 2000, Chapter 127 of the *Code of the Township of Upper Merion* makes the owners of the land on or adjacent to the walkway responsible for the maintenance of sidewalks and the area between the property line and the roadway.

The development of new sidewalks and paths, according to Chapter 141 (1960), are to be established on all highways and alleys of Upper Merion Township. That being stated, only 3.2 miles of new priority sidewalks/paths are necessary to connect together the 10.9 miles of proposed priority walking routes, but this will require a significant investment of capital and operational expenditure.

Based upon the scope of this work, this study recommends that the maintenance and implementation sections of the *Code of the Township of Upper Merion* be reviewed and adapted as necessary to become new written "tools" by which Upper Merion Township could implement and assign maintenance responsibilities for the proposed network in the form of a *Pedestrian Network Management Plan*. To ensure that a safe walking network is realized, it is very important early on in the planning process to address in a management plan the issues of ownership, management, and liability. This is the best way to reduce liability for all parties involved.

The *Pedestrian Network Management Plan* should include maintenance considerations for sidewalks and walkways, crosswalks and curb ramps, shoulders, overpasses and underpasses, work zones, and traffic control devices. Major maintenance tasks are listed on the following pages.

Pedestrian Network Maintenance Requirements

The following tables identify major maintenance tasks required for the operation of a pedestrian network. A description, frequency and general comments for each activity are outlined. This information is extracted from FHWA, *Planning, Design and Maintenance of Pedestrian Facilities*, 1989, and may be found in more detail by consulting this publication.

MAJOR MAINTENANCE TASKS — PEDESTRIAN NETWORK

ACTIVITY	DESCRIPTION	FREQUENCY
Sidewalks and Walkways		
1. Tree roots cracking and heaving the sidewalk.	1. Remove failed sidewalks, cut roots and install new sidewalk. A local arborist should be contacted prior to removing large roots.	As necessary
2. Section pop-up of vertical height greater than 13 mm (1/2 in).	2. Replace defective section or provide temporary asphalt shim.	As necessary
3. Cracked or spalling surface and poorly placed temporary patches.	3. Replace defective sections.	As necessary
4. Snow and ice buildup and ponding from snow melt.	4. Enact and enforce local regulations requiring abutting land users to perform timely clearance activity.	As necessary
5. Separation of expansion and construction joints so that space between adjoining sections are greater than 13 mm (1/2 in).	5. Hire private contractor to clear sidewalk and assess cost to abutting land users. Fill joint with hardening expansion compound.	As necessary
6. Trash, loose sand, oil and grease on walkways.	6. Serve notice to abutting land owners to clean and maintain sidewalks.	As necessary
7. Materials, signs, vending machines, etc. restricting effective sidewalk width.	7. Require responsible parties to remove obstructions.	As necessary
8. Low hanging tree limbs, bushes, weeds and other foliage growing into sidewalk and/or posing obstructions and sight restrictions.	8. Enact and enforce local regulations requiring abutting land users to perform timely clearance activity. Hire private contractor to clear sidewalk and assess cost to abutting land users.	Annually

MAJOR MAINTENANCE TASKS — PEDESTRIAN NETWORK

ACTIVITY	DESCRIPTION	FREQUENCY
Crosswalks and Curb Ramps		
1. Curb ramp surface is worn into a glazed and slippery surface.	1. Replace curb ramp. Textures surface with shallow, transverse grooves.	As necessary
2. Poor drainage causing water retention in gutter area.	2. Clean gutter and catch basin area.	As necessary
3. Street rutting causing Water ponding in crosswalk.	3. Resurface street or crosswalk area.	As necessary
4. Street repaving resulting in step or transition problem at bottom of curb ramp.	4. Repaving contract specifications should specify a maximum of 6 mm (1/4 in) vertical edge between new pavement and gutter or curb ramp.	As necessary
5. Slippery manhole covers in crosswalk.	5. When manholes must be located in crosswalk, they should have slip resistant cover design and be flush with surface and visible.	As necessary
6. Snow and ice buildup and ponding from snow melt.	6. A maintenance program should be developed to ensure snow and ice removal.	As necessary
7. Stop bar and crosswalk pavement markings.	7. Identify high volume locations that require additional refurbishing activities.	As necessary
8. Separation of expansion and construction joints so that space between adjoining sections are greater than 13 mm (1/2 in).	8. Fill joint with hardening expansion compound.	As necessary

MAJOR MAINTENANCE TASKS — PEDESTRIAN NETWORK

ACTIVITY	DESCRIPTION	FREQUENCY
Shoulders		
1. Debris, trash and loose sand on shoulder.	1. A maintenance program be developed to provide for regular sweeping of shoulders.	Weekly or as required
2. Snow and ice buildup.	2. A maintenance program should be developed to ensure snow and ice removal.	As necessary
Overpasses and Underpasses		
1. Falling objects from overpass.	1. Enclose overpass with chain link fencing.	As necessary
2. Sparse pedestrian use of underpasses.	2. Underpass should be well lighted to provide a feeling of personal security.	As necessary
3. Worn step or ramp surfaces.	3. Overlay, replace or texturize to slip free and unbroken surface.	As necessary
4. Snow and ice buildup and ponding from snowmelt.	4. A maintenance program should be developed to ensure snow and ice removal.	As necessary
5. Section pop-up of vertical height greater than 13 mm (1/2 in).	5. Replace defective section or provide temporary asphalt shim.	As necessary

MAJOR MAINTENANCE TASKS — PEDESTRIAN NETWORK

ACTIVITY	DESCRIPTION	FREQUENCY
Work Zones		
1. Temporary pathways at work zones are typically constructed of relatively inexpensive, short life materials	1. The pathway surface should be frequently inspected. Pathway surface materials constructed of wood should be treated with no slip strips or surface treatment. Surface materials with holes, cracks or abrupt changes in elevation should be replaced.	Frequent inspections
2. Detour pedestrian paths place greater volumes on detour roadway.	2. The detour pathway should be checked periodically for: <ul style="list-style-type: none"> ● Adequacy of pedestrian and vehicular signal timing. ● Proper pedestrian detour signing. ● Pedestrian traffic hazards. ● Proper motorist information. 	Periodic inspections
3. Construction materials debris in pathway.	3. Require the contractor to maintain a clear pathway.	Frequent inspections
4. Changing pedestrian accommodation needs due to dynamic construction activities.	4. Perform periodic inspection to ensure pedestrian information needs keep pace with construction activities.	Periodic inspections
5. Damaged traffic barriers.	5. Damaged traffic barriers should be replaced and their adequacy reevaluated to ensure pedestrian safety.	As necessary
Traffic Control Devices		
1. Signs must be readily visible to pedestrians.	1. Inspect the signs from the vantage point of the pedestrian who is expected to read it. The signs should not be obscured by other signs or foliage.	Minimum - Annually
2. Pedestrian signs must be at a mounting height that can be read by all pedestrians,	2. If the sign extends into an accessible route they must be mounted in accord with the MUTCD to permit safe passage under the sign. Signs mounted on a wall should be mounted at a height between 1370 millimeters and 1675 mm (54 in and 66 in).	At implementation
3. Pedestrian signals must be maintained,	3. Pedestrian signals should be periodically <ul style="list-style-type: none"> ● Inspected for damage due to turning vehicles. If damaged, consider back bracketing the pedestrian assembly ● Refurbish, including lens cleaning and bulb replacement 	Periodic inspections

Pedestrian Network Maintenance Costs

Information regarding maintenance costs for sidewalks is a large and varied field. Generally maintenance cost tracking for sidewalks/paths is not done because they are typically maintained as part of a roadway and as such, maintenance is the responsibility of the adjacent homeowner, especially with regard to snow removal. For sidewalks/paths where cost can be estimated, these costs generally range between \$1,000 to \$2,000 per mile per year for typical concrete sidewalks. If there are special maintenance considerations such as bridges or tunnels or lighting that are in need of repair, this cost can be significantly increased. Once a new sidewalk/path is developed, the managing agency will have to develop a tracking system to document maintenance costs.

We recommend that the responsible agency use a figure of **\$1,500 per mile** to estimate maintenance costs during the first year after development. This estimate does not include snow removal. Therefore, the **10.9 miles of Priority Sidewalks** will require a maintenance budget nearing **\$16,350 per year**, not including bridge structures. This figure should be re-evaluated at the end of the first year, particularly in light of the bridges along the trail, to determine its accuracy and should then be adjusted accordingly. The "per mile" cost could be used for fundraising purposes as well as to solicit volunteer help for trail maintenance.

If all of the recommendations in this study are implemented, and the additional **24.5 Miles of Other Pedestrian Network Segments** are also maintained, the entire **34.4 miles of Pedestrian Network** will total **\$53,100** per year in maintenance costs.

In reality, this cost could be significantly higher depending on adjacent ownership and whether the Township chooses to make it a policy to keep the pedestrian routes recommended in this study clear of snow and ice in the winter. It could be significantly lower if, for instance, the adjacent land owner is responsible for the repair and maintenance of their sidewalk, then the Township would only be responsible for the sidewalks adjacent to Township land or those lands under the township's management.

OPINION OF SIDEWALK MAINTENANCE COST

COST PER MILE PER YEAR	PRIORITY SIDEWALK MILEAGE	PRIORITY SIDEWALKS COST PER MILE PER YEAR	OTHER SIDEWALK SEGMENTS MILEAGE	OTHER SIDEWALK SEGMENTS COST PER MILE PER YEAR	TOTAL YEARLY MAINTENANCE
\$1,500	10.9 miles	\$16,350	24.5 miles	\$36,750	\$53,100

Bicycle Network Management Plan

In general, the bicycle network will become part of the routine maintenance of the existing roadway system throughout Upper Merion Township. Many of these roadways are under PennDOT jurisdiction, however if not maintained by PennDOT, a detailed maintenance agreement should be developed between the Township and PennDOT prior to the designation of any bicycle route for a particular roadway. The following excerpt describing the operation and maintenance of bicycle facilities is from the ASHTO *Guide for the Development of Bicycle Facilities*, 1999:

The jurisdictions responsible for the operation, maintenance and policing of bicycle facilities should be established prior to construction. In addition to construction costs, operating and maintenance costs should be considered and included in the overall budget for the facility. Neglecting routine maintenance eventually may render bicycle facilities un-ride-able and such deteriorating facilities may become a liability to the state or community. Bicyclists should be encouraged to report bicycle facilities that are in need of maintenance. A central contact person who can authorize maintenance work should be designated to receive such reports.

A smooth surface, free of potholes and debris, should be provided on all bikeways. Glass, sand, litter and fallen leaves often accumulate on bike lanes, paved shoulders and shared use paths; therefore, regular sweeping is desirable. Pavement edges should be uniform and should not have abrupt drop-offs. Signs and pavement markings should be inspected regularly and kept in good condition, and if determined to be no longer necessary, promptly removed. Highways with bicycle traffic may require a more frequent and higher level of maintenance than other highways.

For shared use paths, attention should be given to maintaining the full paved width and not allowing the edges to ravel. Trees, shrubs and other vegetation should be controlled to provide adequate clearances and sight distances. Trash receptacles should be placed and maintained at convenient locations. Seeded and sodden areas in the vicinity of shared use paths should be mowed regularly. Snow plowing should be used to remove snow from bikeways because de-icing agents and abrasives can damage bicycles. Also, enforcement is often necessary to prevent unauthorized motor vehicles from using a shared use path.

The routine maintenance of roadways and bikeways will usually provide good riding conditions. Several bicycle facility improvements can be implemented during routine maintenance activities. Consideration also can be given to adjusting lane widths and providing wider outside curb lanes for bicyclists during re-striping operations. The addition of edge lines can better delineate a shoulder, especially at night. When shoulders are resurfaced, a smooth surface suitable for bicycle riding should be considered.

Bicycle Network Maintenance Requirements

The following table identifies major maintenance tasks required for the operation of a bicycle network. A description, frequency and general comments for each activity are outlined. Both short-term periodic maintenance tasks and long term tasks are considered.

MAJOR MAINTENANCE TASKS — BICYCLE NETWORK

ACTIVITY	DESCRIPTION	FREQUENCY	COMMENTS
Sweeping	-Removal of broken glass, leaf litter, sand, stones, trash, etc.	3-4 time annually	Always sweep in spring to remove anti skid materials left from winter
Pruning	-Prune woody vegetation 1.2m (4') back from sides of roadway – 4.2m (14') vertical clearance – remove invasive vines	Annually	Vegetation Management Program may reduce this task long term
Removal of Tree Limbs	-Evaluation/removal of unhealthy or dead limbs	Annual	
Signage	- Maintain directional & informational signs	Paper signs - annually Permanent signs - periodically as required	
Pothole repair and edge repair	-Repair damaged roadway surfaces to ensure safe route	Periodically as required	
Snow Removal	-Ensure snow removal of entire roadway from curb to curb to ensure route is usable	As required	Task is included in existing roadway maintenance costs
Bicycle Safe Grates	-Replace any stormwater grates that have parallel openings to the curb with perpendicular openings	Implementation and inspect after any roadwork	Should be considered during implementation
Drainage Structures	-Clean inlets, keep swales clear of debris	Minimum - Annually	Complete rehabilitation during construction dramatically reduces this maintenance task after storms

Bicycle Network Maintenance Costs

Information regarding maintenance costs for bicycle routes is also difficult to obtain. Just like sidewalks maintenance cost tracking for bike routes is not done either because the route is maintained as part of a roadway system. For bicycle routes where cost can be estimated, these costs generally range between \$1,000 to \$2,000 per mile per year for a network similar to the Philadelphia Bikeway Network. Once the bicycle network is developed, the managing agency will have to develop a tracking system to document maintenance costs.

We recommend that the responsible agency use a figure of **\$1,500 per mile** to estimate maintenance costs during the first year after development. Therefore, **13.5 miles of Priority Bicycle Network** will require a maintenance budget nearing **\$20,250 per year**, not including bridge structures. This figure should be re-evaluated at the end of the first year, particularly in light of the number of bridges along the trail, to determine its accuracy and should then be adjusted accordingly. The "per mile" cost could be used for fundraising purposes as well as to solicit volunteer help for trail maintenance.

If all of the recommendations in this study are implemented, and the additional **32.5 Miles of Other Pedestrian Network Segments** are also maintained, the entire **47.9 miles of Pedestrian Network** will total **\$69,000** per year in maintenance costs.

OPINION OF BICYCLE NETWORK MAINTENANCE COST

COST PER MILE PER YEAR	PRIORITY BICYCLE MILEAGE	PRIORITY BICYCLE COST PER MILE PER YEAR	OTHER BICYCLE SEGMENTS MILAGE	OTHER BICYCLE SEGMENTS COST PER MILE PER YEAR	TOTAL YEARLY MAINTENANCE
\$1,500	13.5 miles	\$20,250	32.5 miles	\$48,750	\$69,000

Township-Wide Network Maintenance Costs

A summary of the Township-Wide Network Maintenance Costs follows. It is our opinion that when fully implemented the Township should be prepared to budget a minimum of **\$169,600 dollars per year** for repair and maintenance costs for the **43.4 miles of Priority Network**. When the entire recommended Township-wide Network is constructed, the Township should be prepared to budget a minimum of **\$283,100 dollars per year** for repair and maintenance cost for the entire **104.4 mile Bicycle and Pedestrian Network**. This opinion does not include snow removal or equipment costs.

OPINION OF TOWNSHIP-WIDE NETWORK MAINTENANCE COST

TYPE OF FACILITY	COST PER MILE PER YEAR	PRIORITY NETWORK MILEAGE	PRIORITY NETWORK COST PER MILE PER YEAR	OTHER NETWORK SEGMENTS MILAGE	OTHER NETWORK SEGMENTS COST PER MILE PER YEAR	TOTAL YEARLY MAINTENANCE
MULTI-USE TRAILS ROUTES	\$7,000	19 miles	\$133,000	4 miles	\$28,000	\$161,000
SIDEWALKS ROUTES	\$1,500	10.9 miles	\$16,350	24.5 miles	\$36,750	\$53,100
BICYCLE ROUTES	\$1,500	13.5 miles	\$20,250	32.5 miles	\$48,750	\$69,000
TOTAL	–	43.4 miles	\$169,600	61 miles	\$113,500	\$283,100

E. Potential Funding Sources

1. Federal Level

Land and Water Conservation Fund (LWCF)

The LWCF was established in 1965 to help provide “close-to-home” park and recreation opportunities throughout the nation. Money for the fund comes from the sale or lease of non-renewable resources, primarily federal offshore oil and gas leases and surplus federal land sales. A large portion of the annual LWCF allocation goes toward acquisition of land for federal land management agencies; however, a portion of the money is provided to cities, counties and park districts to acquire land and develop parks. LWCF funds are provided to each state annually by the National Park Service. State funding is based on a population formula. A state administers the program through a State Liaison Officer, who recommends projects to the National Park Service for approval. Local governments are eligible applicants. Communities must be able to match LWCF grants with a 50 percent provision of funding or services.

In order to qualify for funding, a project must meet two criteria. First, the project must be primarily for recreation purposes, not transportation. Second, the organization leading the project must guarantee that the project will be maintained in perpetuity for public recreational use. Any deviation from recreational use must be approved by the National Park Service, and property of at least equal recreational value must be provided to replace the loss.

- **Americans for Our Heritage and Recreation provides an overview of the LWCF program at http://www.ahrinfo.org/lwcf_overview.html and links to the National Park Service and State Liaison Officers**
- **The National Park Service maintains an LWCF web site at <http://www.nps.gov/ncrc/programs/lwcf/index.html>**
- **Pennsylvania’s State Liaison Officer may be contacted at:
Bureau of Recreation and Conservation
PA Dept. of Conservation and Natural Resources
P.O. Box 8767
Harrisburg, PA 17105
Tel: 717-783-2659
<http://www.dcnr.state.pa.us/brc/grants/>**

Transportation Equity Act for the 21st Century (TEA-21)

The Intermodal Surface Transportation Efficiency Act of 1991, dubbed “ISTEA,” included funding for non-traditional transportation improvements which were categorized as transportation enhancements. This act provided \$3.3 billion nationwide over the six-year life of the Act for improvements such as pedestrian and bicycle routes, preservation of historic transportation structures, scenic beautification of transportation facilities, and other environmentally beneficial transportation projects. ISTEA expired in September of 1997; however, the transportation enhancements provisions have been included in its successor, the Transportation Equity Act for the 21st Century (TEA-21), signed into law June 1998. TEA-21 not only continued the visionary policies of its predecessor, but also provided more funding than ever before for non-motorized transportation modes, specifically bicycle and pedestrian modes. Under the new law, Pennsylvania is to receive nearly \$1.3 billion in transportation funding, a significant increase over ISTEA levels.

A relatively modest amount of the funds allocated to TEA-21 are available for local planning of bikeways and recreational trails. The act emphasizes coordinated overall planning and funding of projects at the state level and involvement by MPOs. All federal funding programs require conformity to plans developed by the states and MPOs.

For more information about TEA-21:

- **Go to the US Department of Transportation's TEA-21 home page at <http://www.fhwa.dot.gov/tea21/sumcov.htm>**
- **Contact the Delaware Valley Regional Planning Commission at:
The Bourse Building
111 S. Independence Mall East, 8th Floor
Philadelphia, PA 19106
215-592-1800
<http://www.dvrpc.org/>**

Project funding for pedestrian and bicycle projects is provided by TEA-21 through the following applicable mechanisms:

Surface Transportation Program and Transportation Enhancements Program

Surface Transportation Program (STP) funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects, such as maps, brochures, signage and public service announcements related to safe bicycle use and walking. Proposed projects must be designed primarily for transportation rather than recreation. TEA-21 adds the modification of public sidewalks to comply with the Americans with Disabilities Act as an activity that is specifically eligible for the use of these funds.

The most relevant element of the STP program to local government trail development is the opportunity to participate in transportation enhancements. The intent of the transportation enhancements is to creatively integrate transportation facilities into local communities and the environment. Ten percent of each state's annual STP funds are set aside for Transportation Enhancement Activities (TEAs). The law provides a specific list of activities that are eligible TEAs including: provision of facilities for bicycles and pedestrians, provision of safety and educational activities for bicyclists and pedestrians, and the preservation of abandoned railway corridors (including the conversion and use thereof for bicycle and pedestrian trails).

Pennsylvania is expected to receive \$120 million over the six-year life of TEA-21 for Transportation Enhancements. A few of the previously funded projects include:

- Provision of facilities for bicycles and pedestrians
- Provision of safety and education activities for bicycles and pedestrians
- Preservation of abandoned railroad corridors for bicycle and pedestrian trails

Transportation enhancements projects are eligible for a maximum of 80 percent federal funding, with 20 percent coming from a local government's match. A match may be made with dollars or in-kind services, and in some cases, other federal or state funding sources may be used as the match. Pennsylvania's program has been structured to have project sponsors fund the pre-construction phases of work, e.g., the design, right-of-way acquisition, and utility relocation work, with non-federal funding, and to then provide 100% federal funding for the construction phase. This generally results in about an 80/20 cost-sharing arrangement. There is one more round of funding to submit Transportation Enhancements projects during the life of TEA-21, which expires in 2003.

PennDOT provides staff to administer the program and give advice and technical assistance as necessary; however, individual MPOs (Metropolitan Planning Organizations) are usually responsible for coordinating and recommending transportation enhancements projects for their regions. Individual applicants submit their projects to the Delaware Valley Regional Planning Commission, the MPO for a five-county area in southeastern Pennsylvania and southern New Jersey. The applications are reviewed, prioritized, and a recommendation is forwarded to PennDOT for final review and then passed on to the State Transportation Commission for final adoption. A legal agreement, which establishes the federal and local money to be spent on the project, is signed between PennDOT and the sponsoring group.

Another ten percent of each state's STP funds is set aside for safety. The *Hazard Elimination* and *Railway-Highway Crossing Programs* are two programs under the safety category, which address bicycle and pedestrian safety issues. Each state is required to implement a Hazard Elimination Program to identify and correct locations that may constitute a danger to motorists, bicyclists, and pedestrians. Funds may be used for

activities, including a survey of hazardous locations, for projects on any publicly owned bicycle or pedestrian pathway or trail, or for any safety-related traffic calming measure. Improvements to railway-highway crossings shall take into account bicycle safety.

- **A useful web site for information on this program is the National Transportation Enhancements Clearinghouse at <http://www.enhancements.org>**

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PennDOT Web Site: <http://www.dot.state.pa.us/internet/secinet.nsf>

- **For more information, also go to the Federal Highway Administration's web site on bicycle and pedestrian provisions at <http://www.fhwa.dot.gov/environment/bikeped/BP-Guid.htm>**

Pennsylvania FHWA Division TE Coordinator

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Transportation and Community and System Preservation Pilot Program (TCSP)

TCSP provides funding for a comprehensive initiative including planning grants, implementation grants, and research to investigate and address the relationships between transportation, community, and system preservation and to identify private sector-based initiatives. In 1999, \$20 million was authorized for the first year of this pilot program, and \$25 million per year was authorized for 2000 through 2003. A total of \$120 million was authorized for this program for FYs 1999-2003. **TEA-21 was set to expire in September 2003, but Congress passed a series of extensions for funding through September 2004. As of that date the United States Congress has not taken any action to further the program, although it may yet do so. Contact your U.S. Senator or Representative for updated information.**

An interagency team evaluates applications for competitive TCSP Program grants. The team includes representatives from: Federal Highway Administration (FHWA), Federal Transit Administration (FTA), US Department of Transportation (DOT) Office of the Secretary, Federal Railroad Administration (FRA), Research and Special Programs Administration (RSPA)/Volpe Center, and the Environmental Protection Agency (EPA). TCSP Program grants can also be designated by Congress.

Some of the eligible projects include:

- Corridor preservation activities necessary to implement transit oriented development plans
- Traffic calming measures
- Spending policies that direct funds to high growth areas
- Urban growth boundaries to guide metropolitan expansion
- Green corridors that provide access to major highway corridors for efficient and compact development

States, local governments, metropolitan planning organizations (MPOs), and tribal governments are eligible to apply for TCSP Program funds.

- **For more information, go to the Federal Highway Administration's TCSP web site at <http://www.fhwa.dot.gov/tcsp/>**

Congestion Mitigation and Air Quality Improvement Program

Congestion mitigation and air quality improvement funds are authorized for transportation projects within non-attainment areas, such as Philadelphia, defined by the Clean Air Act Amendments of 1990. To be funded, projects must contribute to attainment of the National Ambient Air Quality Standards. Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use. Funding is provided through an 80 percent federal and 20 percent state or local match.

- **The Bureau of Transportation Statistics provides a guide to CMAQ funding called "A Clean Cities Guide: Applying For And Using CMAQ Funds". You can search for this book in local libraries by accessing the TLCat (Transportation Library Online Catalog). TLCat can be accessed from <http://ntl.bts.gov/link.cfm>**
- **See also the Federal Highway Administration's web site regarding CMAQ at <http://www.fhwa.dot.gov/environment/cmaqpgs/index.htm>**

National Highway System (NHS)

Funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System, including Interstate highways. The facilities must be principally for transportation. Funding is provided through an 80 percent federal and 20 percent state or local match.

- **General information on this program is available at the Federal Highway Administration's web site, <http://www.fhwa.dot.gov/environment/rectrails/fundrec.htm>**

Recreational Trails Program

Funded through the Highway Trust Fund, the program is related to the Symms National Recreational Trails Act of 1991 and was originally created as the National Recreational Trails Trust Fund to provide for and maintain recreational trails that are part of Statewide Comprehensive Outdoor Recreation Plans (SCORP). Pennsylvania's SCORP program is titled the "Pennsylvania Recreational Trails Program." Funds under this program may be used for all kinds of trail projects, including trail maintenance, acquisition and development, and for improving access to and use of trails by persons with disabilities. The Pennsylvania Department of Conservation and Natural Resources administers the program, which is described more fully below under "State Grant Programs." National mandates require that, of funds apportioned to a state, 30 percent be used for motorized trail uses, 30 percent for non-motorized trail uses, and 40 percent for diverse trail uses. The latter funds are allocated at the state's discretion, but preference is given to projects with the greatest number of compatible recreational purposes or to those that provide for innovative recreational trail corridors used for motorized and non-motorized recreation.

- **Information on this program is available through the Federal Highway Administration's web site at <http://www.fhwa.dot.gov/tea21/factsheets/rec-trl.htm>**

Federal Lands Highway Program

Provisions for pedestrians and bicyclists are eligible under the various categories of the program in conjunction with roads, highways, and parkways. Priority for funding projects is determined by the appropriate Federal Land Agency or Tribal government. These funds are used at the discretion of a state's department of transportation. Local municipalities may petition PennDOT to obtain funding. Bicycle facilities must be principally for transportation rather than recreation. Projects are 100 percent federally funded.

A new program category for refuge roads was added to FHLP. This program provides funds that may be used by the U.S. Fish and Wildlife Service and the FHWA for the maintenance and improvement of federally owned public roads that provide access to or within a unit of the National Wildlife Refuge System. Refuge Roads funds may be used for:

- Maintenance and improvement of refuge roads;
 - Maintenance and improvement of adjacent vehicular parking areas, provision for pedestrians and bicycles, and construction and reconstruction of roadside rest areas including sanitary and water facilities that are located in or adjacent to wildlife refuges;
 - Administrative costs associated with such maintenance and improvements.
- **More information is available through the Federal Highway Administration's web site at <http://www.fhwa.dot.gov/tea21/factsheets/fedland.htm>**

Additional TEA-21 Programs

Title 49 United States Code (as amended by TEA-21) allows the **Urbanized Area Formula Grants, the Capital Investment Grants**, and the **Loans and Formula Program for Other than Urbanized Areas** transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in pedestrian and bicycle access to a mass transportation facility that establishes or enhances coordination between mass transportation and other transportation. TEA-21 also created a **Transit Enhancement Activity Program** with a one percent set aside of Urbanized Area Formula Grant funds designated for, among other things, pedestrian access and walkways and bicycle access, including bicycle storage facilities and equipment for transporting bicycles on mass transportation vehicles. **Job Access and Reverse Commute Grants** are available to support projects, including bicycle-related services, designed to transport welfare recipients and eligible low-income individuals to and from employment.

- **The Federal Highway Administration provides information fact sheets on these programs at the following internet sites:**
- **For Urbanized Area Formula Grants, see <http://www.fhwa.dot.gov/tea21/factsheets/urbnfg.htm>**
- **For Capital Investments Grants and Loan Program, see <http://www.fhwa.dot.gov/tea21/factsheets/trcap.htm>**
- **For Formula Grants for Other than Urbanized Areas, see <http://www.fhwa.dot.gov/tea21/factsheets/nonurbfg.htm>**
- **For Transit Enhancements, see <http://www.fhwa.dot.gov/tea21/factsheets/transenh.htm>**
- **For Job Access and Reverse Commute Grants, see <http://www.fhwa.dot.gov/tea21/factsheets/jobaccs.htm>**

2. State Level Grant Programs

Pennsylvania has five major programs supporting greenways and trails, administered by the Pennsylvania Department of Conservation and Natural Resources (PA DCNR), aside from federal transportation enhancement funds administered by the Pennsylvania Department of Transportation (PennDOT) and described in the previous section. The five PA DCNR grant programs are:

- ***The Keystone Planning, Implementation and Technical Assistance Program***
- ***The Keystone Acquisition and Development Grant Program***
- ***The Keystone Land Trust Program***
- ***The Pennsylvania Recreational Trails Program***
- ***The Heritage Parks Program***

The Department of Conservation and Natural Resources (DCNR), Bureau of Recreation and Conservation administers grants for funding of acquisition, development, planning, implementation, and technical assistance projects through the Keystone Recreation, Park and Conservation (Keystone) Fund. These Keystone grants are administered under the agency's Community Grant Program, Rails-to-Trails Grant Program, and Rivers Conservation Grant Program.

The Keystone Fund was established by passage of the Keystone Recreation, Park and Conservation Fund Act (Act 1993-50) signed on July 2, 1993. On November 2, 1993 the voters of the Commonwealth

overwhelmingly approved a public referendum incurring bond indebtedness by the Commonwealth in the amount of \$50 million to provide for the funding of nature preserves and wildlife habitats and for improvements to and expansion of state parks, community parks and recreation facilities, historic sites, zoos and public libraries. The Keystone Fund is currently supported by a 15% allocation from the State Realty Transfer Tax revenues.

PA DCNR's Recreational Trails Program provides funding to develop and maintain trails and trail-related facilities for both motorized and non-motorized recreational trail uses. DCNR's Bureau of Recreation & Conservation administers this program in consultation with the Pennsylvania Recreational Trails Advisory Board (PARTAB), which is composed of both motorized and non-motorized recreational trail users. Funding for the Recreational Trails Program is provided to the Commonwealth through the Federal Highway Administration (FHWA) and the Transportation Equity Act for the 21st Century (TEA 21), and supplemented by state funds.

In addition, the PA DCNR uses Growing Greener funds to augment the already successful and highly requested Community Conservation Partnership grant programs. Over five years, DCNR will allocate Growing Greener funding over several existing grant programs to help more communities and organizations meet their conservation and recreation goals. The grant programs funded through Growing Greener include:

- Community Grants (also funded by Keystone 93)
- Rails to Trails Grants (also funded by Keystone 93)
- Land Trust Grants (also funded by Keystone 93)
- Heritage Park Grants

For more information on these grant programs, contact the PA Department of Conservation and Natural Resources at the central office:

**Bureau of Recreation and Conservation
Rachel Carson State Office Building
P.O. Box 8475
Harrisburg, Pennsylvania 17105-8475
(717) 783-4734**

Or contact the Recreation and Park Advisor for Region I at:

**Southeast Regional Office (Philadelphia)
908 State Office Building
1400 Spring Garden Street
Philadelphia, PA 19130
(215) 644-0609**

- Also, visit the PA DCNR grants home page at <http://www.dcnr.state.pa.us/brc/grants/>

The Keystone Land Trust Program

Land Trust Grants provide 50 percent state funding for acquisition and planning of open space and natural areas which face imminent loss. Lands must be open to public use and the acquisition must be coordinated with the communities or counties in which the property is located. Priority is given to habitat for threatened species. Eligible applicants are nonprofit land trusts and conservancies. The funds require a 50 percent match.

Although these funds are targeted to protecting critical habitat for threatened species, many of these lands also provide key open space, greenway, bikeway, trail and heritage corridor opportunities and connections in greenway systems. Many land trusts and conservancies are undertaking greenway initiatives and are willing partners in greenway projects.

Keystone Planning, Implementation and Technical Assistance Program (PITA—DCNR)

Within DCNR's PITA Program are three separate programs of interest to the greenways and trail community:

- Community Grants
- Rails-to-Trails Grants
- Rivers Conservation Grants

Community Grants provide funds for comprehensive recreation, park and open space plans; greenway plans; site master plans for neighborhood or regional parks; peer-to-peer technical assistance to study park and recreation facilities issues; and other types of planning. Municipal governments (including counties), councils of government (COGs) and some authorities are the only eligible applicants.

Community Grants include a Circuit Rider program, a three-year position for a full-time recreation, greenway and/or park director to share services through an intergovernmental cooperative effort created by two or more municipalities. Available funding for the Circuit Rider's salary decreases gradually throughout the three-year period from 100 percent to 0 in the fourth year.

Rails-to-Trails Grants may be requested by appropriate non-profit organizations, as well as municipalities. PA DCNR funds up to 50% of eligible costs. Money is provided for rail-trail feasibility studies and master plans and for special-purpose studies, such as studies of bridges, tunnels and culverts, that may impact the conversion of a rail corridor to a trail. Site control, either through ownership or a long-term lease, is required in order to develop a master plan or special-purpose study; however, it is not a requirement for feasibility studies.

Rivers Conservation Grants are available to municipalities and appropriate non-profit organizations for conducting watershed and river corridor studies and plans, many of which include greenway and trail elements. PA DCNR funds up to 50 percent of the cost (maximum \$50,000 grant).

Keystone Acquisition and Development Grant Program

The Keystone Acquisition and Development Grant Program includes three components:

- Community Grants
- Rails-to-Trails Grants
- Rivers Conservation Grants

Although these bear the same names as grant programs under the PITA grants, they are separate programs with distinct features.

Under the Community Grant Program, municipalities, COGs and some authorities are the only eligible applicants. These grants provide funding for the purchase of land for park, recreation, or conservation purposes, and the rehabilitation and development of park and recreation areas and facilities, including greenways and trails. Generally, funding is provided for up to 50% of eligible costs. Small Communities/Small Projects grants are included for municipalities with a population of 5,000 or less. Grants are limited to a maximum of \$20,000 and will provide up to 100 percent funding of material costs and professional design fees. Grants are for the rehabilitation and development of basic outdoor park and recreation facilities and minor indoor recreation renovations.

The Rails-to-Trails Grant Program is open to municipalities and non-profit organizations. Funding is provided for up to 50% of eligible costs. Grant funds may be used for acquisition of abandoned railroad rights-of-way and adjacent land for trail use and access. Funds may also be used for rehabilitation and development of abandoned rail rights-of-way and support facilities for public recreational trail use.

Under the Rivers Conservation Grant Program, funding is available to both municipalities and appropriate organizations for acquisition and development projects recommended in an approved Rivers Conservation Plan (such as those created under the PITA Program). To be eligible for acquisition or development funding, the Rivers Conservation Plan must be listed in the Pennsylvania Rivers Registry. The state will fund up to 50 percent of the project up to a maximum of \$50,000.

The Pennsylvania Recreational Trails Program

In addition, the Pennsylvania Recreational Trails Program provides grants between \$2,500 and \$100,000 for a wide range of trail development categories for both motorized and non-motorized trails: maintenance and

restoration of existing recreational trails; development and rehabilitation of trailside and trailhead facilities and trail linkages; purchase and lease of recreational trail construction and maintenance equipment; construction of new recreational trails (with the exception of new trails on federal land); and acquisition of easements or property for recreational trails or trail corridors. The state will provide up to 80 percent of the funding (up to a maximum of \$100,000) except for acquisition projects, which require a 50 percent match. "Soft match" (credit for donations of funds, materials, services, or new rights-of-way) is permitted from any project sponsor, whether a private organization or public agency. The Commonwealth may also use up to 5 percent of its funds for the operation of educational programs to promote safety and environmental protection related to the use of recreational trails.

The Department will also give consideration to projects that provide for the redesign, reconstruction, non-routine maintenance, or relocation of recreational trails to benefit the natural environment. Project sponsors are encouraged to enter into contracts and cooperative agreements with qualified youth conservation or service corps to perform trail construction and maintenance.

The Recreational Trails Program is administered by PA DCNR but uses Federal Highway Administration (FHWA) and Transportation Equity Act for the 21st Century (TEA-21) funds. TEA-21's predecessor legislation, ISTEA, included the Symms National Recreational Trails Act, and thus these grants are sometimes referred to as "Symms Grants." State funding supplements the federal in some years.

Recreational Trails Program grants are available to federal and state agencies, municipal government, organizations, and even private individuals. Grant money may be used for a variety of purposes, including work on trails to mitigate or minimize the impact on the natural environment, provide urban trail linkages, and develop trail-side and trail-head facilities. DCNR has a detailed grant application manual that includes necessary application procedures, forms, worksheets, sample contracts and agreements, and as well as an environmental survey form. DCNR also provides technical assistance and training workshops for interested applicants.

In Pennsylvania, the Recreational Trails Program is administered by the Department of Conservation & Natural Resources (DCNR), Bureau of Recreation & Conservation (BRC) in consultation with the Pennsylvania Recreational Trails Advisory Board (PARTAB), which is composed of both motorized and non motorized recreational trail users.

Heritage Parks Program

Heritage Parks are large multi-county corridor and geographic areas that contain heritage elements of national or state significance related to historic industrial themes, such as oil, steel, coal, railroads, and transportation. Through public-private partnerships and a bottom-up grassroots public participation process, regional management action plans are completed to protect and enhance the natural, cultural, recreational, historic and scenic resources of the area. These resources are interpreted, packaged and promoted to create economic development opportunities based on tourism for the area.

Most of the designated State Heritage Parks, including the Schuylkill River Heritage Corridor, and those being planned include greenways, trails and river corridor projects in their regional strategies for preservation, enhancement, interpretation, education and promotion. Some of the state's best greenway corridors are found in State Heritage Parks and have benefited from funding through the program.

DCNR administers the Heritage Parks Program in conjunction with a task force of other state agencies and non-profit organizations. Annual appropriations from the General Assembly are used to fund study, planning, implementation and management projects in officially designated State Heritage Parks in the Commonwealth. Heritage Parks Grants promote public-private partnerships to preserve and enhance natural, cultural, historic and recreation resources to stimulate economic development through heritage tourism. Grants are available to municipalities, nonprofit organizations or federally designated commissions acting on behalf of the municipalities in a heritage park area. The Schuylkill River Greenway Association coordinates and administers grants for the Schuylkill River Heritage Corridor. Grants are awarded for a variety of purposes including feasibility studies; development of management action plans for heritage park areas; specialized studies; implementation projects; and hiring of state heritage park managers. Grants require a 25-50 percent local match.

Growing Greener II Initiative - Governor Ed Rendell

(Information taken from <http://www.dep.state.pa.us/growgreen>)

Revitalizing Communities through Recreation and Conservation

"DCNR will provide grants to repair and upgrade outdoor recreation facilities in older communities throughout the state, targeted in those areas with other economic development and revitalization initiatives. Funding will be used for greenway development, riverfront access and conservation, tree planting, new park facilities, open space acquisition, and heritage infrastructure. With the \$80 million in additional funds, DCNR could help to build 34 new pools, rehabilitate 66 existing pools, build 300 new play fields, develop 500 miles of multipurpose trails, and build 800 new pavilions. How will the Growing Greener bond be used?"

- \$330 million for Protecting Open Spaces – protecting threatened lands, preserving farmland, and restoring and improving state parks, Fish and Boat Commission facilities and Game Commission facilities
- \$300 million for Environmental Cleanup – abandoned mines, rivers and streams, brownfields and energy harvest
- \$170 for Revitalizing Communities – community redevelopment, including parks and conservation projects

The Community Conservation Partnerships Program – DCNR

(Information taken from <http://www.dep.state.pa.us/growgreen>)

Applications deadline for 2004 is closed. 2005 open application period will be announced at a future date.

"The Community Conservation Partnerships Program is a combination of several funding sources and grant programs: the Commonwealth's Keystone Recreation, Park and Conservation Fund (Key 93), the Environmental Stewardship and Watershed Protection Act (Growing Greener), and Act 68 Snowmobile and ATV Trails Fund. The Program also includes federal funding from the Land and Water Conservation Fund (LWCF) and the Recreational Trails component of the Transportation Equity Act for the Twenty-first Century (TEA-21)."

"The C2P2 contains the following grant components: Community Recreation, Land Trusts, Rails-to-Trails, Rivers Conservation, Snowmobile/ATV, Heritage Parks, Land and Water Conservation Fund and Recreational Trails. Except for the Heritage Parks grants, all other components have been combined into one annual application cycle (generally late summer/early fall), and use a single application format and process with one grant manual and one set of application forms. Applications selected for federal LWCF funding require some supplemental information to enable submission of the application to the National Park Service (NPS). Generally, all components require a match, usually 50 percent of cash or in-hand contributions."

Hometown Streets, Safe Routes to School Programmed

(Information taken from <http://www.dot.state.pa.us/penndot/Bureaus/CPDM/Prod/Saferoute.nsf>)

"PennDOT has prepared an application form and process for communities to apply for the Home Town Streets and Safe Routes to Schools programs. Governor Rendell has called for a \$200 million investment over four years in Home Town Streets and Safe Routes to Schools. Awards will range up to \$1 million per project. Eligible projects for Home Town Streets include sidewalk improvements, planters, benches, street lighting, pedestrian crossings, traffic calming, bicycle amenities, transit bus shelters, kiosks, signage and other visual elements. The program is not intended to cover the costs of street paving, storm water management and traffic signals. Eligible projects for Safe Routes to Schools include sidewalks, crosswalks, bike lanes or trails, traffic diversion improvements, curb extensions, traffic circles, raised median islands and walking paths. Any government agency, school district or non-profit organization is eligible to apply as a project sponsor. For more information on the program please visit <http://www.dot.state.pa.us/penndot/Bureaus/CPDM/Prod/Saferoute.nsf> ."

3. County Level

Montgomery County Green Fields/Green Towns Program

Montgomery County has allocated Upper Merion Township with \$3.1M in Open Space Grant monies over the next 10 years (the largest amount allocated to any county municipality). These monies are to be used develop and protect open space and “green” infrastructure such as trails, greenways, park improvements, street trees, public plazas, town center greenery and attractive public places, etc., in an effort to enhance the quality of life, provide for outdoor recreation activities and enhance property values. In accordance with the *Montgomery County Green Fields/Green Towns Program Recommendations, December 2003* recommendations within this report can make use of this funding stream. Key items for the Township to consider are as follows:

- If not current, update the Township Open Space Plan to include the recommendations contained in this Ped/Bike Feasibility Study, as “Green Infrastructure Projects” and project any necessary “Land Acquisition”. This is currently under way.
- Apply for Open Space Grants relating to the network including Acquisition Grants, Green Infrastructure Grants, Trail and Pathway Grants and Schuylkill Greenway Grants
- Emphasize importance of potential Township links and access to the Schuylkill River Trail of the Montgomery County Trail System
- Coordinate the continuation of the recommended ped/bike network with adjacent Montgomery County municipalities
- Gain approval of the Montgomery County Commissioners for projects recommended in this study to make use of the 3.1 million dollars of Open Space Grants allocated to Upper Merion Township

4. Local Level

(summaries from “National Center for Bicycling & Walking”, 2002)

Property Taxes – Local governments use property taxes as their principal source of revenue. Property taxes usually flow into a general fund used to pay for the operation of local government. Some municipalities are able to use property taxes for capital improvement projects. Other communities may not be allowed to use monies in the general fund for street improvements or maintenance or projects that voters have approved.

Local Improvement Districts – Where a group of property owners agree that improvements are needed in their immediate neighborhood, they also may agree to pay for such improvements through an assessment levied by the local government. A local ordinance must be enacted to establish a local improvement district and related conditions. Local improvement districts are sometimes known as urban renewal districts, economic improvement districts or business improvement districts.

Impact Fees – Impact fees are a way to fund public infrastructure associated with new development. The idea is to have developers share the cost of improvements required to support the increased demand their projects cause on transportation, water and sewer, schools or other public services. Impact fees usually apply to public improvements directly associated with new development. They typically are not used for general infrastructure improvements.

Exactments – Where local governments place the burden of road improvements on abutting landowners and developers, an exactment can be used to require installation of a sidewalk or other improvement in the public right-of-way adjacent to the landowner’s property.

5. Private Donations

(summary from “National Center for Bicycling & Walking”, 2002)

Private donations can range from corporate investment to individual contributions towards the cost of a community project. Because some pedestrian and bicycle improvements are small and specific, even individuals can participate in making their communities more friendly to walking and bicycling.

6. Foundation Grants and Other Private Funding

Numerous large community, family, and corporate foundations make grants to greenway and trail groups. Copies of directories of foundations can be found in local libraries. The directories provide information on each foundation's grant making history and philosophy.

- **Environmental Grant Making Foundations** <http://www.environmentalgrants.com/>
Resources for Global Sustainability, Inc. publishes this report annually. They maintain a database of over 47,000 grant programs that can be searched by keywords to determine the foundations serving a particular area and type of project. The directory is available as hard copy or on a CD.
- Foundations can also be located by searching the Internet.
- Other resources for grant information include local economic development agencies and trust officers at local banks, who manage small family foundations and charitable trusts.

Pew Charitable Trusts

The Pew Charitable Trusts, based in Philadelphia, are a national philanthropy established 48 years ago. Through their grant making, the Trusts seek to encourage individual development and personal achievement, cross-disciplinary problem solving and innovative, practical approaches to meeting the changing needs of a global community. Each year, the Trusts make grants of about \$180 million to between 400 and 500 nonprofit organizations in six areas: culture, education, environment, health and human services, public policy, and religion. In addition, the Venture Fund supports independent projects outside of these six areas that take an interdisciplinary approach to broad issues of significant interest or concern.

In particular, the Culture program selectively supports programs for artists and cultural organizations in Philadelphia and has funded history interpretive programs—the Heritage Investment Program has provided technical assistance and challenge grants to historic sites in Philadelphia and the region, and the Philadelphia History Exhibitions Initiative has assisted Philadelphia-area history museums in producing high-quality, innovative exhibitions. Such programs could be used to fund interpretation of trail related historic resources and sites.

- **More information on the Pew Charitable Trusts grants programs is available at** <http://www.pewtrusts.com/grants/>

The Surdna Foundation

This foundation is a national leader in funding greenway efforts and have funded the Florida Statewide Greenways Program. Surdna supports government, private and volunteer actions that produce a sustainable environment. They encourage the restoration of suburban and urban environments by public and community involvement in education, planning for and advocating environmental appreciation. One area of focus is alternative transportation, particularly reducing vehicle miles traveled and maximizing accessibility over mobility.

- **Information on their grants programs can be located at the Surdna web site,** <http://www.surdna.org/programs/environment.html>

The William Penn Foundation

The mission of the foundation is to improve the quality of life in the Philadelphia region through efforts that: strengthen our children's future; foster rich cultural expression; and deepen our connections to nature and community. The foundation has provided substantial and consistent funding during the past few decades for greenway and trail planning and development in the Philadelphia area, including a bi-state greenway project on the Delaware River, greenways development along the Delaware and Raritan Canal, and funding for the Mid-Atlantic Coordinator position associated with the East Coast Greenway in Pennsylvania. Religious organizations, non-profits and government agencies are eligible applicants.

- **Information about the foundation's Environment and Communities grants can be located at** <http://www.williampennfoundation.org/info-url3564/info-url.htm>

Schuylkill River Heritage Corridor Grants

These grants are for both planning and implementation for community in the Schuylkill River Heritage Corridor.

- **Information on their grants programs can be located at the Schuylkill River Greenway web site, <http://www.schuylkillriver.org>**

Delaware Valley Regional Planning Commission – Transportation and Community Development Initiative Grants

These grants are for planning to make generally established communities more friendly to transit-oriented development, walking and bicycling. See attached sheet for typical projects.

- **Information on their grants programs can be located at the DVRPC website, <http://www.dvrpc.org>**

F. Recommendations for Future Action

1. Summary of Key Recommendations:

- Create new side-paths (soft surface) and new sidewalks (hard surface) with Township character.
- Create “Share the Road” bike routes and routes that parallel high traffic volume roads (i.e. DeKalb Pike/Valley Forge Road/Allendale Road).
- Stripe bike lanes where possible.
- Link together Schuylkill River Trail West and the Crow Creek/Rail to Trail Local Loop (multi-use trails).
- Link Ped/Bike network to adjacent municipalities and the Schuylkill River Trail.
- Implement signage and information systems.
- Educate and inform the public of the benefits of walking and cycling and location of alternative routes.
- Review potential funding sources including Montgomery County Open Space Funds.
- Encourage the formation of proactive ped/bike citizen groups and “Safe Routes to School” organizations.
- Form a committee to select and prioritize projects for implementation that will make the largest positive Township-wide political impact with the largest positive local change with the least amount political opposition.
- Define and negotiate necessary easements and rights-of-way with land owners.
- Select planning and design/engineering consultant teams to process and prepare planning, design and construction documents for prioritized legs and segments of trails based on the guidelines established within this study and the decisions of the prioritization committee.
- Obtain funding from sources that will either provide a matched contribution to outside grant sources or dedicate capital improvement funds for design and construction phases.
- Coordinate with local municipalities to incorporate desired connections to planned park, recreation, and land development sites and facilities.
- Coordinate with municipal/state/regional agencies and the Pennsylvania Utility Commission to secure appropriate clearances, permits, and authorizations for future construction.