Guidelines for Trail Development Within Montgomery County, Pennsylvania

Montgomery County Commissioners

James R. Matthews, Chairperson

Thomas Jay Ellis, Esq.

Ruth S. Damsker

Table of Contents

Trail Notes

Montgomery County's proposed primary trail network offers many potential benefits to county residents on a local, regional and even national level. Benefits of smart trail design and development range from preserved open space to the promotion of active, healthy lifestyles to the creation of an alternative source of transportation for commuters and recreation users alike. Additionally, the sixteen proposed interconnected county trails will establish connections to parklands, historic sites, natural areas and other points of interest through out the region. Through devoted trail planning, the county has constructed the Schuylkill River Trail and the Perkiomen Trail. These trails have set the foundation for the county's regional trail network while providing the framework for local trails and pathways to connect to the regional system.

The Open Space Program, Trails & You

The purpose of this document is to provide desirable and minimum trail design standards to municipalities applying for county open space funds to develop trail connections. The municipality's open space plan must indicate connections to existing or proposed county trails, and county parks and historic sites to be eligible for county trail funding.

If a municipality decides to pursue the design and construction of a regional county trail segment, the trail surface and width standards should reflect the preferred trail standards stated in the County's: *Open Space, Natural Features, and Cultural Resources Plan,* Montgomery County, 2004, Chap. 4, "Trails and Pathways," pp.131-141 (Summary excerpt of "Trails and Pathways" - see right sidebar column). Additionally, coordination with the county will be established regarding design and construction of a proposed county trail segment.

When a municipality enters the *Green Fields/Green Towns Program* and applies for the County Trail Connection Grant Option, the municipality will be required to meet county trail guidelines, and multiple requirements/conditions stated within the applications and grant agreement (see attached application packet). Furthermore, municipal trail design plans must be County approved.

Montgomery County's Proposed Primary Trail Network Preferred Standards

Chester Valley Trail
Preferred Trail Surface and Width Standards: **Macadam Pavement with a 10-12 foot trail width.**

Cresheim Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

Cross County Trail
Preferred Trail Surface and Width Standards: **Macadam Pavement with a 10-12 foot trail width.**

Evansburg Trail
Preferred Trail Surface and Width Standards: **Hard Cinder Pavement with an 8-10 foot trail width.**

Liberty Bell Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.** ***Exceptions through boroughs, village areas and areas where on road facilities and sidewalks must be used.***

Manatawny Trail
Preferred Trail Surface and Width Standards: **Hard Cinder Pavement with an 8-10 foot trail width.**

Pennypack Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

Perkiomen Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

Power Line Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

Schuylkill East Trail
Preferred Trail Surface and Width Standards: **Hard Cinder Pavement with an 8-10 foot trail width.**

Schuylkill River Trail
Preferred Trail Surface and Width Standards: **Macadam Pavement with a 10-12 foot trail width.**

Stony Creek Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

Sunrise Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

West County Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with a 10-12 foot trail width.**

Wissahickon Trail
Preferred Trail Surface and Width Standards: **Macadam or Hard Cinder Pavement with an 8-12 foot trail width.**

202 Trail
Preferred Trail Surface and Width Standards: **Macadam Pavement with a 10-12 foot trail width.**

In order to maintain consistency throughout the trail development process, the county has referenced and developed a trail and bicycle facilities design criteria to aid in the design and construction phases. The county has created four trail classification types providing a desirable and minimum standard range for each classification type. The four trail classification types are:

*Multiuse *Retrofit Sidewalk

*Pathway *On Road Improvements for Bicyclist

The trail classification type (or a related name/description) should be identified or noted within the municipality's open space plan update. Through the initial planning process, the trail type should be determined and solidified. Once established, the municipality should adhere to the county's applicable standards for that particular classification type. The criteria formulated in this document are characteristically universal standards derived from primary public and private publications noted at the end of this document.

The county acknowledges that unforeseen factors and environmental constraints may exist in the design and construction phase of trail development that may hinder the municipality from meeting certain standards. The county expects the municipality to research all possible trail realignments, remediation scenarios, land use impacts, negotiation strategies and community partnerships before determining that the minimum standards cannot be met.

Trail Terms and the Trail Ahead

To briefly elaborate, the county has described each trail classification type to allow the municipality to identify what type of trail they envisioned or would like to plan for.

Multiuse – A trail that permits more than one user group (jogger, bicyclist, hiker, etc.) at a time, creating a two-way shared use area. The trail is constructed of a hard paved surface or a hard compacted cinder to facilitate wheeled and pedestrian trail traffic.

Pathway – This is a temporary or permanent area that is normally dirt or cinder although some paths are asphalt or concrete. A path typically indicates the common route taken by pedestrians between two locations.

Retrofit Sidewalk – A widened and improved concrete pedestrian facility to allow more than one pedestrian user group (jogger, walker, hiker, etc.) at a time, creating a two-way shared use area (excludes wheeled trail traffic in most cases).

On Road Improvements for Bicyclist – Improvements consist of the creation or designation of the following: a) *Bike Lane* – A portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists; b) *Bike Route* – A shared right-of-way (widened curb lane or shoulder or the creation of a shoulder) located on medium to lightly traveled streets and roadways designated with appropriate "bike route" directional and informational signs. These signs help encourage use and warn motorists that bicycles may be present; c) *Bicycle Friendly Areas (BFAs)* – An area that provides compatible and safe streets for bicyclists. Typically, BFAs are used in residential neighborhoods, although these areas could be used in any type of development where designated bike lanes are not required, but motorists should be aware of bicyclists using the roadways.

Terms may differ throughout the municipalities open space plans updates. The idea is that each municipality that applies for county open space funds can relate to one of our four trail classification types and set in motion their trail building process as soon as it's identified.

The Trail Ahead…Access & Ownership

Another major component to a trail development project is the process of the municipality acquiring access and/or ownership to the corridor for the proposed trail alignment. **The County requires a 75' (foot) trail corridor-width minimum for all proposed trail projects.** If the minimum cannot be met, the municipality must demonstrate why its partial or entire corridor is below the minimum. The 75' minimum is required to ensure proper buffering, landscaping, aesthetic view-sheds and greenway preservation throughout the county.

There are a variety of acquisition and access methods a municipality may use to fulfill this component of trail development. Montgomery County's three acceptable standards are as follows:

a) *Fee Simple Acquisition*: A complete transfer of land ownership from one landowner to another party, usually by purchase.

b) *Easement*: Grants the right to use a specific portion of land for a specific purpose or purposes. Easements may be limited to a specific period of time or may be granted in perpetuity; or the termination of the easement may be predicated upon the occurrence of a specific event. An easement agreement survives transfer of landownership and is generally binding upon future owners until it expires on its own terms.

c) *License/Lease Agreement*: The temporary grant of an interest in land upon payment of a determined fee. The fee does not have to be monetary, but some consideration must be given for the right to use the land, or the lease will not be legally binding.

License/lease agreements (between public utility agencies) will only be recognized and accepted by the Green Fields/Green Towns Program if the agreement is for 25 years or longer (with renewal options) and the municipality agrees to maintain and police the trail segment for that time span. The above stated condition of approval is to ensure that the municipality is 100% committed to planning, designing, building and maintaining their public asset and recreational amenity.

Montgomery County prefers the municipality to either acquire the land or right-of-way through fee simple or obtain an easement in perpetuity throughout the trail corridor.

Design Standards

The heart of this document is the chart below. The chart contains tangible trail design standards that will provide direction and support behind a tremendous regional trail network.

TRAIL NOTE: Please note the term 'Cinder' used in the Trail Surface Type description applies to a variation of cinder/granular type surface applications. The most common cinders used include limestone (limestone dust), sandstone and crushed native rock. The stones' diameter should be less than 3/8 inch and the surface depth should be at least 4 inches thick (compacted) to accommodate mostly every multi-use trail user.

Montgomery County Trail Design Standards

Standard Description		Trail Classification Type			
Criteria Outline		Multiuse	Pathway	Retrofit Sidewalk	On Road Improvements for Bicyclist
Trail Width (75' trail corridor width minimum)	Desirable	12'	6'	10'-12' (multi-use w/o bike lane: two-way shared use)*	Bike Lane: 6'-5'
	Minimum	8'-10'	4'	6'-8' (multi-use with bike lane: two-way shared use)**	Bike Lane: 4'
Trail Shoulder Width	Desirable	4-5'	2'	4' (multi-use w/o bike lane: two-way shared use)	Road Shoulder: 8'-6'
	Minimum	2'	2'	2' (multi-use with bike lane: two-way shared use)	Road Shoulder: 4'
Trail Surface Type***	Desirable	Macadam	Cinder/Macadam	Concrete	Macadam
	Acceptable	Cinder	Cinder	Macadam (if acceptable by local zoning regulations)	Macadam
Trail Grade (longitudinal slope)	Desirable	1%-3%	1%-3%	1%-2%	--
	Maximum	5%	5%	5%	--
Trail Surface Grade (cross slope)	Desirable	1%	1%	1%	--
	Maximum	2%	2%	2%	--
Vertical Clearance	Desirable	10'	10'	10'	--
	Minimum	8'	8'	8'	--
Horizontal Clearance (edge of trail vegetation clearance)	Desirable	4-5'	2'	4'	--
	Minimum	2'	2'	2'	--
Design Speed (mph)	Desirable Grades	20	3-7	8-15	25-30
Viewshed (linear feet) {line of sight within a corridor}	Desirable	200'-175'	75'	200'-175'	--
	Minimum	150'	50'	150'	--
Signage	Trail	See 'Sign Dimensions for Trail & Bicycle Facilities' for chart and sign examples			
	Roadway				
* 6' (typical ped. sidewalk) ** 4' (typical ped. sidewalk) *** Macadam should be considered for trail grades over 2%		**All Trail Surface Depths are assumed @ 2-4" and Trail Sub-base Depths are assumed @ 4-8".**			

Note: Montgomery County Trail Design Standards were derived from multiple sources cited on the ' Trail & Bicycle Facilities Resource References' page located on page 15 of this document.

The remaining sections of this document contain the estimated construction costs, cross section illustrations of each classification type, signage dimensions and examples, and a trail and bicycle resource reference page.

TRAIL NOTE: In addition to county open space funds, municipalities are encouraged to seek and apply for other trail funding sources in conjunction with the subdivision and land development process to facilitate their trail development goals. See Appendix A for a detailed list of other potential trail funding sources for municipalities to seek out and utilize.

Estimated Trail Construction Costs

Baseline Estimates for Constructing Trail Type Surfaces*

12' Multiuse Wide Trail - Cost Range Per Linear Foot

Macadam	Concrete	Cinder	Road Improvements (Macadam)
$43.00	$77.00	$21.00	Variable dependent on scope and design of improvements.
$26.00	$53.00	$11.00	

6' Multiuse Wide Trail - Cost Range Per Linear Foot

Macadam	Concrete	Cinder	Road Improvements (Macadam)
$21.50	$38.50	$10.50	Variable dependent on scope and design of improvements.
$13.00	$26.50	$5.50	

- All estimated figures were calculated in 2005 dollar amounts -

* The above stated estimates were derived from Montgomery County's experience in developing the Schuylkill River and Perkiomen trails using force account labor (materials, trucks and equipment rentals included), utilizing regional and local engineering cost estimates and a national trail estimate. The estimated cost ranges calculated in the table above, represent a high (virgin territory) and low (existing rail/utility corridor) cost construction scenario for municipalities to consider when planning a future trail.

TRAIL NOTE: The above stated cost estimates throughout this memo do not include preliminary and/or final engineering design costs. Only after a careful review on a case-by-case basis of each project, can a reliable and accurate cost be calculated. The above stated cost estimates within this trail guideline document could increase due to many variables and unforeseen factors in the construction phase.

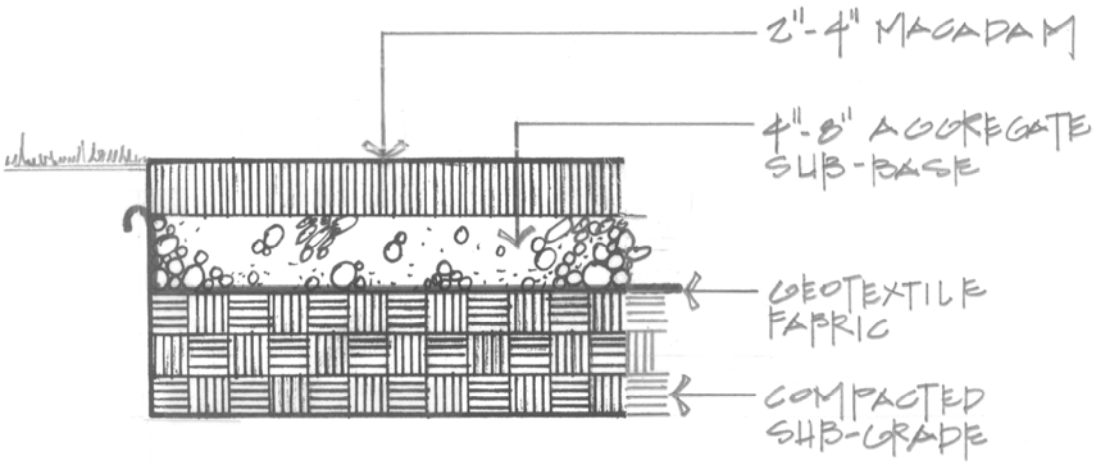
The cost of constructing a paved, concrete or cinder (gravel-surfaced) trail varies depending on whether the trail is built where there already exists a suitable base. For example, trail construction along an abandoned railroad corridor or a former roadway typically requires less site preparation work because a base already exists upon which the trail surface can be applied. If, however, a new trail is being blazed through virgin territory or where a dirt footpath is being upgraded to a more formalized trail, then the trail route must also be cleared, excavated and provided with an adequate sub-base prior to application of the actual trail surface. This extra work adds time and expense to the overall project cost (fuel cost should also be estimated for all power equipment and vehicles used for trail development).

Secondly, the expense of design engineering (i.e., the preparation of line and grade drawings; details/specifications; erosion and sedimentation control plans; applications to regulatory agencies for environmental clearance and approvals; etc.) must also be factored into a trail's overall development cost. Other qualifiers that could fluctuate the overall cost are: base thickness; surface thickness; motorized vehicle weight consideration; direction of alignment; curb cuts; access/driveway aprons; signage/signals; landscaping; and other amenities related to trail development. This component of cost is perhaps most difficult to accurately build into a typical cost estimate because each trail project is unique and will have its own set of design and engineering requirements. Generally, design costs will be higher for a trail that is being built through virgin territory because it will likely involve a greater degree of environmental impact versus a trail that takes advantage of an existing man-made corridor.

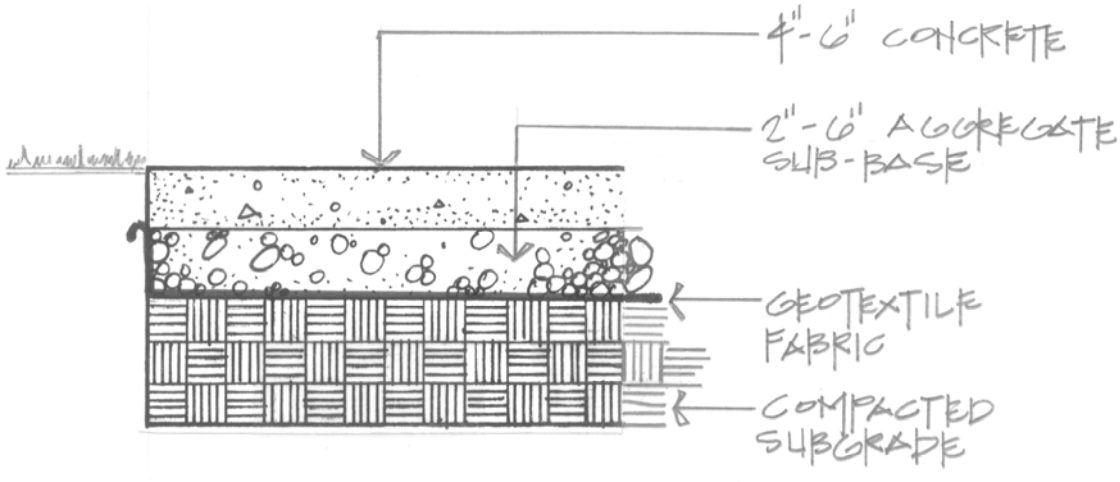
Lastly, a final variable that will affect typical trail development costs is labor. If an outside contractor is used, then local prevailing rates for construction crews can make the project more expensive than if public employees were to be used to perform the construction work. For example, a government-sponsored trail project can often be implemented using its force account labor (i.e., crews from its parks department, public works, or roads and bridges departments) to cut down on expenses since its employees' salaries are already paid for in the agency's regular payroll system. This approach assumes that departmental employees have time available to spend on the trail project without sacrificing other essential duties of their positions. It also assumes that the governing body has reviewed and approved of the approach to devote staff resources to the construction effort.

Cross Section Illustrations of Trail Classification Types

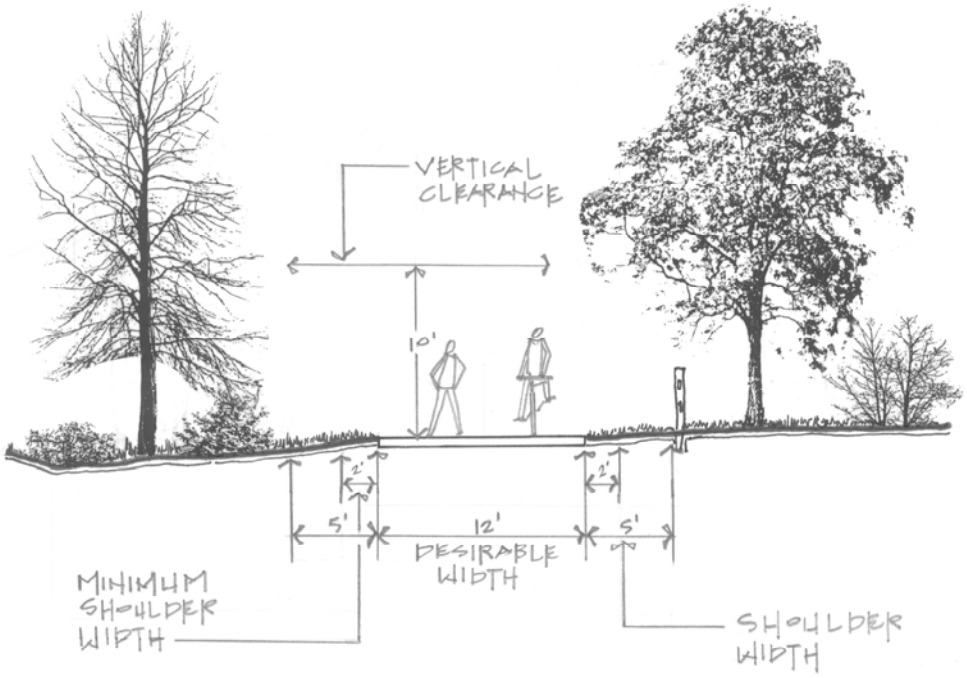
The trail cross sections and detail illustrations (pages 7-9) are visual examples of the County's recommended desirable and minimum principle standards which correspond with the trail design chart on page 5 of this document. Each trail classification illustration may depict multiple scenarios between desirable and minimum standards.



TYPICAL MACADAM TRAIL DETAIL

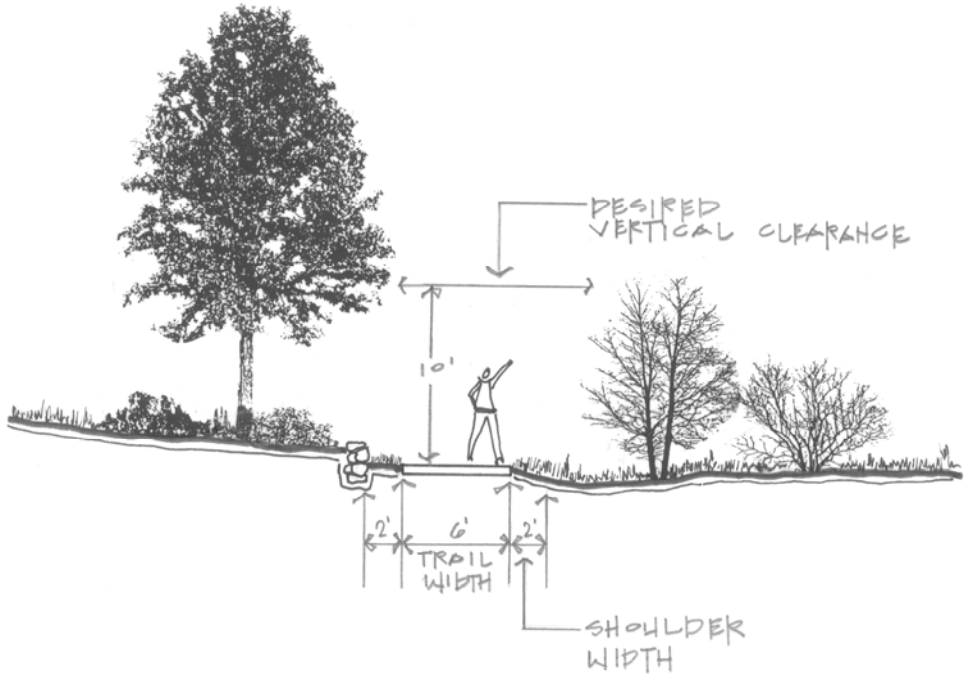


TYPICAL CONCRETE TRAIL DETAIL



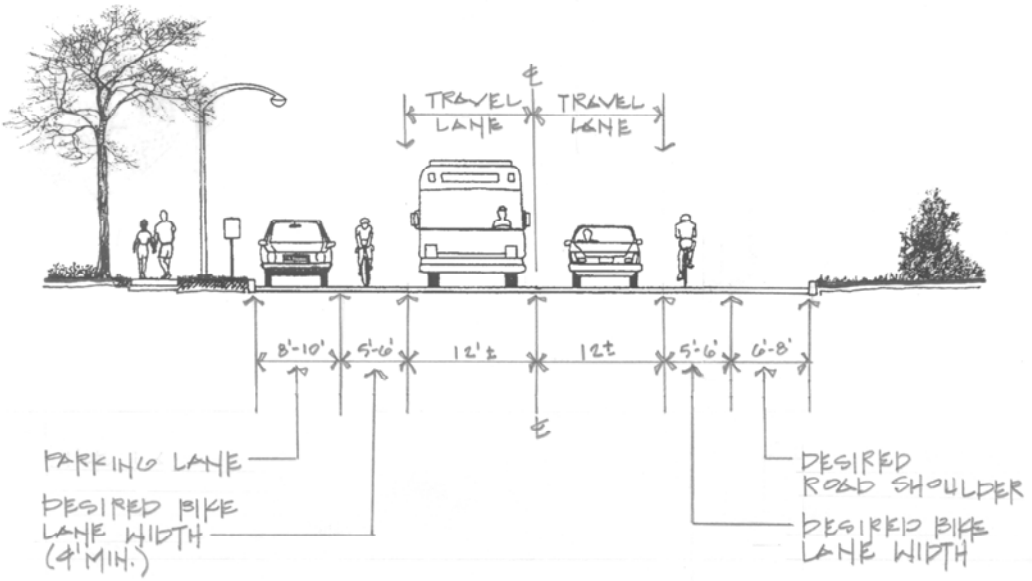
TYPICAL MULTIUSE TRAIL SECTION

NTS



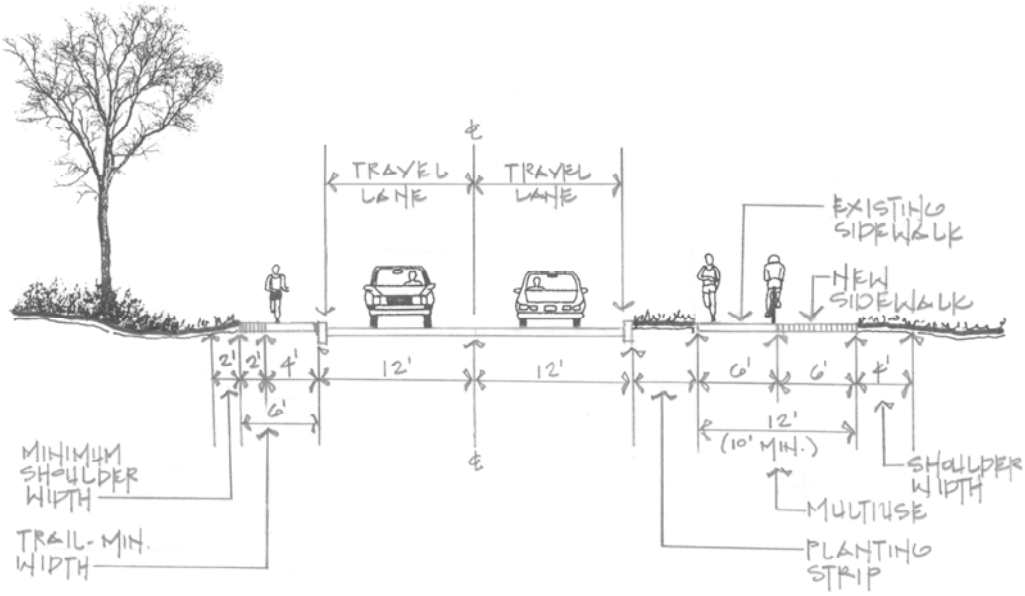
TYPICAL PATHWAY SECTION

NTS



ON ROAD IMPROVEMENTS FOR BICYCLES

NTS



SIDEWALK RETROFIT

NTS

Minimum Signage Dimensions

Sign Dimensions for Trail & Bicycle Facilities

Sign Type	Reference Code	Minimum Sign Size - inches	
		Multiuse	Roadway
Bike Route Ahead	1	18 x 18	30 x 30
Bike Route	2	24 x 18	24 x 18
Bike Lane	3	—	30 x 24
Share The Road	4	—	24 x 24
Bicycle Warning	5	18 x 18	24 x 24
Share The Road Plaque	5	—	18 x 24
Interstate Bicycle Route Sign	6	18 x 24	18 x 24
Bicycle Route Sign	7	12 x 18	12 x 18
Bicycle Parking	8	12 x 18	12 x 18
Bicycle Surface Condition	9	18 x 18	24 x 24
Bicycle Surface Condition Plaque	9	12 x 9	12 x 9
Playground	10	18 x 18	24 x 24
Hill	11	18 x 18	24 x 24
Bump	12	18 x 18	24 x 24
Pedestrian Crossing	13	18 x 18	24 x 24
Dip	14	18 x 18	24 x 24
Narrow Bridge	15	18 x 18	30 x 30
Bikeway Narrows	16	18 x 18	30 x 30
Signal Ahead (Same dimensions apply to Stop & Yield Ahead Signs)	17	18 x 18	30 x 30
Bicycle Guide Direction Signs	18,19	24 x 6	24 x 6
Street Name	20	18 x 6	18 x 6
Bicycle Route Supplemental Plaques	21,22,23	12 x 4	12 x 4
Route Sign Supplemental Plaques	24-29	12 x 9	12 x 9

1

2

3

4

5

6

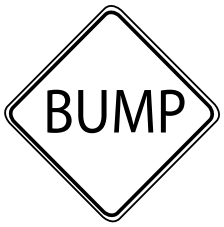
7

8

9

10

11



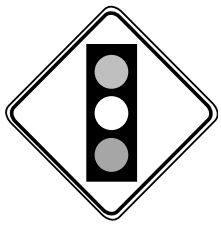
12

13

14

15

16



17

18

19

20

21

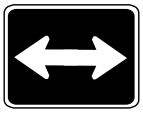
22

23

24

25

26



27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

Sign Dimensions for Trail & Bicycle Facilities

Sign Type	Reference Code	Minimum Sign Size - inches	
		Multiuse	Roadway
Standard County Trail Sign	30	18 x 18	18 x 18
Stop	31	18 x 18	30 x 30
Yield	32	18 x 18 x 18	30 x 30 x 30
Bicycle Lane Supplemental Plaques	33	—	30 x 12
Movement Restriction	34-36, 38	12 x 18	18 x 24
Begin Right Turn Lane Yield to Bikes	37	—	36 x 30
Push Button for Green Light	39	9 x 12	9 x 12
Bicycle Wrong Way	40	12 x 18	12 x 18
Ride With Traffic Plaque	40	12 x 12	12 x 12
No Motor Vehicles	41	24 x 24	24 x 24
No Bicycles	42	24 x 24	24 x 24
No Parking Bike Lane	43,44	—	12 x 18
Pedestrians Prohibited	45	18 x 18	18 x 18
Bicycle Regulatory	46,47	12 x 18	12 x 18
Shared-Use Path Restriction	48	12 x 18	—
To Request Green Wait on Symbol	49	12 x 18	12 x 18
Railroad Crossbuck	50	24 x 4.5	48 x 9
Advance Grade Crossing	51	15 Dia.	15 Dia.

TRAIL NOTE: For additional design details, sign materials and further examples please reference the *Manual on Uniform Traffic Control Devices for Streets and Highways* written and published by the Federal Highway Administration.

These design standards will guide the county in future trail developments, as well as the municipalities applying for open space funds. Montgomery County and the 62 municipalities are pioneering ahead to develop a first-rate integrated trail system on a local and regional level, while creating an innovative recreational and preservation program for all others to accredit and pursue.

Trail & Bicycle Facilities Resource References

Bicycling Road Map, Montgomery County Planning Commission, Norristown, PA, 1999.

Community Trails Handbook, Brandywine Conservancy, Chadds Ford, Pennsylvania, 1997.

Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), Washington, D.C.,1999.

Guide for the Planning, Design, and Operation of Pedestrian Facilities, American Association of State Highway and Transportation Officials (AASHTO), Washington, D.C., July 2004.

Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 ed., Federal Highway Administration, Washington, D.C., 2003.

Rails-to-Trails Conservancy, *Trails and Greenways Clearinghouse*, < http:// www.trailsandgreenways.org/resources/>, accessed in 2005.

Ryan, Karen-Lee (ed), *Trails for the Twenty-First Century,* Island Press, Washington, D.C., 1993.

WELCOME TO THE OPEN HOUSE
FOR
THE RIVERFRONT OPEN SPACE PLAN

May 25, 2010
5:00 to 7:30 PM

Developing a comprehensive set of recommendations for Whitemarsh Township's two-and-a-half mile riverfront, with a special emphasis on the Riverfront Development District, extending from Spring Mill to Conshohocken.

Attached you will find a chart entitled, "Action Plan" with all of the Draft Recommendations listed. The recommendations are summarized on the pages following the chart and are displayed around the room. After you have had a chance to review the displayed material and ask any questions about it, we would appreciate you indicating up to 5 Recommendations that you think should be a 'high priority' by putting a check in the appropriate column. Please leave the sheet with us before leaving this evening.

We have also attached a sheet for any comments. Please leave this sheet with us before leaving as well. If you prefer, you can mail these back to the Township within one week, or e-mail any comments to Bruce Horrocks, Acting Township Manager, at BHorrocks@whitemarshtwp.org.

Thank you for coming and participating in this important project!

DRAFT

ACTION PLAN

Recommendation	Priority					Implementation: Private Sector or Township and/or other	Prerequisite Actions
	Immediate	High*	Medium*	Low*	On-going		
Trail Related							
Develop Multi-Use Trail						Private sector development along the River in the RDD District, or the Township could take intiative by purchasing ROW along the river and developing the trail.	Private development and/or Township ROW acquisition.
Develop Focal Point at Spring Mill						Township/Private	
Create Trail Crossing at R6 Tracks						Township/SEPTA	
Design Riverfront Trail for Leisurely Use	N/A	N/A	N/A	N/A	N/A	N/A	
Address Safety Issues	✓					Township	
Amenities							
Provide a Restroom Facility						Township/Private/County	
Install River-Related Art						Township/Private	
Consider the Installation of a Water Screen						Township/Private	
Install Overlooks						Township/Private	
Provide a Civic Gathering Space						Township/Private	
Water use							
Install Boat Launches						Township/Private/County	
Initiate Water Tours						Township/Private	
Install Fishing Piers						Township/Private/County	
Public Safety							
Provide Locations for Water Drafting for Fire-Fighting						Township	
Provide Security Lighting	✓					Township/Private/County/SEPTA	
Provide Security Posts with Emergency Phones	✓					Township	
Design (Trail Specifications) for Emergency Vehicles						Township	
Environmental Concerns							
Alert Potential Developers of Environmental Concerns	✓					Township	
Circulation							
Extend Washington Street						Township/Private	
Explore Potential River Crossing						Township	
Signage							
Provide Way-Finding Signage						Township/Private	
Install Interpretive Signage						Township/Private	
Landscaping							
Creation/Restoration of Riparian Buffer Landscaping						Township/Private	
Restore habitat on East 33						Township	
Provide Beautification and Landscape Enhancements						Township/Private	
Service Uses							
Provide Additional Public Parking						Township/Private	
Provide Opportunities for Bike and/or Boat Rental Facilities						Township/Private	

*High Priority (1-3 years); Medium Priority (3-5 years); Low Priority (5+ years)

RECOMMENDATIONS
TRAIL RELATED

Develop Multi-Use Trail

- Development of a multi-use trail along the entire riverfront.
- County's Schuylkill River Trail is close to the river but North (west) beyond Spring Mill, it is remote (on the inland side of the SEPTA R6 train tracks).
- Riverfront Development District (RDD) in the Zoning Ordinance requires the installation of such a trail as development/redevelopment of riverfront property takes place.
- Township should consider taking the initiative to develop this trail on properties where land developments are not occurring or are not imminent.
- May be some isolated instances where the trail needs to be located away from the riverbank.

Develop Focal Point at Spring Mill

- Develop more of a 'focal point' at Spring Mill (through joint efforts of County, Township., PECO and SEPTA).
- This location is becoming the natural convergence of several trails including the existing Schuylkill River (County) Trail, the PECO trail and the proposed Joshua Road 'urban greenway'.
- This area becomes a natural trailhead, with the convergence of the trails, the County park, and the parking at the park/SEPTA train station.
- Supplemental parking could possibly be developed in the PECO right-of-way.

Create Trail Crossing of R6 Tracks

- Create a safe crossing of the R6 tracks from Washington Street to the County' Schuylkill River Trail in the stretch between the Finneran & Haley property and Cherry Street.
- Unless Washington Street is extended to tie back to the Township's street system, a safe cut-through would be advantageous.

Design Riverfront Trail for Leisurely Use

- Trail should be designed for more leisurely use and public interaction.
- This trail should be distinguished from the Schuylkill River Trail which is designed for and used by joggers and bikers.
- Trail is envisioned for a leisurely after-dinner stroll or a casual early morning walk.
- The trail surface should be comfortable, but also withstand flood.

Address Safety Issues

- Safety issues along the trails should be addressed. (See 'Public Safety' recommendations.)

RECOMMENDATIONS

AMENITIES

Provide A Restroom Facility

- Possibly be done through a Township/County partnership at Spring Mill.

Install River-Related Art

- Art can be considered for any location along the riverfront.
- A sculling-inspired sculpture might be placed in the vicinity of the Whitemarsh Boat Club property.
- Other boating-related sculptures could be considered at any of the potential boat launch areas.
- There are numerous possibilities; materials to be used for artwork are also many and could be varied based on the subject matter, location, and other factors.

Consider the Installation of a Water Screen

- Consider a "water screen" for use along some segments of the River.
- Water screen consists of underwater pumps along the center of the river. Nozzles force river water upward into flat fan shaped water screens. Electrical power for the pumps is supplied by nearby photovoltaic panels, making it energy-efficient; the screens are safe for river life and users of the river.
- It could minimize road noises, act as a draw for gatherings, draw people in at nighttime as well as during the day.
- Illumination of the water screen at night would be an attraction along both banks of the river.
- Specific images or even a film, can be projected onto a water screen.

Install Overlooks

- One or more overlooks could be considered east of Spring Mill where there are spectacular views.
- An overlook, as an "extension" of the Schuylkill River Trail toward the river, would allow users to pause off the trail out of joggers' and bikers' ways.
- Some seating might be incorporated in the overlook design.

Provide a Civic Gathering Space

- A civic gathering space for civic events, concerts and similar events, should be developed along the flat portion of the riverfront.
- A possible location would be at the western (southern) end of the Finneran and Haley property.
- A very simple design is envisioned. Two tiers of seating walls in semi-circular design, with the central (stage) area being left natural, is one possible design.

RECOMMENDATIONS
WATER USE

Install Boat Launches.

- Boat launches are recommended in several locations: along the riverfront nearer Conshohocken; at Spring Mill; and near the Miquon train station.
- All boat launches would be for non-motorized boats.
- The Miquon location would be for portage only and would require the improvement to the safety features of the R6 SEPTA track crossing.
- A public/private partnership should be pursued with the owners of 'River Park' (the office complex adjacent to this area) for parking.
- For the boat launch closest to Conshohocken, investigation should be coordinated with the 'Riverwalk at Millennium' apartment complex, which already has a boat launch area. The possibility of a public/private partnership should be investigated.
- To accomplish a boat launch at Spring Mill, the existing one in the County's Spring Mill Park, could be upgraded with a partnership between the County and Township. Parking is already available at the Spring Mill train station and the park.
- The Finnaren and Haley site was also discussed as a possible boat launch location due to its lengthy level shoreline.

Initiate Water Tours

- Self-guided and possibly guided tours could be established, dependent upon private sector interest.
- If there is sufficient interest, facilities could be made available by a private business for boat rental, perhaps for paddleboats and others.

Install Fishing Piers

- Simple fishing piers could be developed at various locations where there is easy access to the river. It would be logical to plan these adjacent to boat launch areas.

ENVIRONMENTAL CONCERN

Alert Potential Developers of Environmental Concerns

- Alert potential developers in the industrial RDD area of possible hazardous materials to be investigated and if necessary, mitigated during the redevelopment process. (Most of the properties in this area have previously been used as heavy industrial facilities, potentially leaving behind hazardous or toxic substances.)

RECOMMENDATIONS
PUBLIC SAFETY

Provide Locations for Water Drafting for Fire-Fighting

- Township fire officials are interested in access to the river for purposes of drafting water (removing it by suction) for fire fighting.
- Interest in new or improved river access at Miquon, Spring Mill, and the northern end of the Finnaren and Haley property.
- In addition, dry pipes are often laid into the river to facilitate drafting; there is already a pipe under the SEPTA tracks down to the river at Miquon,.
- A similar pipe at the Finnaren and Haley property, would also be desirable.

Provide Security Lighting

- Bollard-style lighting and other pedestrian-oriented lighting should be provided along the riverfront trail.
- Different locations along the river may call for different types of lighting; all should be of a coordinated design.

Provide 'Security Posts' With Emergency Phones

- These would be similar to the systems typically found on college campuses.
- The Township Police Department felt that security cameras should also be considered in conjunction with these systems.

Design for Emergency Vehicles

- The riverfront trail should be capable of accommodating emergency vehicles.
- The 10-foot width required in the RDD would be adequate; however, the trail must be capable of holding 20 tons for emergency fire equipment.
- Appropriate specifications for the trail will need to be developed by the Township.

RECOMMENDATIONS

CIRCULATION

Extend Washington Street.

- Extend Washington Street to connect with Hector Street/Spring Mill Avenue at Lee Street. This would allow for a full loop from Cherry Street (in Conshohocken) to Lee Street.
- When the Finneran and Haley property is redeveloped, it is anticipated that Washington Street would be extended the full width of its property.
- The final leg of the extension to tie it back to Hector Street and Spring Mill Avenue would need to be made through the property of David's Bridal. Some rearrangement of existing improvements on this site, would be necessary.
- An engineering study would be required to determine exactly how this connection could be made.

Explore Potential River Crossing

- A proposed river crossing is included in some recent Lower Merion plans, which would go from Flat Rock Park in Lower Merion to Fairmont Park (at the foot of Shawmont Street), east of the Township/City boundary.
- Some type of river access between Riverbend Environmental Center in Lower Merion and the Schuylkill Environmental Education Center in Philadelphia, has also been discussed (possibly a dock on either side of the river).

SIGNAGE

Provide Way-Finding Signage

- Provide a consistent way-finding sign system to let trail users know where comfort and commercial facilities are located.
- Such a signage system would alert trail users to facilities either along the trail or nearby; these could include public facilities as well as nearby commercial facilities. Directional arrows and number of blocks or distance in miles or fractions thereof, would be included.

Install Interpretive Stations/Signage

- Install some simple signage identifying the natural habitats, unique vegetative areas, and other natural conditions found along the riverfront, with some explanation of their significance and why they are found in their respective locations.
- Signs would be of a consistent, naturalistic design.

RECOMMENDATIONS
LANDSCAPING

Creation/Restoration of Riparian Buffer Landscaping

- Wherever the trail or other construction has removed the natural landscape between Spring Mill and Miquon, plans should be developed to restore it.
- In areas where industrial development has removed most natural landscaping and redevelopment is to occur, riparian plantings should be installed. The RDD requires a 100 to 150-foot wide open area along the river, where planting would be appropriate.

Restore Habitat on 'East 33'

- Habitat restoration should be accomplished on East 33 possibly in conjunction with Manatawna Farm (Fairmont Park Commission lands).

Provide Beautification and Landscape Enhancements

- Generally provide appropriate beautification and landscaping in the Study Area to enhance the user experience.
- In addition to riparian buffer landscaping, all development in the study area should include appropriate landscaping to define spaces, provide buffers, and generally enhance the appearance of the area.

SERVICE USES

Provide Additional Public Parking

- Additional public parking should be provided to serve the active riverfront and the facilities anticipated. This is one potential public amenity which could be developed in conjunction with an RDD redevelopment.
- Developments in the area of Spring Mill, the Finneran & Haley site, and sites near the border with Conshohocken, would be logical locations..

Provide Opportunities for Bike and/or Boat Rental Facilities

- Spring Mill is one obvious location for such rental facilities, especially if a boat ramp is improved here.
- Other locations near possible boat ramps and adequate parking, would also be appropriate and could be attractive for concessions for boat rentals of various types, including canoes, row boats, and kayaks.
- Fishing supplies and limited snack foods may also be made available.

RIVERFRONT OPEN SPACE PLAN
COMMENTS

Thank you!

If you wish to mail this back, please send to Bruce Horrocks, Acting Township Manager; 616 Germantown Pike; Lafayette Hill, PA 19444.