

Darby Creek Stream Valley Park Master Plan



DARBY CREEK STREAM VALLEY PARK
MASTER PLAN

Delaware County, Pennsylvania

April 2009

Prepared for the
Delaware County Planning Department

by

Urban Research & Development Corporation
Bethlehem, Pennsylvania

This project was financed in part by a grant from the Keystone Recreation, Park and Conservation Fund under the administration of the Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction	v
Background	A-1
Park Setting.....	A-1
1987 Master Plan	A-3
Public Input.....	A-4
Site Investigation and Analysis	B-1
Character of the Corridor.....	B-1
Existing Recreational Facilities	B-1
Land Ownership.....	B-1
Activities and Facilities Analysis	C-1
Desired Activities and Facilities in the Darby Creek Corridor.....	C-1
Guidelines and Recommendations for Activities and Facilities.....	C-2
Trail Standards.....	C-5
Master Plan	D-1
Trail Development	D-1
Alternate and Additional Trail Segments	D-8
Other Park Elements	D-11
Support Facilities	D-12
Action Plan	E-1
Property Issues.....	E-1
Construction Issues.....	E-4
Phasing.....	E-4
Cost Estimates.....	E-6
Greenway Funding Sources	E-12
Management and Maintenance	F-1
Management.....	F-1
Oversight Committee	F-2
Maintenance.....	F-3
Appendix	G-1
Trail Details	G-1
Listing of Interviewed Persons and Group Attendees	G-23
Tools Used by Interviewers	G-26

TABLE OF CONTENTS (CONTINUED)

PAGE

Maps, Tables, and Figures

Map A1	Darby Creek Stream Valley Park, Master Plan Study Area.....	A-2
Map B1	Land Ownership (West)	following B-2
Map B2	Land Ownership (Central).....	following B-2
Map B3	Land Ownership (East).....	following B-2
Map D1	Trail Development Plan (West).....	following D-2
Map D2	Trail Development Plan (Central).....	following D-2
Map D3	Trail Development Plan (East).....	following D-2
Table A-1	Study Area Population, 1990–2000	A-1
Table B-1	Existing Park Facilities	B-2
Table B-2	Land Ownership	B-3
Table C-1	Desired Activities and Facilities for the Darby Creek Corridor	C-1
Table C-2	Standard Trail Width Recommendations	C-6
Table E-1	Property and Construction Issues.....	E-1
Table E-2	Cost Estimate, Phase Two: Kent Park to Baltimore Avenue	E-6
Table E-3	Cost Estimate: Addingham to Burmont Road Bridge	E-8
Table E-4	Cost Estimate: Baltimore Avenue to MacDade Boulevard.....	E-9
Table E-5	Cost Estimate: SEPTA Transportation Center to Pine Street	E-10
Table E-6	Total Cost Estimate: Proposed Trail	E-10
Table E-7	Cost Estimates: Alternates 1-5	E-11
Table F-1	Estimated Annual Maintenance and Labor Costs	F-4
Figure i	One of the houses at Addingham	iv
Figure ii	East end of Powell Park	iv
Figure A1	Darby Creek downstream from Penn Pines Park	A-4
Figure A2	Darby Creek downstream from Providence Road.....	A-5
Figure B1	Gillespie Park in Upper Darby	B-1
Figure B2	Hoffman Park in Lansdowne.....	B-1
Figure C1	Picnic pavilion in Hoffman Park.....	C-2
Figure C2	Parking area at Shrigley Park	C-3
Figure C3	Trail on the Pennock Woods Tract.....	C-3
Figure D1	One of the houses at Addingham	D-1
Figure D2	Creek Road near the Lower Swedish Cabin.....	D-2
Figure D3	Old road in Creek Road A segment	D-2
Figure D4	Informal path under SEPTA trestle on Parcel 3B	D-2
Figure D5	Kent Dam, below which the plan recommends a bridge.....	D-2
Figure D6	Steeply sloped stream bank on Parcel 5A	D-3

**TABLE OF CONTENTS
(CONTINUED)**

		<u>PAGE</u>
Figure D7	Falls Run entering Darby Creek under Burmont Road	D-3
Figure D8	Area along Scottdale Road proposed as part of the Gateway Park Trail ..	D-4
Figure D9	One of the pathways in Hoffman Park	D-4
Figure D10	Scottdale Road near Hoffman Park	D-5
Figure D11	Rock overhang on the north side of Scottdale Road	D-5
Figure D12	Pathway on the Pennock Woods site	D-5
Figure D13	Darby Creek between Castle Tool and the Racquet Club	D-5
Figure D14	Trail easement on Parcel 14A owned by Delaware County	D-6
Figure D15	Path over sewer easement on the Mustin Tract	D-6
Figure G1	Paved Pathway with Swale	G-1
Figure G2	Gravel Pathway Section	G-2
Figure G3	Pathway Section with Retaining Wall on Slope	G-3
Figure G4	Deck Trail on Slope: Side Elevation	G-4
Figure G5	Deck Trail on Slope: Plan	G-5
Figure G6	Deck Trail on Slope: Front Elevation	G-6
Figure G7	Deck Trail on Slope (photo)	G-7
Figure G8	Deck Trail on Slope: Side (photo)	G-7
Figure G9	Road Crossing with Gate: Detail	G-8
Figure G10	Road Crossing with Bollard: Detail	G-9
Figure G11	Road Crossing with Gate (photo)	G-10
Figure G12	Road Crossing with Bollard (photo)	G-10
Figure G13	“Vehicles Excluded” Sign	G-11
Figure G14	Warning Sign	G-12
Figure G15	Stop Sign	G-13
Figure G16	Pedestrian Crossing Sign	G-14
Figure G17	Wooden Post Detail	G-15
Figure G18	Wooden Guide Rail Detail	G-16
Figure G19	Wooden Guide Rail (photo)	G-17
Figure G20	Post Guide Rail (photo)	G-17
Figure G21	Metal Gate Detail	G-18
Figure G22	Post and Three-Rail Fence	G-19
Figure G23	Metal Gate (photo)	G-20
Figure G24	Gravel Paved Pathway: 12' Wide (photo)	G-20
Figure G25	Kiosk Detail	G-21
Figure G26	Kiosk (photo)	G-22
Figure G27	Kiosk: Close-up (photo)	G-22

INTRODUCTION

In March 1987, the Delaware County Planning Department commissioned a master plan for a park along the Darby Creek corridor. In the subsequent 20 years, many changes have occurred in the study area, necessitating an update to the master plan. The cornerstone of the 1987 plan was a trail along Darby Creek from the Lower Swedish Cabin downstream to Bartram Park near 12th Street in Darby Borough. Other trail-related improvements and low intensity recreational facilities were also recommended.

The following document is an updated version of the *Darby Creek Stream Valley Park Master Plan* that provides a long-range guide for park development, again emphasizing the development of a trail for foot and nonmotorized traffic. The plan also emphasizes protecting the floodplain, steep slopes, and wooded vegetation in the area. Protecting the natural resources will help with flood control and water quality in Darby Creek.



Figure i One of the houses at Addingham, near the upstream limit of the study area

The recent planning process was instrumental in helping to develop support for the revitalized concept of the Darby Creek Stream Valley Park. Prior to the previous master plan, the County had acquired many parcels of land along Darby Creek, demonstrating the foresight that makes the current plan possible. The County now has many land parcels along the corridor, which increased the enthusiasm for the park and trail concepts as the plan developed.

The scope of the park has been increased to include additional land at both ends of the 1987 study area. The master plan area now starts at Garrett Road, Upper Darby Township, and extends downstream to Pine Street in Darby Borough. Implementation of the plan depends upon the cooperative efforts of Delaware County, the municipalities, and “Friends of” groups for specific facilities. The plan also recognizes that implementation depends on available funding.



Figure ii East end of Powell Park, near the downstream limit of the study area

A. Background



Lower Swedish Cabin

BACKGROUND

Park Setting

The updated *Darby Creek Stream Valley Park Master Plan* study area is composed of all or portions of six municipalities (Map A1):

- Aldan Borough
- Lansdowne Borough
- Clifton Heights Borough
- Upper Darby Township
- Darby Borough
- Yeadon Borough

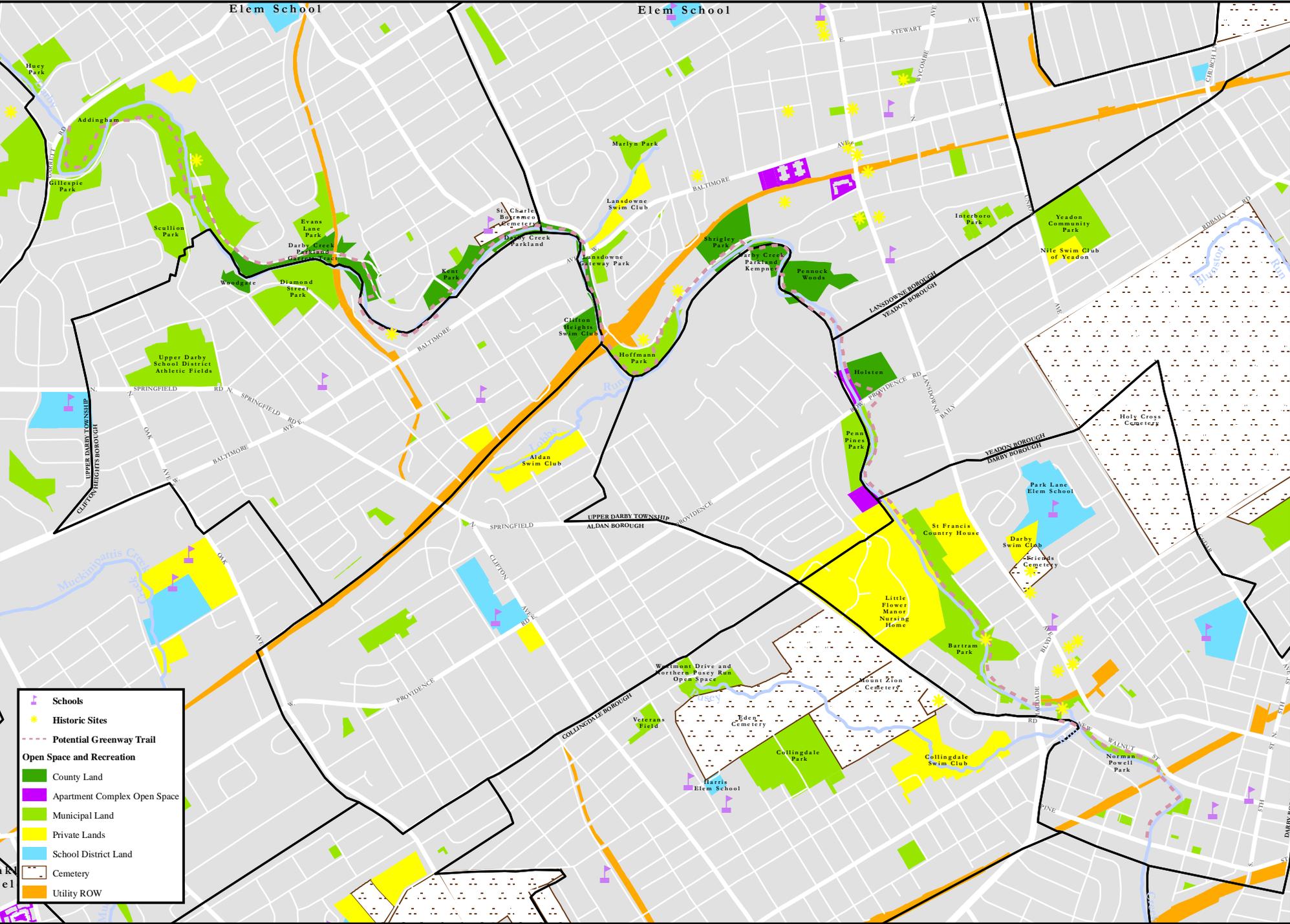
Upper Darby Township, adjacent to the City of Philadelphia, is the largest and most heavily populated of the six municipalities (Table A-1). From 1990 to 2000 (the latest figures available from the U.S. Census), the area declined in population, in contrast to Delaware County as a whole and the entire state which experienced slight growth.

**TABLE A-1
STUDY AREA POPULATION, 1990-2000**

Municipality	Total Population		Change, 1990-2000	
	1990	2000	Number	Percent
Aldan	4,549	4,313	(236)	(5.2)
Clifton Heights	7,111	6,779	(332)	(4.7)
Darby Borough	11,140	10,299	(841)	(7.5)
Lansdowne	11,712	11,044	(668)	(5.7)
Upper Darby Township	81,177	81,821	644	0.8
Yeadon	11,980	11,762	(218)	(1.8)
Study Area Total	127,669	126,018	(1,651)	(1.3)
Delaware County	547,651	550,864	3,213	0.6
Pennsylvania	11,881,643	12,281,054	399,411	3.4

Source: U.S. Department of Commerce, Bureau of the Census

The study area is densely developed with a population density of 9,923 persons per square mile (ppsm), more than three times the overall density of Delaware County (2,888 ppsm) and more than ten times the overall density for Pennsylvania (274 ppsm).



	Schools
	Historic Sites
	Potential Greenway Trail
Open Space and Recreation	
	County Land
	Apartment Complex Open Space
	Municipal Land
	Private Lands
	School District Land
	Cemetery
	Utility ROW

Similarly, housing density in the study area is also very high (4,172 housing units per square mile (hupsm), compared to Delaware County (1,179 hupsm) and the state (117 hupsm).

Housing stock in the study area is also relatively old. The 2000 Census data indicates that the median year for housing construction in the study area municipalities ranges from 1941 (Lansdowne) to 1951 (Aldan and Yeadon), while the median year for a structure in all of Delaware County was 1954 and for all of Pennsylvania was 1957. A total of 73.8% of all study area housing stock was built prior to 1960, compared to 65.9% for all of Delaware County and only 54.6% for the entire state.

Income levels in the study area are below other areas in Delaware County. Median family income reported in the 2000 Census was \$50,092 for Delaware County and \$40,106 for Pennsylvania. The corresponding figure for municipalities in the study area ranged from \$30,938 in Darby Borough to \$47,292 in Aldan Borough.

Traffic in the study area is consistent with a major metropolitan area. Some roadways have significant volume and will be major considerations in designing potential trail segments. Major roadways in the study area include Baltimore Avenue, Lansdowne Avenue, Providence Road, and MacDade Boulevard.

1987 Master Plan

The original Darby Creek master plan¹ included a survey of the review committee members to help determine facilities appropriate for the proposed stream valley park. Opinions included both appropriate and inappropriate facilities. The survey indicated that trails and associated support facilities were the most desired elements for the stream valley park.

The elements of the 1987 master plan, including analysis of activities, guidelines and recommendations, the development plan, phasing, and budget and management guidelines, remain valid. However, many elements affecting the park have changed:

- Construction costs have risen.
- Many elected officials in the County and some municipalities are different.
- Trails have become increasingly popular since 1987.

Therefore, the County retained Urban Research and Development Corporation (URDC) of Bethlehem (PA) to prepare an update of the master plan.

¹ *Master Plan, Darby Creek Stream Valley Park*, Thomas Comitta Associates, March 1987

Public Input

The public input process included steering committee meetings, key person/focus group interviews, a briefing meeting with County Council, and a public meeting. Every element of public input indicated a growing enthusiasm for the stream valley park.

Public Meeting

In addition to the events detailed below, a public meeting for the Greenway Plan for the Darby Creek Watershed was held on September 26, 2006. The larger overall Darby Creek watershed study area for that plan includes this master plan's study area. At the meeting, input valuable for developing this plan was provided during a breakout session geared towards participants interested in this middle portion of the watershed.

Steering Committee

The steering committee for the stream valley park was designed to guide the County and consultant through draft information to a workable final plan. All six municipalities in the study area were invited to appoint members to the steering committee. Upper Darby Township and the Boroughs of Clifton Heights, Lansdowne, and Darby all appointed steering committee members.

The committee met three times during the planning process. Summaries of each committee meeting follow.

- *March 13, 2007, 7:00 p.m., Aldan Recreation Building* — The first meeting provided committee members with an overview of the project and the work done by staff and consultant to date. Key discussion points included:
 - Cleaning up the creek area is very important to the image of the area and to entice residents to use the creek for passive and active recreation.
 - The primary objectives of greenways are to preserve land from development, minimize flood damage, and increase green space in the area. Recreation is a second priority.
 - Not all greenways will have trails. Some residents will not want public access adjacent to their properties.
 - Pennsylvania's Growing Greener program is a large source of funding for greenways. The program requires a 50% local match.
 - Developing the Darby Creek Stream Valley Park and greenway will take years, perhaps decades, and will require cooperative efforts among the County, the



Figure A1 – Darby Creek downstream from Penn Pines Park

- municipalities, volunteer organizations, and individuals.
 - The best policing for trails is usage. When a trail is well-traveled, users tend to keep the trail clean and watch for undesirable behavior.
 - The trail is likely to be closed from dusk to dawn and will not be lit.
 - To protect from washout, the trail could be paved, but paving is expensive. Landscaping can also help reduce erosion.
 - The plan will not include specific design of the trail.
 - Protecting stream banks upstream is very important to minimizing flooding problems in the target area.
 - The Mustin Tract is a key piece of the potential park/trail.

- *May 9, 2007, 7:00 p.m., Clifton Heights Borough Hall* — Key discussion points included:
 - The public sector controls a continuous strip of land along the corridor except for a small segment along Scottdale Road. Planning for construction before the entire corridor is controlled is prudent because the greenway/trail will have to be constructed in pieces over time, and state and federal funding is now available to help defray costs.
 - Lansdowne’s Gateway Park, now under construction, will be a significant node in the greenway.
 - Keeping the trail on the west side of the creek approaching Penn Pines Park from the north would avoid the cost of bridging the creek. The land on the west side of the creek is all privately owned.
 - Many options are available for owning, operating, and maintaining the park/trail. Successful examples include the York County Rail Trail, the Ironton Rail Trail, and the trail system in Chester County.

- *August 13, 2007, 7:00 p.m., Clifton Heights Borough Hall* — Staff gave a presentation on the meeting with Delaware County Council. Most of the discussion focused on the composition and workings of an oversight committee. Key points included:
 - County members of the committee should include the County Park Board member representing the district in which the Darby Creek Stream Valley Park is located.
 - The committee may need a solicitor at some point. The County should provide a solicitor for advice in the beginning stages of the committee’s efforts.
 - The current proposal would have the County be the primary holder of easements. Liability would be no different than with current parks; each piece of land along the trail would be insured by the landowner/easement holder (County, municipality, or private).



Figure A2 – Darby Creek downstream from Providence Road

- Missing links (land not in public ownership) are key issues for the oversight committee. If land is not in public ownership, trail development is very difficult.
- The oversight committee is intended to be advisory only. Nevertheless, the committee will have significant problems if members cannot act with a reasonable assurance of municipal support. If a municipality questions the decisions of its representative, the volunteer support for the committee and the entire project may dwindle. One suggestion was an initial set of meetings with municipal representatives to explain the oversight committee concept and to establish the committee.
- The staff and consultant suggested that the County's first phase of the trail stretch from Baltimore Avenue along County-owned land through Kent Park to the border with Ava Electronics.
- Gravel, bituminous, and porous paving are the primary alternatives for trail surfaces. Gravel is the least expensive but requires the most maintenance and is subject to washout. Porous paving allows the greatest amount of natural drainage but is the most expensive and requires some maintenance. Bituminous, though more expensive than gravel, is less expensive than porous paving and requires the least amount of maintenance. Bituminous paving is, therefore, the preferred option.
- Membership in the oversight committee could be "phased" so that only municipalities with trail segments sit on the committee. As the first trail segment is planned within a municipality, that municipality would become active in the oversight committee.
- As an alternative, the oversight committee could have two parallel tracks. One track would involve all six municipalities in the study area plus County staff discussing broader park and trail issues. The other track would be a subcommittee of only those municipalities involved in active projects discussing and acting on current development of the park/trail.
- The two main sources of funding for park/trail development are the Pennsylvania Department of Conservation and Natural Resources (DCNR) and the Pennsylvania Department of Transportation (PennDOT). DCNR provides 50% matching grants through the Community Conservation Partnerships Program. PennDOT offers grants of up to 80% under the Transportation Enhancements Program. However, PennDOT requirements such as prevailing wages may as much as double the cost of a project.

Interviews/Focus Groups

During the preparation of the *Darby Creek Stream Valley Park Master Plan*, County staff also conducted a parallel greenway planning program for the entire Darby Creek watershed. As part of the greenway planning program for the watershed, County staff, members of a separate steering committee, and URDC collaborated to interview a variety of interested and knowledgeable parties regarding greenways within the watershed. The input process took the form of either one-on-one interviews or focus groups, in which several persons with a common link to the master plan met with County and/or URDC

staff at the same time. The interview/focus group process included representatives of the following groups:

- Delaware County Heritage Commission
- Delaware County Conservation District
- Delaware County Parks Department
- Delaware County Regional Water Quality Control Authority (DELCORA)
- PECO Energy Company
- Fairmount Park Commission
- Philadelphia Water Department
- Lower watershed municipalities
 - Darby Borough
 - Prospect Park Borough
 - Sharon Hill Borough
 - Springfield Township
- Outdoor interests
 - Delco Anglers
 - Local fishermen
 - Stream Watch
- Darby Creek Valley Association
- Haverford Township Recreation Department
- Business/tourism interests
 - Baltimore Avenue Corridor Project
 - Brandywine Conference and Visitor's Bureau
 - Delaware County Chamber of Commerce
- John Heinz National Wildlife Refuge at Tinicum
- Natural Lands Trust
- Drexelbrook community
- Mercy Fitzgerald Hospital
- Springfield Township Environmental Advisory Council
- School districts
 - Interboro School District
 - Marple-Newtown School District
 - Radnor Township School District
 - Springfield School District
- Upper watershed municipalities
 - Haverford Township
 - Marple Township
 - Radnor Township
 - Radnor Conservancy
- Bicycling interests
 - Clean Air Council
 - Delaware County Cycling Coalition
 - Delaware County Planning Department

- Haverford Township Police Department
- Local residents

The interview process provided an opportunity to explain the proposed stream valley park directly to potential stakeholders, initiate a constructive dialogue about the project, and assess potential support for the project. As the interviews progressed, the project received more and more support and enthusiasm from potential stakeholders. Major conclusions and recommendations from the interview/focus group process regarding the Darby Creek Stream Valley Park included:

- Participants were generally very positive about preserving the land along Darby Creek and attempting to establish a trail within the park. Top priority for the greenway should be public safety through reduced flooding and increased stream quality. Recreation in the form of a trail and promotion of local historical sites are strong second and third priorities.
- In some cases, interviewees noted that residents sometimes see the creek as a nuisance instead of an asset. Land preservation and park/trail development would provide a tangible reminder of the value the creek offers.
- Interviewees recognized two major points regarding municipal involvement in the Darby Creek Stream Valley Park:
 - Municipal support is critical to the success of a greenway. Municipalities have the land use controls (zoning and subdivision/land development ordinances) and would have to be responsible for maintaining a greenway within local borders. The County should consider providing technical and, if possible, financial assistance to municipalities for greenway development and maintenance.
 - Land preservation is often a low priority for municipal governments. Many services compete for limited local human and financial resources.
- In order to make the park and trail a tourism asset, easy access is very important. The park and trail should be well marked and well publicized.
- Support for a trail can be strengthened by promoting successful trails nearby, such as the Radnor Trail and the Chester Creek Branch Rail Trail.
- One of the most important ingredients the County can provide is leadership. The municipalities in the Darby Creek Stream Valley Park area have a history of not cooperating with one another. The greenway and trail can be a project that will benefit all residents in the affected municipalities and could help to strengthen positive relations among the municipalities if the project has strong, positive leadership.

Delaware County Council Meeting

Staff and URDC also presented the park and trail concept to Delaware County Council on July 12, 2007, and Council expressed interest in the project. Key discussion points and Council comments included:

- The plan should include a breakdown of development costs for each parcel owned by the County.
- An oversight committee should be established to operate the park/trail. One successful example in Delaware County is the Friends of the Chester Creek Branch. The committee could be composed of municipal representatives and County Parks Department and Planning Department personnel.
- Kent Park should be the County's first phase of installation.
- Staff expressed support for the project and requested:
 - Council support to show leadership for the municipalities in undertaking the project.
 - Technical and financial support for trail development.

B. Site Investigation and Analysis



Darby Creek downstream from Penn Pines Park

SITE INVESTIGATION AND ANALYSIS

Character of the Corridor

The dominant feature of the park study corridor is the peaceful, meandering Darby Creek with its many picturesque, steeply sloping banks. Steep slopes pose challenges to builders and, for the most part, have protected the corridor from development. The corridor includes nine parks – varying from highly developed, active recreation (Hoffman Park) to undeveloped (Shrigley Park). The area contains a few old factory buildings and a few new office buildings.

The 1987 master plan includes mapping and descriptions of the physical elements of the study area. The information has not changed and is incorporated here by reference.

Existing Recreational Facilities

The study area includes four developed municipal parks (Table B-1):

- Gillespie Park, Upper Darby Township
- Hoffman Park, Lansdowne
- Penn Pines Park, Upper Darby Township
- Powell Park, Darby Borough

All four parks serve the surrounding neighborhoods with active recreational facilities, such as ballfields, courts, playgrounds, and open lawn areas. Hoffman Park has a portable restroom, and Penn Pines Park has a permanent restroom which is locked unless a specific function is taking place in the park. County-owned Kent Park is underdeveloped, with only a basketball court and a recently developed dog park. The remaining four parks, Evans Lane Park, Shrigley Park, Pennock Woods, and Bartram Park, are undeveloped.



Figure B1 – Gillespie Park in Upper Darby



Figure B2 – Hoffman Park in Lansdowne

Land Ownership

The 1987 master plan was developed following the County acquisition of many parcels of land in the study area. Today, the County-owned land forms the backbone for developing the Darby Creek Stream Valley Park.

Combining the County-owned land and the municipal parks, the stream valley corridor is almost in uninterrupted public ownership – a fact that helped build the enthusiasm and momentum for the park concept during the planning process. Only a few key areas are needed to complete public ownership (Table B-2, Maps B1, B2, and B3). Efforts should be made to obtain access easements across those parcels shown in the table as they are still in private ownership.

**TABLE B-1
EXISTING PARK FACILITIES**

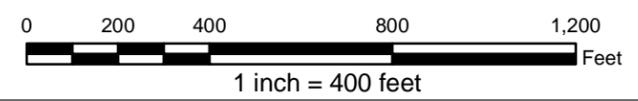
<p>Gillespie Park Parking Restrooms, none Playground Ballfields – 2 small, T- ball size Open Lawn Wooded Areas Access to Stream</p>	<p>Hoffman Park cont'd.) Playground Tennis Courts – 4 Baseball Fields – 2, overlap- ping outfields, lighted Basketball Courts – 2 Access to Stream</p>	<p>Penn Pines Park (cont'd.) Playground Open Lawn Wooded Area Picnic Pavilion Access to Stream</p>
<p>Evans Lane Park Undeveloped</p>	<p>Shrigley Park Undeveloped Informal Parking Informal Paths</p>	<p>Bartram Park Parking Playground, not maintained Informal Trail Access to Stream</p>
<p>Kent Park Parking Restrooms, none Basketball Court Dog Park Access to Stream</p>	<p>Pennock Woods Undeveloped Informal Paths Wooded Areas Access to Stream</p>	<p>Powell Park On-street Parking Informal Parking Area Basketball Court Open Lawn Access to Stream Wooded Areas</p>
<p>Hoffman Park Parking Restrooms, portable Picnic Pavilion</p>	<p>Penn Pines Park Parking Restrooms, locked Softball Field</p>	

Source: URDC



MAP B1 Land Ownership (West)

- County Park Lands
- Homeowner Association Lands
- Municipal Park Lands
- Private Lands
- School District Owned Lands
- County Easement
- SEPTA Owned Lands



Upper Darby School District Athletic Fields

Lansdowne Borough

Upper Darby Township

Springfield Township

Clifton Heights Borough

Garrett Rd

Palmer Mill Rd

N Sycamore Ave

Childs Ave

Wide Ave

Evans Ln

Bridge St

Burmont Rd

St Charles St

Anne St

Dennison Ave

N Marple Ave

N Glenwood Ave

E Baltimore Ave

E Broadway Ave

Springfield Rd

Walnut St

Gillespie Park

Lower Swedish Cabin

Evans Lane Park

Addingham

3A Gillespie Estate

3B SEPTA

Kent Park

Gillespie Park

Scullion Park

1 Diamond Street Park

Woodgate

Diamond Street Park

Garrett Tract

Ava Electronics

Kent Park

Kent Park

5

5

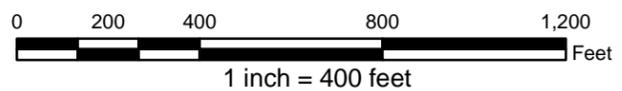
6

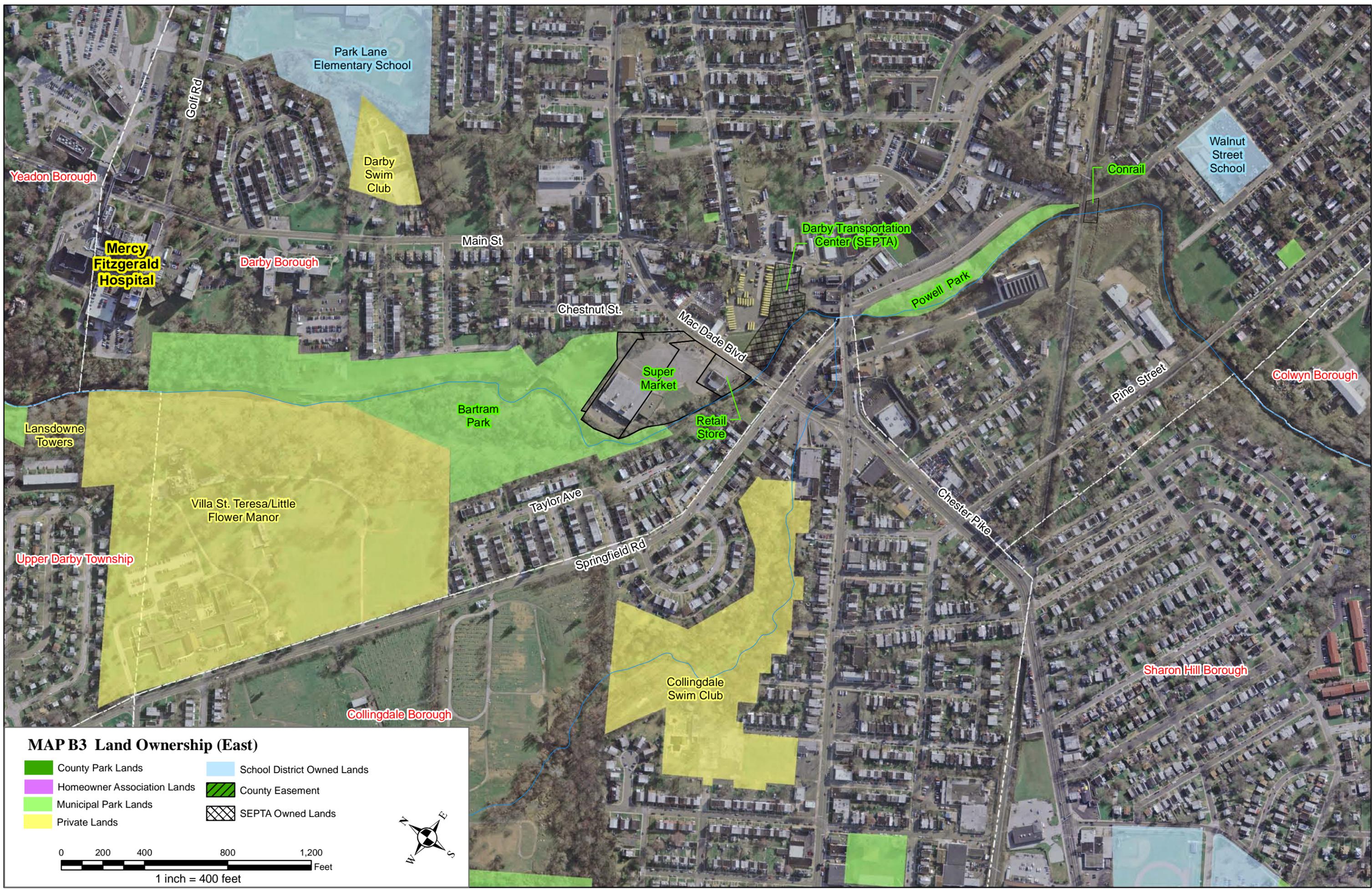
4



MAP B2 Land Ownership (Central)

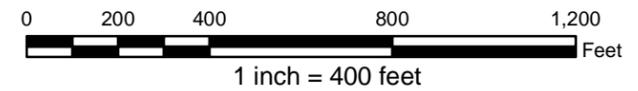
- County Park Lands
- Municipal Park Lands
- Private Lands
- Homeowner Association Lands
- School District Owned Lands
- County Easement
- SEPTA Owned Lands





MAP B3 Land Ownership (East)

- County Park Lands
- Private Lands
- School District Owned Lands
- Homeowner Association Lands
- Municipal Park Lands
- County Easement
- SEPTA Owned Lands



Yeadon Borough

Mercy Fitzgerald Hospital

Darby Borough

Lansdowne Towers

Upper Darby Township

Villa St. Teresa/Little Flower Manor

Collingdale Borough

Park Lane Elementary School

Darby Swim Club

Main St

Bartram Park

Taylor Ave

Chestnut St.

Springfield Rd

Collingdale Swim Club

Super Market

Retail Store

Mac Dade Blvd

Darby Transportation Center (SEPTA)

Powell Park

Chester Pike

Conrail

Pine Street

Sharon Hill Borough

Walnut Street School

Colwyn Borough

**TABLE B-2
LAND OWNERSHIP**

PARCEL IDENTIFICATION	PARCEL OWNER	MUNICIPALITY	AVAILABLE SITE MAPPING	COMMENTS
Addingham	Upper Darby	Upper Darby	No	Open space parcel with two dwellings and old road (Bloomfield Ave.)
Gillespie Park	Upper Darby	Upper Darby	No	Active park with ballfield
Creek Road Tract	County	Upper Darby	No	Undeveloped between creek and Creek Rd. – Formerly labeled as part of Garrett Tract.
Woodgate	County	Clifton Heights	No	South of creek
1 Glenwood Ave.	Co. Easement	Clifton Heights	Yes	County easement from street to creek
3A Gillespie Estate	County	Upper Darby	Yes	Undeveloped, west of SEPTA line
3B SEPTA	SEPTA	Upper Darby	Yes	Parcel of SEPTA ROW, 0.24 acre
Garrett Tract	County	Upper Darby	No	Undeveloped, north of creek at dam. Creek Road Tract was formerly labeled as part of Garrett Tract.
Ava Electronics	Private	Upper Darby	No	Commercial building north of creek
4 Kent Mill	County	Clifton Heights	Yes	Undeveloped around Kent Mill
Kent Park	County	Clifton Heights/ Upper Darby	No	County park with dog park and playground
5 A, B, C Unnamed	County	Upper Darby/ Lansdowne	Yes	Narrow strip of land between Kent Park and Baltimore Avenue
6 K-Mart	County	Clifton Heights	Yes	Narrow strip of land upstream of Baltimore Avenue, south side
7A Burkholder	County	Lansdowne	Yes	Narrow strip of land downstream of Baltimore Avenue
8A Hoffman Estate	not available	Lansdowne	Yes	Small parcel between SEPTA and park
8B SEPTA	SEPTA	Lansdowne	Yes	SEPTA ROW adjacent to Hoffman Park
Hoffman Park	Lansdowne	Lansdowne	No	Active park
Scottdale Road	Lansdowne	Lansdowne	No	Missing link of land
Shrigley Park	County	Lansdowne	No	Undeveloped park
11 Kempner	County	Upper Darby	Yes	Undeveloped parcel
12 Pennock Woods	County	Lansdowne	Yes	Undeveloped park, informal paths
13 Castle Tool	County	Upper Darby	Yes	Undeveloped parcel

PARCEL IDENTIFICATION	PARCEL OWNER	MUNICIPALITY	AVAILABLE SITE MAPPING	COMMENTS
14A Racquet Club	Co. Easement	Yeadon	Yes	On commercial property
14B Ridgeway Court	Co. Easement	Yeadon	Yes	On apartment property
15 Holsten	County	Yeadon	Yes	Undeveloped parcel
Mustin Tract	Private	Yeadon	Yes	Undeveloped parcel
Mercy Fitzgerald Hospital	Private	Yeadon/ Darby Borough	Yes	Undeveloped part of parcel along creek needed
Penn Pines Park	Upper Darby	Upper Darby	No	Active park with open space
Lansdowne Towers	Private	Upper Darby	No	West side of creek
Villa St. Teresa (VST)/ Little Flower Manor	Private	Upper Darby/ Darby Borough	No	Undeveloped land along creek, may be developed soon
Bartram Park	Darby Borough	Darby Borough	No	Undeveloped park
Supermarket Site	Private	Darby Borough	No	At MacDade Boulevard
Retail Store	Private	Darby Borough	No	At MacDade Boulevard
SEPTA Transportation Center	SEPTA	Darby Borough	Yes	Proposed pathway
Powell Park	Darby Borough	Darby Borough	No	Passive park
Conrail	Conrail	Darby Borough	No	Conrail ROW
Pine Street Area	Private	Darby Borough	No	Conrail ROW to Pine Street

Source: URDC

C. Activities and Facilities Analysis



Kent Dam

ACTIVITIES AND FACILITIES ANALYSIS

Desired Activities and Facilities in the Darby Creek Corridor

The 1987 master plan included a survey to help determine the desired activities and facilities for the Darby Creek Stream Valley Park. County staff knowledge and information from the interview/focus group process updated the 1987 results (Table C-1).

The preferred activities and the activities that can be sustained by the physical limitations of the site correlate very well. Highly preferred activities relate well to the long, sometimes narrow, strips of land that dominate the character of the creek corridor. The moderate preference activities are those being provided at the park nodes of the corridor. The activities of low preference do not fit well with the character of the creek corridor and, therefore, will not be facilitated in the plan.

**TABLE C-1
DESIRED ACTIVITIES AND FACILITIES FOR THE DARBY CREEK
CORRIDOR**

Activities with High Preference

Walking Trails
Hiking Trails
Accessible Trails
Nature Study Trails
Bicycling
Picnicking – Family/Individual
Stream Fishing
Lookout Platforms
Special Education/Cultural Events
Festivals – Small Only
Support Facilities
Restrooms
Parking
Benches
Picnic Tables
Bike Racks
Waste Receptacles
Security Lighting

Activities with Moderate Preference

Group Picnicking
Sledding / Tobogganing
Cross-country Skiing
Play Fields – Baseball/Softball
Play Fields – Soccer/Football
Tennis, Basketball
Swimming
Nature Study Preserve
Pavilions
Playgrounds

Activities with Low Preference

Ice Skating
Horseback Riding
Motorized Bike Trails
Tent Camping
Trailer Camping
Wilderness Camping

Source: *Darby Creek Stream Valley Park Master Plan (1987)*, updated by URDC

Guidelines and Recommendations for Activities and Facilities

The following section provides guidelines and recommendations for activities and facilities in the proposed park. Most of the recommendations encourage the activities with high or moderate preference in Table C-1.

Trail Activities – walking, hiking, bicycling, handicapped accessibility, nature study

- The Darby Creek Stream Valley Park should include a major linear trail.
- The trail should consist of a 10' wide paved walkway in most areas. Some sections may be as narrow as 6' or 4' due to site conditions.
- Portions of the trail may be accommodated by a boardwalk or decking in steeply sloped or wetland areas.
- Pedestrian bridges spanning Darby Creek will be needed to allow trail continuity.
- Sections of the creek corridor should be acquired in fee simple or controlled through the use of easements (Table E-1).
- Coordination with PennDOT and municipal governments is necessary for a trail parallel to or within road rights-of-way.
- Stream crossing permits from state and possibly federal agencies will be required for the proposed bridge crossings of Darby Creek.
- Cross-country skiing can be accommodated on the main trail during the winter.
- Trail access points should be related to designated parking locations, most of which should fall in existing parks along Darby Creek.
- Benches should be placed strategically in connection with the trails.

Picnicking – individual/family or group picnicking

- Individual/family picnicking should occur on an informal basis in designated areas with picnic tables and waste receptacles.
- Group picnicking should be promoted with pavilions in existing parks along Darby Creek. Grills should be provided in existing parks along Darby Creek at designated group picnic areas.



Figure C1 – Picnic pavilion in Hoffman Park

Sports – Cold Weather – sledding/tobogganing, ice skating

- Sledding and tobogganing could be provided in existing parks along Darby Creek if site conditions allow for the activity.
- Outdoor ice skating should not be provided because the climate in Delaware County is not dependable enough to maintain a safe ice surface.

Sports – Warm Weather – play fields, volleyball, swimming

- Play fields for both formal and informal play should be concentrated in the existing parks along Darby Creek. Volleyball, horseshoes, and related games can also be accommodated. Players will be expected to bring all necessary equipment.
- Swimming should not be permitted in the creek. Swim clubs in the area provide opportunities not available in the park.

Sports – Court Games – tennis, basketball

- Tennis and basketball courts are available in the existing parks along Darby Creek.

Fishing – Stream

- Stream fishing, which generally occurs on an informal basis, should be encouraged. Individuals will find favorite locations. No special facilities are needed, although new parking space at Shrigley Park and other selected places will help to accommodate potential users.



Figure C2 – Parking area at Shrigley Park



Figure C3 – Trail on the Pennock Woods Tract

Nature Study – trails, preserve

- Nature study trails should be provided in appropriate portions of the park and be subordinate to the main trail on the Pennock Woods, Kempner, and Holsten Tracts.
- Nature study trails should be unpaved and allow opportunities to discover natural features, such as the impressive rock outcrop on the Pennock Woods Tract.
- The Pennock Woods Tract already contains a nature preserve, and the use should continue. Smaller nature study areas could be designated within the park to highlight special features. For example, the marsh on the Holsten Tract could serve as a point of interest for wetland vegetation.

Special Events – educational/cultural, festivals

- Special events should be organized and conducted by the County and various groups in the area. Typically, special events require large, level, open sites with parking and overflow parking areas. Kent Park may be the only large site suitable for special events.

Support Facilities – parking, restrooms, lookout platform, security lighting, playground equipment, waste receptacles, benches, bike racks

- Parking for the linear Darby Creek Stream Valley Park, for the most part, will be located at the existing parks along Darby Creek.
- Small parking areas may be created in limited use areas, such as Pennock Woods and the Swedish Cabin.
- Restrooms in the existing parks along Darby Creek should be used for activities in the proposed Darby Creek Stream Valley Park. Restrooms should not be provided within the linear Darby Creek Stream Valley Park because vandalism and maintenance costs prohibit their successful use.
- Lookout platforms should be installed at selected locations along the major trail. The existing and proposed bridges will also serve as lookout platforms. Where land ownership, topography, and existing vegetation permits, other lookout platforms should be considered.
- Lighting should not be considered for a trail in the Darby Creek corridor. The park should be closed from dusk till dawn. Security lighting should be provided near parking areas at existing parks along Darby Creek.
- Play equipment should only be considered at the existing parks along Darby Creek.

- Waste receptacles should be limited to major parking areas in existing parks along Darby Creek. Trail policy should be strictly “carry-in/carry-out.” Trail users must carry in and out everything to be used on the trail. Signs clearly stating the policy should be located along the trail and at all trail entrances.
- Benches should be strategically located along the trail where space allows. Points with good views should receive preference for locating benches.
- Bike racks should be placed at nodes such as municipal parks or other points of interest along the trail.

Other – camping, snowmobiling, horseback riding, and motorized trail biking should be prohibited from the park due to the potential for user conflicts.

- Formal campgrounds should be prohibited in the park. Under special circumstances, qualified organizations, such as the Boy Scouts, Girl Scouts, or other officially recognized youth groups, may request permission for a camp outing from a landowner.

Trail Standards

Trail Width

The American Association of State Highway Transportation Officials (AASHTO) recommends trail widths based on user type, number of lanes, and general environment (Table C-2). Using the AASHTO standards, a multi-use trail for bicycles and pedestrians along Darby Creek should be 10' wide. In some areas, steep slopes or other construction limitations may limit the width of the trail. If possible, narrow portions of trail should include a short segment (e.g., 10' to 20' long) where the trail is 10'-12' wide to alleviate congestion and allow for passing.

Trail Surfaces

In general, softer surfaces of trails are cheaper to install but require more maintenance; harder (paved) trails cost more to install but require less maintenance. Since funding for maintenance is generally harder to obtain, most communities choose to build paved surface trails. Paved surfaces are also easier for wheeled items, such as rollerblades, narrow wheeled bicycles, and strollers. The appendix contains details and photographs for several trail surfaces.

Pervious paving is becoming popular to encourage ground infiltration of stormwater. Trails, for the most part, are narrow linear strips of pavement running through large vegetated areas. Stormwater can run off the trail and be absorbed by the adjacent vegetated areas, reducing the value of pervious pavement. On the other hand, the use of

**TABLE C-2
STANDARD TRAIL WIDTH RECOMMENDATIONS**

AASHTO Standard Tread Widths for Bicycle-only Trails			
<i>AASHTO Standards</i>	<i>Recommended Minimum Width</i>		
One way, single lane	5'		
Two way, dual lanes	10'		
Three lanes of bicycle travel	12.5' minimum		
Recommended Trail Tread Widths for User-specific Trails			
<i>Trail User Type</i>	<i>Recommended Trail Width</i>		
Bicyclist	10' (2-way travel)		
Hiker/walker/jogger/runner	4' rural; 5' urban		
Cross-country skier	8-10' for 2-track trail		
Minimum Recommended Tread Widths for Multiple Use Trails			
<i>Tread Type</i>	<i>Urban</i>	<i>Suburban</i>	<i>Rural</i>
Pedestrian, nonmotorized	12'	10'	10'

Source: AASHTO

pervious pavement can set a good standard and be an example of the trail as a good steward of the environment. Gravel trails work well where long portions of trail are being installed, where storm drainage swales do not cross, and/or a low volume of users is expected.

Special Trail Conditions

Almost all trails will include crossing elements – places where the trail crosses a stream, wetland, steep slope, or street. In many cases, special permits will be required from local, state, and/or federal agencies for environmental crossing elements, such as streams and wetlands. The appendix contains details and photographs of examples of treating special conditions along trails.

Safety becomes a major issue where a trail crosses a street. Warning signs should be placed on the trail approaching all crossings, and stop signs should be placed on the trail at all street intersections. Warning signs and special pavement markings on streets should be considered for motorists traveling on the cross streets.

Many trails will require bollards (barricades) to keep motorized vehicles off of trails. Narrow passageways need to be provided for pedestrians and bicyclists. Where bollards are utilized, gates must be provided to allow emergency and maintenance vehicles.

Keeping trail users from straying onto adjacent private property is a major concern on portions of almost all trails. A fence and/or sign can tell the trail user not to enter areas

alongside the trail. A post and rail fence works well, is relatively low cost, does not block views, and is aesthetically pleasing. In some cases, a more secure fence material will be required, especially where the safety of the trail user is at stake.

Accessible Trails

Trails should be accessible to the disabled. The Americans with Disabilities Act (ADA) requires trails using public funds to be accessible and establishes accessibility guidelines for people with disabilities. The design of any new trail should meet the current standards set forth by ADA guidelines. At this time, accessible trails must meet the following technical provisions:

- Surface – The trail surface shall be firm, stable, and slip-resistant.
- Clear Tread Width – 36" minimum
- Tread Obstacles – 2" high maximum (up to 3" high where running and cross slopes are 5% or less)
- Cross Slope – 5% maximum
- Passing Space – provided at least every 1,000' where the trail width is less than 60" (5'-0")
- Signs – shall be provided indicating the length of an accessible trail segment
- Running Slope (trail grade) – shall meet one or more of the following:
 - 5% or less for any distance
 - Up to 8.33% for 200' maximum with resting intervals no more than 200' apart
 - Up to 10% for 30' maximum with resting intervals no more than 30' apart
 - Up to 12.5% for 10' maximum with resting intervals no more than 10' apart
 - No more than 30% of the total trail length may exceed a running slope of 8.33%

Trail Details – Typical trail construction and development are shown in the appendix for the following items:

- Gravel pathway
- Asphalt pathway
- Pathway with retaining wall on slope
- Deck pathway on slope
- Road crossing with gate
- Road crossing with bollards

D. Master Plan



Lindbergh Bridge over Kent Park

MASTER PLAN

This chapter is the heart of the *Darby Creek Stream Valley Master Plan*. It includes a discussion of each segment of the proposed trail and several alternates.

Trail Development

The primary feature of the Darby Creek Stream Valley Park will be a trail. The proposed 5.1-mile trail will extend from Garrett Road in Upper Darby Township downstream to Pine Street in Darby Borough (Maps D1, D2, and D3). Most, if not all, of the trail should be handicapped accessible. The following section discusses each segment of the trail, including a possible alignment and needed support facilities for the trail.¹

ADDINGHAM – An old existing road, Bloomfield Avenue, runs along Darby Creek through the historic Addingham Tract. The road serves two Township-owned houses on the tract (Figure D1), ending at the second house. A trail could be created on the road with few improvements.



Figure D1 – One of the houses at Addingham

ADDINGHAM BRIDGE – A bridge across Darby Creek will be necessary between Addingham and Gillespie Park.

GILLESPIE PARK A – The upper portion of Gillespie Park is open lawn with wooded areas along Darby Creek. A trail could pass along the edge of the woods and the existing parking area, which could serve as trail parking.

GILLESPIE PARK B – Ballfields and a playground dominate the central, active portion of the park, which is separated from Darby Creek by a wooded strip. A trail could follow the edge of the wooded area through the active portion of the park or could go along the street side of the ballfields.

GILLESPIE PARK C – The southern end of the park is wooded. An underground utility line runs through the area, creating a pathway and an excellent location for a trail.

SWEDISH CABIN BRIDGE – A bridge across Darby Creek will be needed from Gillespie Park to County-owned land along Creek Road. The bridge should be placed just downstream from the Lower Swedish Cabin (Figure D2).

¹ Letters and numbers within segment names (e.g., “Creek Road B” or “3A SEPTA”) are labels carried over from the 1987 master plan.



Figure D2 – Creek Road near the Lower Swedish Cabin, where the plan proposes a pedestrian bridge across Darby Creek

CREEK ROAD A – Section A is County-owned land. Several parking spaces are located at the upstream portion near the Lower Swedish Cabin. The area includes several old roads and informal trails that could easily be upgraded to formal trails (Figure D3). In a few places, trees and brush will need to be cleared to connect pathway links into a continuous trail.



Figure D3 – Old road in Creek Road A segment that could be upgraded to a formal trail

CREEK ROAD B – The area between Creek Road and Darby Creek (section B) is too narrow for a trail between the road and creek. Therefore, Creek Road should be widened to facilitate a trail on the road.

3B SEPTA – A trail should be placed on an informal path under the SEPTA trestle (Figure D4). County staff should pursue an easement from SEPTA to build and maintain a trail on the parcel.

CREEK ROAD C – Creek Road section C is wooded, County-owned land and has several informal paths that could be easily upgraded to formal trail status.

GARRETT BRIDGE – The trail requires a bridge near the Garrett Tract, and the County owns land on both sides of Darby Creek below Kent Dam (Figure D5). The bridge may be costly because the creek is wide in the area, but the County does not own a continuous strip of land on the north side of the creek in the vicinity (see also “Alternate Route 1” later in this chapter).

4 KENT MILL A – Delaware County owns land from the dam downstream to Kent Mill (now the Rockbourne Falls Business Center) and on to Kent Park on the south side of Darby Creek. The section between the dam and the old mill has several informal trails that could be improved as formal trails.

4 KENT MILL B – A narrow (20'-30' wide) strip of County-owned land between the Rockbourne Falls Business Center and Darby Creek will provide an area to build a formal trail. The section contains two bridges across the creek: a sturdy upstream



Figure D4 – Informal path under SEPTA trestle on Parcel 3B SEPTA

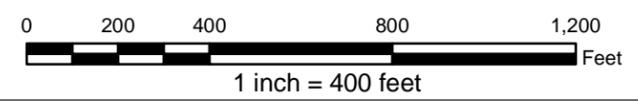


Figure D5 – Kent Dam, below which the plan recommends a bridge for the trail to cross Darby Creek



MAP D1 Trail Development Plan (West)

- | | | |
|-----------------------------|-----------------------------|--------------------------|
| County Park Lands | School District Owned Lands | Trail Segment Dividers |
| Homeowner Association Lands | County Easement | Alternate Trails |
| Municipal Park Lands | SEPTA Owned Lands | Potential Greenway Trail |
| Private Lands | | |



Lansdowne Borough

Upper Darby Township

Springfield Township

Clifton Heights Borough

Upper Darby School District Athletic Fields

Addingham Bridge

Swedish Bridge

Garrett Bridge

Kent Bridge

Alternate 1

Addingham

Gillespie Park

Lower Swedish Cabin

Gillespie Estate

3B SEPTA

Kent Park

Kent Park

Gillespie Park

Scullion Park

Woodgate

Diamond Street Park

Garrett Tract

Ava Electronics

Kent Park

Kent Park

N Bishop Ave

Palmer Mill Rd

Palmer Dr

N Sycamore Ave

Creek Road

Diamond Street Park

N Glenwood Ave

E Baltimore Ave

E Broadway Ave

Walnut St

Springfield Rd

N Marple Ave

Burmont Rd

St Charles St

Bridge St

Evans Ln

Anne St

Childs Ave

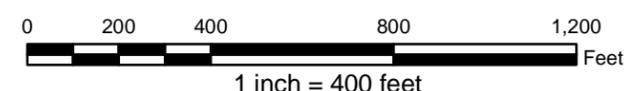
Wide Ave

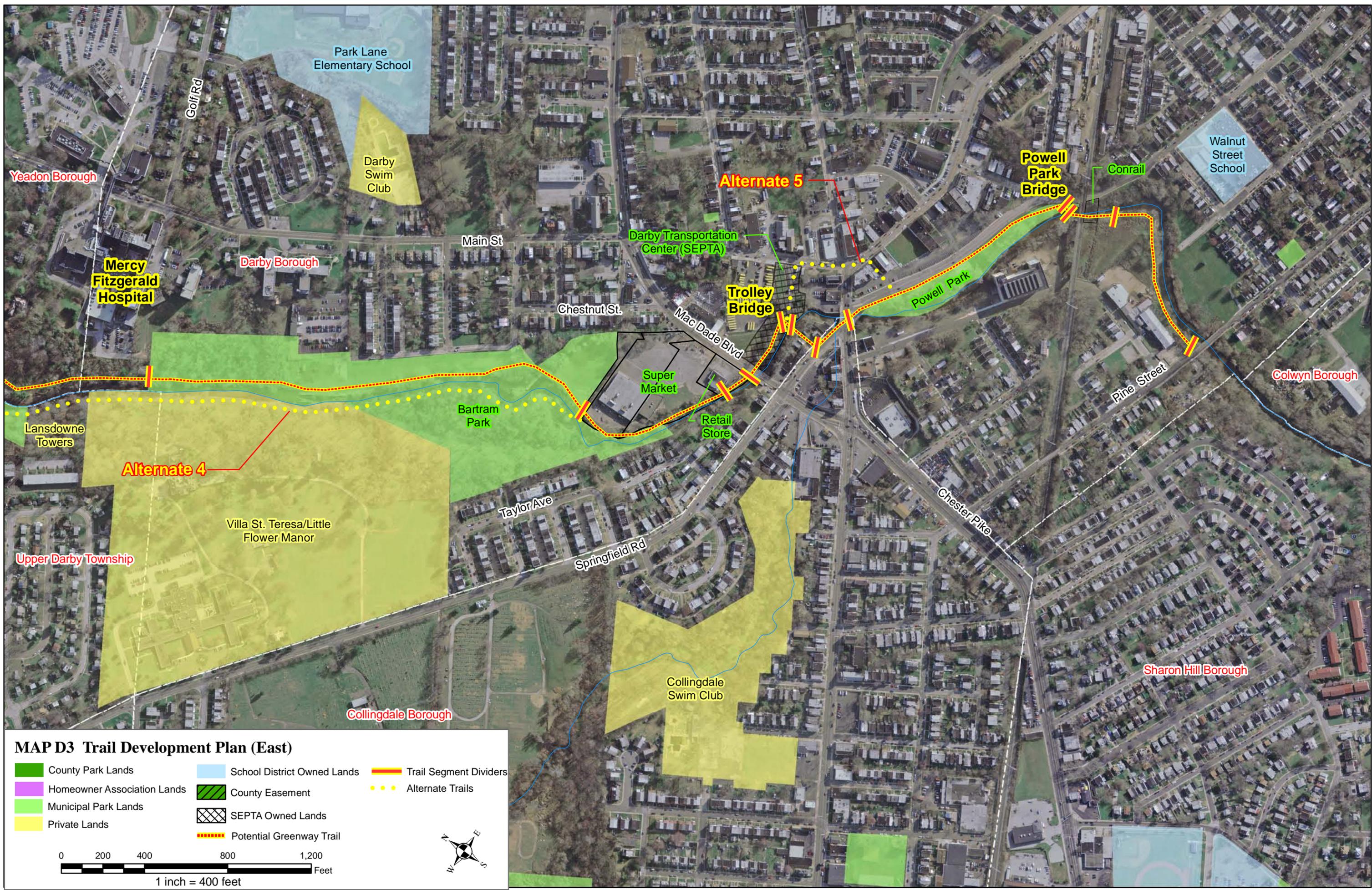
Dennison Ave



MAP D2 Trail Development Plan (Central)

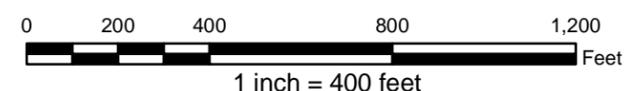
- | | | |
|--|--|--|
| County Park Lands | School District Owned Lands | Trail Segment Dividers |
| Homeowner Association Lands | County Easement | Alternate Trails |
| Municipal Park Lands | SEPTA Owned Lands | Potential Greenway Trail |
| Private Lands | | |





MAP D3 Trail Development Plan (East)

- | | | |
|--|---|--|
|  County Park Lands |  School District Owned Lands |  Trail Segment Dividers |
|  Homeowner Association Lands |  County Easement |  Alternate Trails |
|  Municipal Park Lands |  SEPTA Owned Lands | |
|  Private Lands |  Potential Greenway Trail | |



bridge that lacks handrails [bridge has since been rehabilitated with new handrails] and a downstream bridge with precarious, uneven concrete decking and no handrails. However, neither bridge is suitable for the trail because both bridges connect to private land on the north side of the creek.

4 KENT MILL C – Section C is a wooded tract owned by Delaware County with a steep, rocky slope from the creek’s edge upward to Bridge Street. Building a trail in the segment will be difficult and costly. A narrow and/or wooden deck trail may be needed.

KENT PARK BRIDGE – A bridge will be needed to cross Darby Creek into Kent Park. (see also “Alternate Route 1” later in this chapter).

KENT PARK – Kent Park is an open lawn with a recently opened dog park. Kent Park includes adequate parking and easy access to major streets, making the park a good location for a trailhead.

5A UNNAMED PARCEL – Parcel 5A, on the north side of Darby Creek, is a steep, wooded, County-owned strip on which grading for a trail will be a challenge (Figure D6). A narrow trail width should be considered. In some areas, the County owns only the stream bank, so building a trail may not be possible without the cooperation of the neighboring landowner, the St. Charles Borromeo parish/ school/rectory/cemetery. Therefore, on-site inspection of the property line is critical to determine the potential for building a trail.



Figure D6 – Steeply sloped stream bank on 5A Unnamed Parcel between St. Charles Borromeo and Darby Creek



Figure D7 – Falls Run entering Darby Creek under Burmont Road in the area of 5C Unnamed Parcel

5B UNNAMED PARCEL – Parcel 5B is a short piece of County-owned land that is relatively flat at the top of the creek bank and is suitable for trail development.

5C UNNAMED PARCEL – Parcel 5C is a narrow, steep bank from the edge of the creek to Burmont Road between Eldon Avenue and Baltimore Avenue. Falls Run enters Darby Creek in the area (Figure D7). The trail must be raised on the parcel, and a short bridge will be required (see also “Alternate Route 2” later in this chapter).

7A BURKHOLDER – Parcel 7A Burkholder is County-owned land between Scottdale Road and Darby Creek. The Borough of Lansdowne has completed a master plan for a pedestrian/bicycle trail in Gateway Park. The plan calls for a trail from Baltimore Avenue to Hoffman Park to be built on the 7A Burkholder, 8A Hoffman Estate, and 8B SEPTA Tracts (Figure D8). Therefore, the Borough of Lansdowne must reach an agreement with Delaware County in order to pursue the proposed trail. The Gateway Park trail master plan fits well into the concept of a trail along Darby Creek. The Gateway Park trail could become an important link to the trail in the proposed Darby Creek Stream Valley Park. Therefore, the *Darby Creek Stream Valley Park Master Plan* supports the idea of the Gateway Park trail.



Figure D8 – Area along Scottdale Road proposed by the Borough of Lansdowne as part of the Gateway Park Trail

8A HOFFMAN ESTATE – The 8A Hoffman Estate parcel is 25' wide. Ownership of the parcel is unclear. The County should definitively clarify the ownership of the 8A Hoffman Estate parcel.

8B SEPTA – The 8B SEPTA parcel is 150' wide. In the late 1970s, an easement for a trail on the parcel was discussed with SEPTA. SEPTA granted verbal approval, but no legal documentation can be found. Delaware County should clarify and document the status of the easement with SEPTA.

HOFFMAN PARK A – Hoffman Park is owned and maintained by Lansdowne Borough. The trail can be built along an edge of the park next to the creek. Pathways in the park (Figure D9) can be incorporated into the Darby Creek Stream Valley Park trail system.



Figure D9 – One of the pathways in Hoffman Park that could become part of the trail system

HOFFMAN PARK B – A paved pathway now connects the tennis court to the parking area along Scottdale Road. The corner of the basketball court is at the edge of the creek, precluding a trail along the creek for the entire length of Hoffman Park.



Figure D10 – Scottdale Road near Hoffman Park has a narrow cartway and no shoulders



Figure D11 – Rock overhang on the north side of Scottdale Road near Hoffman Park

SCOTTDAL ROAD – Scottdale Road between Hoffman Park and Shrigley Park carries a significant amount of traffic on a narrow cartway with no shoulder (Figure D10) and is, therefore, hazardous for pedestrians and bicyclists. Topography limits construction options on the south side. The north side of the road has more room for a sidewalk but also contains four homes and a large rock outcropping (Figure D11). Further study is needed, but a sidewalk along the north side of the road may be one possible solution.

SHRIGLEY PARK – Shrigley Park is owned by Delaware County, providing a strategically located facility that will allow trail development and a small parking area.

HILLDALE ROAD BRIDGE – A trail could cross the vehicular bridge on the downstream sidewalk and turn to the north into Parcel 11.

11 KEMPNER PARCEL – The County-owned parcel has several informal paths that could be developed and maintained as a trail.

PENNOCK BRIDGE 1 – A bridge will be needed to connect Parcels 11 and 12. It will be a challenge for construction workers to access the site with the required materials and equipment.



Figure D12 – Pathway on the Pennock Woods site

12 PENNOCK WOODS – The County-owned parcel has several informal paths (Figure D12) that could be developed and maintained as a trail. Pennock Woods is currently a natural area with trails used by surrounding residents.



Figure D13 – Darby Creek between Castle Tool and the Racquet Club

PENNOCK BRIDGE 2 – A bridge will be needed to connect Parcels 12 and 13. It will be a challenge for construction workers to access the site with the required materials and equipment.

13 CASTLE TOOL – The County-owned parcel has several informal paths that could be developed and maintained as a trail. Several small streams cut through the parcel, which could be crossed by small bridges or be piped under a trail.



Figure D14 – Trail easement on Parcel 14A owned by Delaware County

CASTLE TOOL BRIDGE – The trail will require a bridge to connect Parcels 13 and 14A between Castle Tool and the Racquet Club (Figure D13) (see also “Alternate Route 3” later in this chapter).

14A RACQUET CLUB PARCEL – The County owns an easement along Darby Creek over the parcel. The distance from the top of bank to the easement boundary varies from 10' to 20', making the area narrow for a trail (Figure D14). The County should perform an on-site investigation to confirm trail feasibility.

14B RIDGEWAY COURT – The County owns an easement along Darby Creek over the parcel. The distance from the top of the bank to the easement boundary is 15'-20', making the area narrow for a trail. An on-site investigation will be needed to confirm trail feasibility.

15 HOLSTEN – The Holsten Tract is 4.86 acres owned by the County. A sanitary sewer easement parallels Darby Creek on the property. An existing stone wall along E. Providence Road will require the trail to leave the creek side and cut diagonally across to the south end of the property. The crossing point will need to align with the Mustin property on the downstream side of E. Providence Road. The trail alignment must avoid existing wetlands on the site. Wetlands will need to be marked and mapped to facilitate placement of a trail. The E. Providence Road bridge abutment is against the edge of Darby Creek, prohibiting passage under the bridge along the creek.

MUSTIN TRACT – The Mustin Tract is privately owned. At this writing, the owner is willing to talk about selling an easement on the property. Discussions with the owner should be undertaken immediately. The parcel is an important tie to the development on the east side of Darby Creek. Without the Mustin Tract, a trail along E. Providence Road and another bridge across Darby Creek will be required. The sewer line noted in the discussion of the Holsten Tract continues through the Mustin Tract, making an excellent location for a trail (Figure D15). A trail on the Mustin Tract should run parallel to E. Providence Road



Figure D15 – Path over sewer easement on the Mustin Tract

from the Holsten Tract crossing point to the sewer line near the creek, then follow the sewer line to the Mercy Fitzgerald Hospital property.

MERCY FITZGERALD HOSPITAL – The hospital has indicated a willingness to convey/sell property along Darby Creek to the County to use for a trail. The County should immediately pursue the opportunity to acquire the hospital property along the creek. The sanitary sewer line on the Mustin Tract continues along the creek through the hospital property, making the site an excellent location for trail continuity.

BARTRAM PARK – Bartram Park is owned and maintained by Darby Borough. The sanitary sewer line continues along Darby Creek through the park, making the right-of-way an excellent place to continue the trail. Existing parking facilities make Bartram Park a good location for a trailhead. Definitive mapping of Bartram Park and the adjacent properties was not available for the *Darby Creek Stream Valley Park Master Plan*. Therefore, the County must verify and ensure that all affected landowners are notified and kept well informed.

SUPERMARKET SITE – The County unsuccessfully attempted to contact the property owner of the Supermarket Site during the master planning process. Crossing the Supermarket Site is highly desirable, so efforts should continue to acquire an easement or a piece of the property to build a trail along Darby Creek. Since the building on the site is not in use, the County may have an opportunity to work with the current or new landowner to create a trail corridor as part of the redevelopment of the site.

RETAIL STORE – The store owner should be approached about allowing a trail through the property. If the effort is not successful, the property could be bypassed, tying the trail from the Supermarket Site directly to MacDade Boulevard.

SEPTA TRANSPORTATION CENTER – SEPTA plans for the Darby Transportation Center show a walkway between MacDade Boulevard and Main Street. The proposed trail would be diverted south from the midpoint of the SEPTA walkway, crossing Darby Creek on an old trolley bridge to Springfield Road, and using the sidewalk to Powell Park (see also “Alternate Route 5” below).

POWELL PARK – Powell Park is owned and maintained by Darby Borough. The long, narrow, passive park is ideally suited for a trail segment to the Conrail easement. Powell Park may serve as the eastern terminus of the trail in the Darby Creek Stream Valley Park. If the trail is to be extended to Pine Street, three additional components must be pursued, as noted below.

POWELL PARK BRIDGE – A bridge will be needed to connect Powell Park to private land on the southwest side of Darby Creek if the trail is to be extended to Pine Street.

CONRAIL EASEMENT – An easement under the railroad needs to be acquired. No contact with Conrail has been made as part of the *Darby Creek Stream Valley Park Master Plan*.

PRIVATE LAND – One or more parcels of land lie between the Conrail line and Pine Street. The County should contact landowners to determine the feasibility of extending the trail to Pine Street.

Alternate and Additional Trail Segments

Alternate alignments may be desirable at several locations along the trail to add trail access, make a looping trail, or make trail construction efficient. The following section presents illustrative options. As time passes, more options and trail connections may become apparent. At the time of construction, the County should consider all known options before making final decisions on trail alignment.

Alternate Route #1 – The County could seek an easement over the Ava Electronics Tract, a parcel of land between the Garrett Tract and Kent Park on the north side of Darby Creek. If the County received permission to build and maintain a trail on the Ava Electronics parcel, the Garrett Bridge, Kent Park Bridge, and trail portions 4 Kent Mill A, B, and C would be eliminated, resulting in large construction cost savings.

Delaware County Council is investigating the possibility of a Kent Mill connection between the Darby Creek trail and a proposed parking area at Kent Mill on Rockbourne Road. Several parking spaces would be designated as “Walking Path Designated Parking Nights and Weekends.” An old driveway being reconstructed would allow pedestrians to access an existing bridge over Darby Creek to the Ava Electronics property. Handrails and other improvements on the bridge would be needed, as would permission to use the bridge.

Advantages of Alternate 1

- Significant cost savings by avoiding the need for two bridges and negotiating a difficult segment of trail
- Trail is kept on the north side of the creek

Disadvantages of Alternate 1

- Requires easements to be negotiated with private property owners
- Requires a new/refurbished bridge to access the Kent Mill connection trailhead

Alternate Route #2 – Rather than build the raised walkway and short bridge proposed on 5C Unnamed Parcel, a bridge could be built across Darby Creek to Parcel 6 K-Mart. An engineering analysis is required to determine the best and most cost-effective alternative.

- **Lansdowne Bridge** – At the downstream end of 5B Unnamed Parcel, a tributary stream joins Darby Creek from the northeast, creating a dead end for travel on the north side of the creek. The tributary would require a bridge to connect County-owned land on the east side of the creek to Parcel 6 K-Mart.
- **6 K-Mart** – A short portion of trail will be needed between the Lansdowne Bridge and Baltimore Avenue. The area is heavily wooded and has a drainage channel from the K-Mart parking lot that requires a crossing. According to parcel maps, the County owns only the stream bank, which may not be sufficient to build a trail. Therefore, on-site inspection of the property line will be necessary to determine if the trail can be built on County property or if more property is required.
- **Baltimore Avenue** – A path will need to follow the sidewalk along Baltimore Avenue and cross over Darby Creek to the east side. Trail users can safely cross Baltimore Avenue with the aid of a traffic signal and proceed on the east side of Darby Creek.

Advantages of Alternate 2

- Locates the trail on the west side of the creek so residents on the west side can access the trail
- Easier to construct because it might be more difficult to obtain required permits for the proposed route due to environmental difficulties

Disadvantages of Alternate 2

- Significant trail deviation and longer, more indirect routing
- Trail travels on the Baltimore Avenue sidewalk for a short distance

Alternate Route #3 – In place of crossing Darby Creek on the Castle Tool Bridge and placing a trail on parcels 14A Racquet Club, 14B Ridgeway Court, and 15 Holsten, the trail could stay on the west side of the creek to E. Providence Road.

- **Suplee Envelope Company Property** – From 13 Castle Tool, continue a trail on the west side of Darby Creek. The property is owned by a private company that will need to be contacted about an easement for the placement of a trail.
- **Hillcrest Apartments** – A paved driveway runs along the top of the west bank of Darby Creek from E. Providence Road to the Suplee Envelope property with parking for the apartments along the driveway. The driveway could serve as a trail tie in the area. The County should contact the property owner to discuss the acquisition of a trail easement.

Advantages of Alternate 3

- Locates the trail on the west side of the creek so residents on the west side can access the trail

- Significant cost savings because the alternate eliminates one bridge and avoids the environmental complications of the wetlands on the 15 Holsten Tract
- Can be constructed parallel to the proposed trail, offering the possibility of a loop trail

Disadvantages of Alternate 3

- Alternate does not make use of land owned by the County
- Requires easements to be negotiated with private property owners

Alternate Route #4 – In place of (or in addition to) locating a trail over the Mustin Tract, Mercy Fitzgerald Hospital, and Bartram Park east of Darby Creek, a trail can physically be placed on the west side of the creek. Under present conditions, about half of the land west of the creek is privately owned.

- **Penn Pines Park** – Penn Pines Park is owned and maintained by Upper Darby Township. A trail could be located along E. Providence Road from the 15 Holsten Tract or from the apartment complex to enter the park. Passage along the street would be hazardous. Once in the park, a trail could be constructed along the wooded area adjacent to the creek.
- **Lansdowne Towers** – An easement would be needed from the owner of the apartments.
- **Villa St. Teresa and Little Flower Manor** – An easement would be needed from the owner of Villa St. Teresa. The land is either being sold or is in the land development process. The County should meet with the developer during the planning process to discuss allowing a trail near Darby Creek.
- **Bartram Park** – Bartram Park is located on both sides of Darby Creek downstream from Villa St. Teresa. The floodplain along the creek in Bartram Park is wide enough to allow a trail to be placed in a section of the park.
- **Bartram Park Bridge** – A bridge is required at the downstream end of Bartram Park because a steep bank on the west side of the creek will prohibit construction of a trail.

The issue of public vs. private land is not significant in the analysis of Alternate Route #4 because both the proposed trail and Alternate Route #4 require negotiations for access with private landowners. As more research is conducted, issues such as the amount of private land required by either the proposed trail or Alternate Route #4, the landowners involved, financial considerations, or other matters may create an advantage for one approach.

Advantage of Alternate 4

- Can be constructed parallel to the proposed trail, offering the possibility of a loop trail

Disadvantage of Alternate 4

- Requires a bridge, making the alternate more expensive than the proposed trail

Alternate Route #5 – Instead of crossing Darby Creek on the old trolley bridge from the SEPTA Transportation Center to Springfield Road, sidewalks on Main Street could be used from the end of the SEPTA walkway to Powell Park.

Advantages of Alternate 5

- No cost - Alternate 5 uses the pathways at the SEPTA Transportation Center and existing sidewalks
- Alternate 5 eliminates the need to refurbish the old trolley bridge across Darby Creek

Disadvantage of Alternate 5

- Users miss the experience of crossing the creek on the old trolley bridge and viewing the creek from above

Other Park Elements

Dog Park at Kent Park – Kent Park is currently underutilized, with only an old basketball court and a recently opened dog park. The proposed trail will run between the dog park and Darby Creek.

Shrigley Park – Shrigley Park is currently undeveloped. An informal parking area is located along Scottdale Road, and several informal paths run through the property. By introducing a trail in the creek corridor that passes along the property, Shrigley Park will become more inviting. By placing a small parking lot at the edge of the park, another trailhead is created for the creek corridor. Improving the informal trail and adding benches to Shrigley Park will offer the residents another natural area to enjoy.

Pennock Woods Natural Area – Pennock Woods needs no further facility development. Trails are the only improvement to the area, and the trails are sufficient to allow people to enjoy the natural character of the area.

Nature Study – Many areas along Darby Creek offer opportunities for nature study, including many wooded areas, wetlands, uplands, plant habitats, rock outcroppings, fast running creek water, and calm pools. A trail through the stream valley will provide access for nature study.

Special Events – Educational, cultural, social, and athletic events will encourage and promote park and trail use. The County will need to manage the park and trail to ensure that the facilities and natural character of the area are preserved.

Support Facilities

Most support facilities will be provided at the parks in the stream valley corridor to allow for greater use, better maintenance, and more efficient policing of the facilities.

Parking – The existing parks will provide the majority of the needed parking for the proposed trail, but trail access could increase if parking were added at Shrigley Park and Powell Park.

Restrooms – The park and trail will use restrooms at established parks to minimize vandalism, policing, and maintenance costs. Current restrooms are the portable facility at Hoffman Park and the permanent facilities at Penn Pines Park.

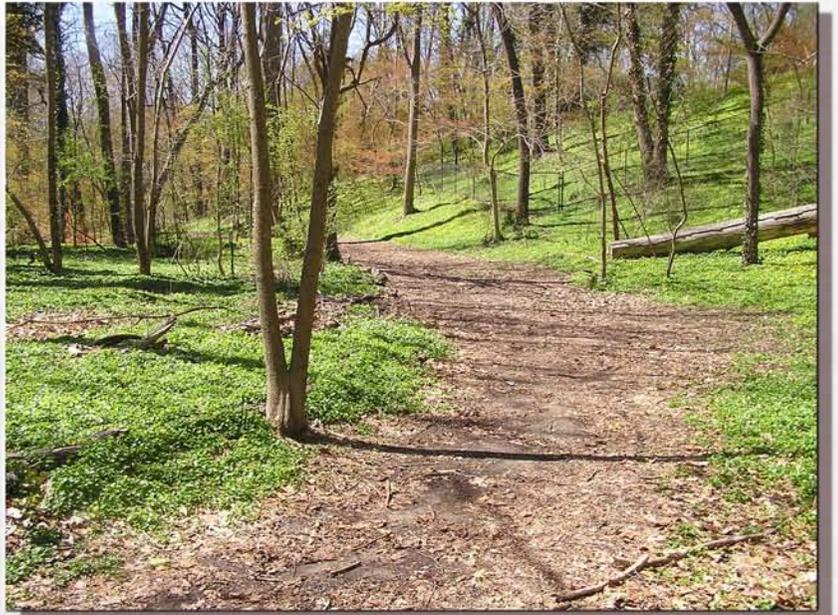
Security Lighting – Security lights should be used at all parking areas and existing parks. No lighting will be needed along the trail, which will be closed from dusk to dawn.

Waste Receptacles – Waste receptacles should only be placed in the existing parks. On the trail, a “carry-in/carry-out” policy should be well publicized and strictly enforced.

Bike Racks – Bike racks should be provided at all trail parking areas.

Benches – Benches should be provided at scenic areas except in secluded areas where people should not congregate.

E. Action Plan



Pennock Woods path

ACTION PLAN

The action plan for the *Darby Creek Stream Valley Park Master Plan* summarizes the issues to be resolved and steps to be taken to make the long-awaited park and trail a success. The master plan represents the beginning of the journey, and the excitement and anticipation that has grown through the planning process should serve as a catalyst for park and trail development. The County should initially choose small projects and promote successes to maintain and increase the understanding and enthusiasm for the park and trail.

Property Issues

In order for a trail to be developed in the Darby Creek Stream Valley Park, several property issues were identified in the previous chapter and are summarized in Table E-1. Items marked with a “(p)” are property issues. Items marked with a “(c)” are construction issues. The County and the municipalities should address all identified property issues as time and resources permit. An oversight committee, which is recommended and explained in the Management and Maintenance chapter (page F-2), should be created to help oversee property issues and construction at municipal boundaries, including new footbridges at stream crossings. The oversight committee should, through its municipal representatives, keep the municipal governments apprised of opportunities to pursue these issues as they arise. Some issues may be easily resolved or researched.

It should be noted that trail development on a particular parcel cannot proceed until any property issues are resolved. But where ownership has been resolved, construction could begin as funding becomes available. The order of pursuit is a function of the emergence of opportunities.

**TABLE E-1
PROPERTY AND CONSTRUCTION ISSUES**

Property	Issue	Needed Action	Status
3B - SEPTA (p)	Is an easement agreement in place with SEPTA?	Research with SEPTA.	Not yet addressed
Creek Road B (c)	Difficult to build a trail on a narrow strip of land between Darby Creek and Creek Road.	Widen Creek Road to accommodate a trail on or along the side of the road.	Not yet addressed
4 - Kent Mill C (c)	Steep cross slope and rock will make trail construction difficult and costly.	Try to eliminate the need for a section of trail by acquiring an easement over the Ava Electronics property.	Ava easement acquired

Ava Electronics (p)	Acquiring an easement over the Ava property will eliminate two bridges and difficult trail construction.	Contact and meet with the property owner and try to acquire an easement for a trail.	Completed
5 A, B, C - Unnamed (p)	Mapping of Parcel 5 shows that the County owns only the stream bank in some areas.	Survey the site and check actual site condition. If additional land is desired, meet with the landowner to acquire more land or an easement for a trail.	Engineering underway
5 A, B, C - Unnamed (c)	Steep cross slope will make trail construction difficult and costly.	Build a narrow trail in the section or build a deck walkway on the slope.	Upcoming - addressing site engineering issues first
6 - K-Mart (p)	Mapping of parcel 6 - K-Mart shows that the County owns only the stream bank, which may not be enough area to place a trail.	Survey the site and check actual site condition. If additional land is desired, meet with the landowner to acquire more land or an easement for a trail.	Not yet addressed, though may not need trail on this side of creek
8A - Hoffman Estate (p)	Who owns the parcel?	Check tax map to find who owns the land. Meet with owner to acquire the parcel or an easement for a trail.	In progress, part of Lansdowne Bor. project
8B - SEPTA (p)	Is an easement agreement in place with SEPTA?	Research with SEPTA and Lansdowne Borough.	In progress, part of Lansdowne Bor. project
Scottdale Road (p)	Private land ownership along the road restricts trail development.	Work with PennDOT and landowners.	Not yet addressed
Scottdale Road (c)	The section of road is narrow with no shoulders, making it hazardous for pedestrians.	Widen the section of road to accommodate a sidewalk.	Not yet addressed
Shrigley Park (c)	Steep slopes along Scottdale Road will make trail development difficult.	Work with PennDOT and nearby landowners.	Not yet addressed
14A - Racquet Club & 14B - Ridgeway Court (same issue) (p & c)	Is there enough room to construct a trail between the top of bank and the existing parking lot?	If there is not enough room to build a trail within the existing easement: <ul style="list-style-type: none"> • Meet with landowners to acquire a larger easement for a trail. • Place the trail on the existing driveway by renegotiating a new easement agreement with the landowner. or <ul style="list-style-type: none"> • Build a deck trail on the creek bank. 	Not yet addressed

15 - Holsten (c)	The wall along E. Providence Road and the bridge abutment at the edge of Darby Creek will force the trail east several hundred feet before crossing E. Providence Road.	An earth ramp may be needed to gain the elevation needed to meet the street level of E. Providence Road. If the Mustin Tract is not acquired, E. Providence Road would need to be widened to accommodate a sidewalk to Penn Pines Park.	Not yet addressed
Mustin Tract (p)	Trail easement is needed.	Meet with landowner to acquire an easement for a trail.	Not yet addressed
Lansdowne Towers (p)	Private property that could become part of a trail downstream of Penn Pines Park.	Meet with landowner to acquire an easement for a trail.	Not yet addressed
Villa St. Teresa (VST) and Little Flower Manor (p)	VST Tract may be developed in the future. The large parcel fronting on Darby Creek may become important for a future extension of the trail.	Meet with the owner/developer to obtain a trail easement and connect to the future development.	Opportunities currently being explored
Mercy Fitzgerald Hospital (p)	Acquisition of a trail easement is needed.	Meet with landowner to acquire an easement for a trail.	Discussions underway
Supermarket Site (p)	Acquisition of a trail easement is needed.	Meet with landowner to acquire an easement for a creekside trail.	Lost opportunity, explore alternative
Retail store (p)	Acquisition of a trail easement is needed.	Meet with landowner to acquire an easement for a trail.	Infeasible w/o Supermarket Site creekside access
SEPTA Transportation Center (p)	<ul style="list-style-type: none"> • Can this bridge be used for a trail? • What agreement(s) are needed? 	Meet with SEPTA to discuss the use of the old trolley bridge as a trail crossing of Darby Creek.	Funding secured for bridge rehab. for trail
Conrail (p)	Trail requires an agreement to cross under the rail line.	Meet with landowner to acquire an easement for a trail.	Not yet addressed
Private properties between Conrail and Pine Street (p)	Trail requires easement agreements in the area.	Meet with landowners to acquire easements for a trail.	Not yet addressed

p = property issue

c = construction issue

Source: URDC

Construction Issues

Several major issues concern the construction of the park improvements. The County and municipalities should address the issues below as construction is anticipated and after any property issues associated with their location are resolved. It is ultimately up to the landowners and easement holders (the County or municipalities) to determine the order in which issues will be addressed and trail segments will be constructed. In reality, the multi-municipal nature of this trail may make it possible for construction projects to occur simultaneously in two completely different areas, while funding is being sought or engineering being developed for other areas.

- a. Property Lines – The exact locations of some property lines for County-owned parcels are not known, which could affect construction. If development will occur near the edge of an estimated location of a property line or if a significant structure is planned, such as a bridge, then the County should survey the property line prior to construction planning.
- b. Accurate Site Mapping – As with the issue of property lines, site mapping may or may not be needed for various locations on site. Where little site disturbance and/or minor site improvements are required, no site mapping will be needed. However, in the cases of extensive, costly construction or in areas that are difficult to develop, the time and cost of having topography and location of existing site elements mapped would be money well spent. For example, in the open areas of Kent Park, a trail could be built with minimal or no site mapping. On the other hand, for a bridge crossing of Darby Creek or an elevated, wooden deck path along Burmont Road near Baltimore Avenue, accurate site mapping will be required.
- c. Analysis of Alternative Trail Routes – Where the trail could take two or more routes to connect two points, an analysis of route alternatives will be needed to investigate cost, construction difficulties, environmental issues, vehicular traffic crossings, passing an interesting element, and other items. One such point is the connection of Parcel 5 to Baltimore Avenue.

The *Darby Creek Stream Valley Park Master Plan* includes specific construction issues to be addressed as part of trail and park development (see items marked with a “(c)” in Table E-1). The County should take the needed action before undertaking construction of the affected trail segment.

Phasing

The *Darby Creek Stream Valley Park Master Plan* recognizes that phasing a significant project spreads the impact on public budgets, manpower, and other resources over a longer period of time. The first two phases of trail development that are in the planning and/or development stages are discussed below. These two sections have been

highlighted as “pilot” phases because the detailed planning and engineering of the trail is already underway in both areas. Because of this, they will most likely be the first sections to be constructed as well. As funding becomes available, management and land ownership are put in place, and public support strengthens, other phases of engineering and construction can take place. Extending the trail at each end of developed portions is a good way to proceed with trail development. If trail extension is not possible, the trail can be developed with gaps that can be filled in at a later date.

Phase 1 – Baltimore Avenue to Hoffman Park

Lansdowne is developing the Borough gateway at Scottdale Road and Baltimore Avenue. The Borough plans include a trail between Baltimore Avenue and Hoffman Park along Scottdale Road. The cost of Phase 1 – Baltimore Avenue to Hoffman Park was excluded from Cost Estimate Table E-5 since this project is a Borough project currently in the planning stages. More information on this section is available from Lansdowne Borough. Please use the following contact information: Mr. Craig Totaro, Borough Manager, Lansdowne Borough, 12 E. Baltimore Avenue, Lansdowne, PA 19050, 610-623-7300, e-mail: totaroc@borough.lansdowne.pa.us.

Phase 2 – Kent Park to Baltimore Avenue

The County, in conjunction with Upper Darby Township, will undertake the second phase of the trail. It will first involve development of the trail within Kent Park and will then involve extension to Baltimore Avenue as the issues noted below are resolved. The dollar amount for pilot Phase 2, as shown in Table E-2, is also represented in Cost Estimate Tables E-3 and E-4.

Elements of Phase 2 – By building a trail upstream from the Lansdowne Gateway Trail, the short Phase 1 trail could become much longer and connect two existing parks (Kent and Hoffman) along Darby Creek.

Location: Kent Park to Baltimore Avenue

Sponsor: Delaware County Parks Department

Length: 0.5 mile

Estimated Cost: \$573,045 for an asphalt paved trail with pedestrian deck along Burmont Road (Table E-2)

Major Issues Needing Attention in Phase Two

1. An engineering analysis is needed to determine the best way to traverse the steep cross slope in Parcel 5A down slope from the cemetery. Options, both of which are illustrated in the appendix, include:

- Retaining walls on the low and high sides of the trail.
 - A wooden deck meeting grade on the high side being supported by posts on the low side.
2. An engineering analysis of the route from Parcel 5B to Baltimore Avenue is needed to determine if a bridge should be placed over the creek to the K-Mart site or if the trail should stay on the east side of the creek along Burmont Road to Baltimore Avenue. The trail placement option needs to be discussed with the Department of Environmental Protection (DEP) to see if the needed permits to encroach into Darby Creek will affect trail placement.

**TABLE E-2
COST ESTIMATE, PHASE TWO: KENT PARK TO BALTIMORE AVENUE**

Segment	Length (ft)	Work Description	Amount	Unit Cost	Unit	Cost
Kent Park	1100	10' wide paved path	1100	\$35	lf	\$38,500
		road entrance	1	\$1,500	ea	\$1,500
Parcel 5 A	850	6' wide paved path	850	\$25	lf	\$21,250
		grading & walls	850	\$200	lf	\$170,000
Parcel 5 B	400	10' wide paved path	400	\$35	lf	\$14,000
Burmont Rd Deck	200	6' wide pedestrian deck	200	\$300	lf	\$60,000
Burmont Rd Bridge	50	6' wide pedestrian bridge	1	\$100,000	ea	\$100,000
Baltimore Avenue		Road entrance/crossing	1	\$10,000	ea	\$10,000
Sub Total	2600	0.5 mile				\$415,250
Design and Engineering 20%			0.2			\$83,050
Sub Total						\$498,300
		15% Contingency	0.15			\$74,745
Total						\$573,045

- * Potential alternative trail surfaces and unit costs:
- 10' wide asphalt pavement \$35/lf (used in Table E-2)
 - 10' wide gravel trail \$18/lf
 - 10' wide porous pavement \$42/lf

Source: URDC

3. Property line and topographic surveys should be undertaken in the areas where pedestrian bridges are being proposed and where other high cost construction is needed, such as the steep slope in segment 5A.

Cost Estimates

For discussion and cost estimation purposes, the *Darby Creek Stream Valley Park Master Plan* aggregates segments of the park/trail as presented in the previous chapter into three sections. Cost estimates have been prepared for each of the three major sections of the trail (Tables E-3 through E-6) and for the alternates presented in the plan (Table E-7).

Total estimated cost for the proposed trail, without bridges, is approximately \$1.65 million for a 5.1-mile trail (Table E-6). Depending on alternates chosen, a total of up to nine bridges may be required. If all nine bridges are included, the trail cost increases to approximately \$3.44 million.

**TABLE E-3
COST ESTIMATE: ADDINGHAM TO BURMONT ROAD BRIDGE**

Segment	Length (ft)	Work Description	Amount	Unit Cost	Unit	Cost	Comment
Addingham	1250	10' wide paved path	1250	\$35	If	\$43,750	
		road entrance	1	\$1,500	ea	\$1,500	
Addingham Bridge	80	4' wide pedestrian bridge	1	\$180,000	ea	\$180,000	
Gillespie Park A	600	10' wide paved path	600	\$35	If	\$21,000	
		road entrance	3	\$1,500	ea	\$4,500	
Gillespie Park B	600	10' wide paved path	600	\$35	If	\$21,000	
		road entrance	2	\$1,500	ea	\$3,000	
Gillespie Park C	500	10' wide paved path	500	\$35	If	\$17,500	
Swedish Bridge	80	4' wide pedestrian bridge	1	\$180,000	ea	\$180,000	
Creek Road A	1500	10' wide paved path	1500	\$35	If	\$52,500	
		clear & trim trees	500	\$20	If	\$10,000	
Creek Road B	700	6' along existing road	700	\$15	If	\$10,500	
		roadside barrier	700	\$15	If	\$10,500	
Creek Road C	850	10' wide paved path	850	\$35	If	\$29,750	
		clear & trim trees	300	\$10	If	\$3,000	
Garrett Bridge	150	4' wide pedestrian bridge	1	\$350,000	ea	\$350,000	See Alt 1
Kent Mill A	550	10' wide paved path	550	\$35	If	\$19,250	See Alt 1
		clear & trim trees	300	\$10	If	\$3,000	See Alt 1
Kent Mill B	200	10' wide paved path	200	\$35	If	\$7,000	See Alt 1
Kent Mill C	450	6' wide paved path	450	\$25	If	\$11,250	See Alt 1
		rock removal	400	\$100	If	\$40,000	See Alt 1
Kent Park Bridge	80	4' wide pedestrian bridge	1	\$180,000	ea	\$180,000	See Alt 1
Kent Park	1100	10' wide paved path	1100	\$35	If	\$38,500	
		road entrance	1	\$1,500	ea	\$1,500	
Parcel 5 A	850	6' wide paved path	850	\$25	If	\$21,250	
		grading & walls	850	\$200	If	\$170,000	
Parcel 5 B	400	10' wide paved path	400	\$35	If	\$14,000	
Burmont Rd Deck	200	6' wide pedestrian deck	200	\$400	If	\$80,000	See Alt 2
Burmont Rd Bridge	50	6' wide bridge	1	\$100,000	ea	\$100,000	See Alt 2
Sub Total	12,740	2.4 miles				\$1,624,250	\$676,770.83 per mile
		15% Contingency	0.15			\$243,638	
Total						\$1,867,888	\$778,286.66 per mile

Source: URDC

**TABLE E-4
COST ESTIMATE: BALTIMORE AVENUE TO MAC DADE BOULEVARD**

Segment	Length (ft)	Work Description	Amount	Unit Cost	Unit	Cost	Comments
Baltimore Avenue		road crossing	1	\$10,000	ea	\$10,000	
Lansdowne	1100	planning stage				\$0	
Hoffman Park A	900	10' wide paved path	900	\$35	If	\$31,500	
Hoffman Park B	600	existing walkways				\$0	
Scottdale Road	1000	sidewalk & road widening	1000	\$100	If	\$100,000	
		road crossing	2	\$1,500	ea	\$3,000	
Shrigley Park	600	10' wide paved path	600	\$35	If	\$21,000	
		road crossing	1	\$1,500	ea	\$1,500	
11-Kempner	900	10' wide paved path	900	\$35	If	\$31,500	
		clear & trim trees	900	\$10	If	\$9,000	
Pennock Bridge 1	100	4' wide pedestrian bridge	1	\$200,000	ea	\$200,000	
12-Pennock Woods	400	10' wide paved path	400	\$35	If	\$14,000	
Pennock Bridge 2	100	4' wide pedestrian bridge	1	\$200,000	ea	\$200,000	
13-Castle Tool	800	10' wide paved path	800	\$35	If	\$28,000	
Castle Tool Bridge	100	4' wide pedestrian bridge	1	\$200,000	ea	\$200,000	See Alt 3
14A-Racquet Club	200	10' wide paved path	200	\$35	If	\$7,000	See Alt 3
14B-Ridgeway Ct	250	10' wide paved path	250	\$35	If	\$8,750	See Alt 3
15-Holsten	800	10' wide paved path	800	\$35	If	\$28,000	See Alt 3
		road crossing	1	\$1,500	ea	\$1,500	
Mustin Tract	700	10' wide paved path	700	\$35	If	\$24,500	See Alt 4
M. F. Hospital	1150	10' wide paved path	1150	\$35	If	\$40,250	See Alt 4
Bartram Park	2100	10' wide paved path	2100	\$35	If	\$73,500	See Alt 4
Supermarket	750	10' wide paved path	750	\$35	If	\$26,250	
Retail Store	200	10' wide paved path	200	\$35	If	\$7,000	
MacDade Blvd		road crossing	1	\$1,500		\$1,500	
Sub Total	12,750	2.4 miles				\$1,067,750	\$444,895.83 per mile
		15% Contingency	0.15			\$160,163	
Total						\$1,227,913	\$511,630.41 per mile

Source: URDC

**TABLE E-5
COST ESTIMATE: SEPTA TRANSPORTATION CENTER TO PINE STREET**

Segment	Length (ft)	Work Description	Amount	Unit Cost	Unit	Cost	Comments
SEPTA Transportation Center	200	proposed path					
Trolley Bridge	100	existing, repairs	1	\$20,000	ea	\$20,000	See Alt 5
Sidewalk	100	existing, repairs	1	\$15,000	ea	\$15,000	See Alt 5
		road crossing	1	\$1,500	ea	\$1,500	See Alt 5
Powell Park	1200	sidewalk/path	1200	\$17	If	\$20,400	
		road crossing	1	\$1,500	ea	\$1,500	
Powell Park Bridge	100	4' wide pedestrian bridge	1	\$200,000	ea	\$200,000	
Conrail Easement	50	10' wide paved path	50	\$35	If	\$1,750	
Private Land	900	10' wide paved path	900	\$35	If	\$31,500	
Pine Street		road crossing	1	\$1,500	ea	\$1,500	
Subtotal	2650	0.3 mile				\$293,150	\$977,166.66 per mile
		15% Contingency				\$43,973	
Total						\$337,123	\$1,123,743.30 per mile

Source: URDC

**TABLE E-6
TOTAL COST ESTIMATE: PROPOSED TRAIL**

Segment	Cost	Comments
Addingham to Burmont	\$1,867,888	
Baltimore to MacDade	\$1,227,913	
SEPTA to Pine	\$337,123	
Total – 5.1 miles	\$3,432,924	\$673,122.35 per mile
9 Bridges at \$198,889 ea. (average)	\$1,790,001	
Subtotal without bridges	\$1,642,923	\$322,141.76 per mile

Source: URDC

TABLE E-7
COST ESTIMATES: ALTERNATES 1-5

Segment	Length (ft)	Work Description	Amount	Unit Cost	Unit	Cost
Alternate 1						
Ava Electronics	800	10' wide paved path	800	\$35.00	lf	\$28,000

Alternate 1 is proposed as a replacement of the segments shown above.
The cost savings for Alternate 1 alignment is estimated to be:

Above alignment	\$610,500
Alternate 1	<u>\$28,000</u>
Cost reduction	\$582,500

Alternate 2						
Lansdowne Bridge	100	4' wide pedestrian bridge	1	\$200,000.00	ea	\$200,000
6 K-Mart	150	10' wide paved path	150	\$35.00	lf	<u>\$5,250</u>
Total						\$205,250

Alternate 2 is proposed as a replacement of the segment shown above.
The cost difference for Alternate 2 is estimated to be:

Above alignment	\$180,000
Alternate 2	<u>\$205,250</u>
Additional cost	\$25,250

Alternate 3						
Suplee Envelope	400	10' wide paved path	400	\$35.00	lf	\$14,000
Hillcrest Apts.	500	on existing paving	0			

Alternate 3 is proposed as a replacement or a parallel trail.
The cost difference for Alternate 3 is estimated to be:

Above alignment	\$243,750
Alternate 3	<u>\$14,000</u>
Cost Reduction	\$229,750

Alternate 4						
Penn Pines Park	1300	10' wide paved path	1300	\$35.00	lf	\$45,500
Lans. Towers	350	10' wide paved path	350	\$35.00	lf	\$12,250
Little Flower/VST	1600	10' wide paved path	1600	\$35.00	lf	\$56,000
Bartram Park	1400	10' wide paved path	1400	\$35.00	lf	\$49,000
Bartram Pk Bridge	100	4' wide pedestrian bridge	1	\$200,000.00	ea	<u>\$200,000</u>
Total						\$362,750

Alternate 4 is proposed as a replacement or a parallel trail.
The cost difference for Alternate 4 is estimated to be:

Above alignment	\$138,250
Alternate 4	<u>\$362,750</u>
Additional cost	\$224,500

Alternate 5						
SEPTA Walkway	250	proposed	0			0
Sidewalk	500	existing, repairs	1	\$35,000.00	ea	\$35,000
		road crossings	2	\$1,500.00	ea	<u>\$3,000</u>
Total						\$38,000

Alternate 5 is proposed as a replacement or a parallel trail.
The cost difference for Alternate 5 is estimated to be:

Above alignment	\$ 35,000
Alternate 5	<u>\$ 38,000</u>
Additional cost	\$ 3,000

Source: URDC

Greenway Funding Sources

The following is a listing of grant funding programs for greenways. Some of these funding programs are specifically for trails. Others may fund riparian open space and recreational projects or historic preservation related projects, which may be applicable to the development of Darby Creek Stream Valley Park support facilities and environmental assets. For more information on any of the programs below, contact the Delaware County Planning Department or go to the website address provided.

Grants offered through the Pennsylvania Department of Conservation and Natural Resources (DCNR)

Website: <http://www.dcnr.state.pa.us/brc/grants>

- Community Conservation Partnerships Program (C2P2) - Land Trust Grants
- C2P2 - Community Grants
- Heritage Parks Program
- Land & Water Conservation Fund
(Federal money, administered through DCNR)
- National Recreational Trails Funding (Symms NRTA)
(Federal money, administered through DCNR)
- Rails to Trails, PA
- Rivers Conservation Program
- Urban Forestry Grants

Grants offered through the Pennsylvania Department of Community and Economic Development (DCED)

Website: <http://www.newpa.com/>

- Industrial Sites Reuse Program, PA (“Brownfields”)
(DCED, in cooperation with PA DEP)
- Intermunicipal Projects Grants
- Land Use Planning and Technical Assistance Program (LUPTAP)
- Local Government Capital Projects Loan Program
- Shared Municipal Services

Other Grant Sources:

- Active Living by Design grants
Offered/administered by: Robert Wood Johnson Fund
Website: <http://www.activelivingbydesign.org/>

- Bikes Belong Coalition – General Grants
Website: <http://www.bikesbelong.org/>
- Community Development Block Grant (CDBG)
Administered by: Delaware County Office of Housing and Community Development (OHCD)
Website: <http://www.co.delaware.pa.us/hcd/cdbg.html>
- Delaware County Revitalization Program
Administered by: Delaware County Office of Housing and Community Development (OHCD)
Website: <http://www.co.delaware.pa.us/hcd/1007revitalizationprogram.html>
- Historic Metal Truss Bridge Program
Offered/administered by: PennDOT
Website: <https://www.penndot.gov/ProjectAndPrograms/Cultural%20Resources/Pages/Truss-Bridge-Plan.aspx>
- Historic Preservation - Certified Local Government Grant Program
Offered by: Federal government
Administered by: PHMC
Website: <http://www.phmc.state.pa.us/>
- Keystone Historic Preservation Grant Program
Offered/administered by: PHMC
Website: <http://www.phmc.state.pa.us/>
- PA Infrastructure Investment Authority (PENNVEST)
Involves both U.S. EPA and state funds
Administered by: PENNVEST, PA DEP (Bureau of Water Supply Management)
Website: <http://www.pennvest.state.pa.us/>
- PECO Green Region Grants Program
Offered by: PECO / Exelon
Administered by: Natural Lands Trust
Website: <http://www.natlands.org/>
- Rivers, Trails, and Conservation Assistance Program
Offered/administered by: National Park Service
Website: <http://www.nps.gov/ncrc/programs/rtca/>
- Robert Wood Johnson Foundation
 - General Foundation Grants
Website: <http://www.rwjf.org/>
 - Local Initiative Funding Partners Program

- Transportation Enhancements Program
Offered by: PennDOT
Administered by: Delaware Valley Regional Planning Commission
Website: <http://www.dvrpc.org/te> or <http://www.enhancements.org/>
- TreeVitalize Program grants
Administered by: Pennsylvania Horticultural Society
Website: <http://www.treevitalize.net/>
- Wetlands Reserve Program
Offered/administered by: U.S. Department of Agriculture (USDA)
Website: <http://www.nrcs.usda.gov/programs/WRP/>
- William Penn Foundation
General Grants
Website: <http://www.williampennfoundation.org/>

F. Management and Maintenance



Path behind Mercy Fitzgerald Hospital

MANAGEMENT AND MAINTENANCE

Management and maintenance of the *Darby Creek Stream Valley Park* and trail will work best as a cooperative effort among all affected jurisdictions. The following chapter presents some of the key issues involving maintenance and management.

Management

The Darby Creek Stream Valley Park corridor encompasses six municipalities:

- Aldan Borough
- Clifton Heights Borough
- Darby Borough
- Lansdowne Borough
- Upper Darby Township
- Yeadon Borough

The land in the park is owned by or under easement to Delaware County and/or the appropriate municipality, except for a few parcels. Therefore, as the major stakeholders in the park, the County and municipalities should collectively manage the park. Discussions regarding park management have already begun. The entire discussion at the August 13, 2007, focus group meeting centered around the composition and responsibilities of an oversight committee.

Currently, no group has the capability to develop and manage a trail along Darby Creek. A group must be created to manage the park. Since funding will be a major issue in developing a trail, elected officials and staff responsible for securing funds will be called upon to take early leadership roles.

Basic issues for consideration include:

- Trail development on County land will most likely require a joint effort by the County and the local municipality for planning and funding.
- Trail development on a municipally owned parcel may be accomplished by the municipality alone.
- An oversight committee should grow out of the need for the County and municipalities to manage a trail that crosses over municipal lines.
- To be effective, the oversight committee should be established and operated by the County and the municipalities within whose borders the trail is located.

Oversight Committee

An oversight committee structure will be needed at some point to guide and manage a multi-municipal trail. Delaware County should take a lead role in organizing the committee because the County has resources to help guide municipal involvement, and the County is the only jurisdiction in which the entire park is located. Issues to be decided or that have been discussed during the planning process are presented below.

Membership – The committee could be composed of one or two voting representatives from each of the following:

- Delaware County Planning Department
- Delaware County Parks Department (Parks Director)
- Each municipality
- Darby Creek Valley Association

One issue to be decided regarding municipal membership is whether each municipality should serve on the oversight committee or whether only municipalities with an active trail segment should be represented. One alternative suggested during the planning process was the formation of an “active projects” subcommittee. All municipalities would be represented on the full oversight committee, which would discuss policy and planning issues. The “active projects” subcommittee would discuss, plan, and coordinate the details of trail segments as they are developed.

Meeting Rules – The meeting rules would initially be developed by the County. Issues to be decided in setting meeting rules include:

- *Chair:* The chair should be elected for a specified term from among the committee members.
- *Public Access:* All meetings should be open to the public. Special rules may restrict public input.
- The County Parks Director should be responsible for setting the meeting agenda, with the aid of the chair, and for sending meeting notices to all members.

Scope of Responsibilities – The oversight committee would advise the County and municipal governing bodies concerning issues such as:

- Expanding development of a trail along Darby Creek.
- Monitoring maintenance of the trail along Darby Creek.
- Setting policies and rules for the trail.
- Setting development standards for the trail.
- Pursuing land and/or easement acquisition where needed. The County should be the primary land and easement holder.

- Pursuing funding for major development issues such as bridges, Scottdale Road improvements, and land acquisition.
- Advising governmental bodies on matters related to the park and trail. (If legal assistance is required, the governing body in question should provide the services of the solicitor serving the local jurisdiction.)
- The committee should not be responsible for maintenance. Maintenance should be the responsibility of each landowner or easement holder.
- The committee should not be responsible for policing. Each municipality should be responsible for policing the trail within municipal borders.
- The committee should not be responsible for trail development. Each municipality should be responsible for developing the trail within its borders.

Maintenance

Maintenance is critical to a successful trail effort. Short-term savings achieved by not keeping the trail in top condition will cause lack of respect for the trail and invite vandalism, which will inevitably erode support for the facility. Owners and those responsible for maintenance of the various sections of the trail, once constructed, should make an effort to integrate the PA Department of Conservation and Natural Resources (DCNR), Bureau of Recreation’s Green Principles for Park Development and Sustainability into their policies and practices. The website address for the Green Principles is: <http://www.dcnr.state.pa.us/brc/grants/indexgreen.aspx>.

Maintenance should be the responsibility of the landowner or easement holder. Delaware County Community Service crews could be used for maintenance on land owned by the County. Primary attention should be given to the following maintenance items, for which estimated hours and costs are listed in Table F-1:

- Administration – The following maintenance tasks will need to be efficiently coordinated and administered.
- Trash Pick-up – Place signs along the trail to “carry-in/carry-out.” Trash pick-up details will need to be undertaken once a month and can be done by volunteers.
- Tree Blow-downs – Remove unwanted trees from the trail as soon as possible.
- Vegetation Trimming – Trees and shrubs should be trimmed to allow proper clearance on the trail. Trimming should occur in early fall.
- Grass Mowing – Mowing of the trail shoulders and other grassy areas along the trail should be performed on a monthly basis from May through September.
- Emergency Conditions – The trail will need to be monitored twice a week in order to detect any conditions that may limit use of the trail or be a safety risk to

users. Limiting or hazardous conditions should be addressed as soon as possible.

- Long-term Maintenance – Trail surfaces, bridges, and other trail structures need to be inspected on a regular basis – at least once a year in the first five years and every six months thereafter. Funding must be budgeted for repairs and replacement.

**TABLE F-1
ESTIMATED ANNUAL MAINTENANCE AND LABOR COSTS**

Item	Person-hours Per Mile Per Year	Miles	Person-hours Per Year	Person- Hour Cost	Total Cost Per Year
Administration	5	5.1	25.5	\$ 45	\$ 1,100
Trash pick-up	10	5.1	51	\$ 30	\$ 1,500
Tree blow-downs	5	5.1	25.5	\$ 30	\$ 800
Vegetation trimming	20	5.1	102	\$ 30	\$ 3,100
Grass mowing	32	5.1	163.2	\$ 30	\$ 4,900
Emergency condition monitoring	5	5.1	25.5	\$ 30	\$ 800
Miscellaneous repair	10	5.1	51	\$ 30	\$ 1,500
TOTAL					\$ 13,700

Source: URDC

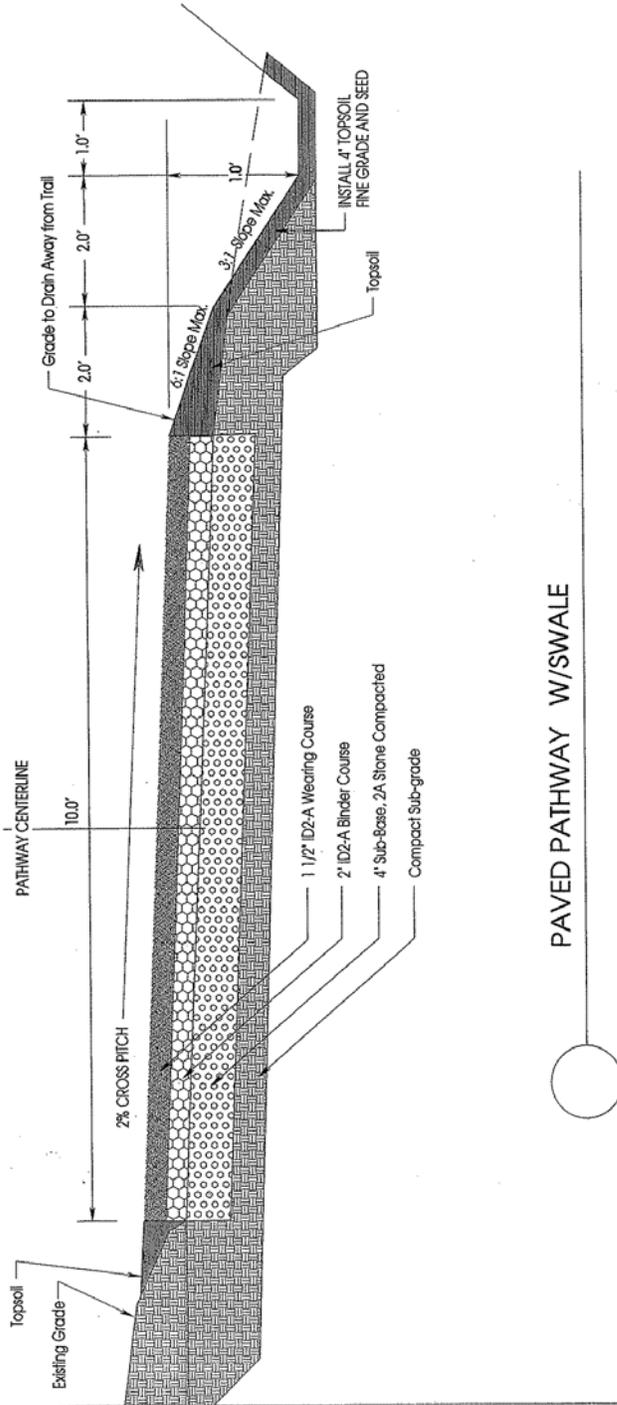
Note: Good, commercial-grade equipment will be required to perform the needed maintenance tasks in the times noted above.

Appendix



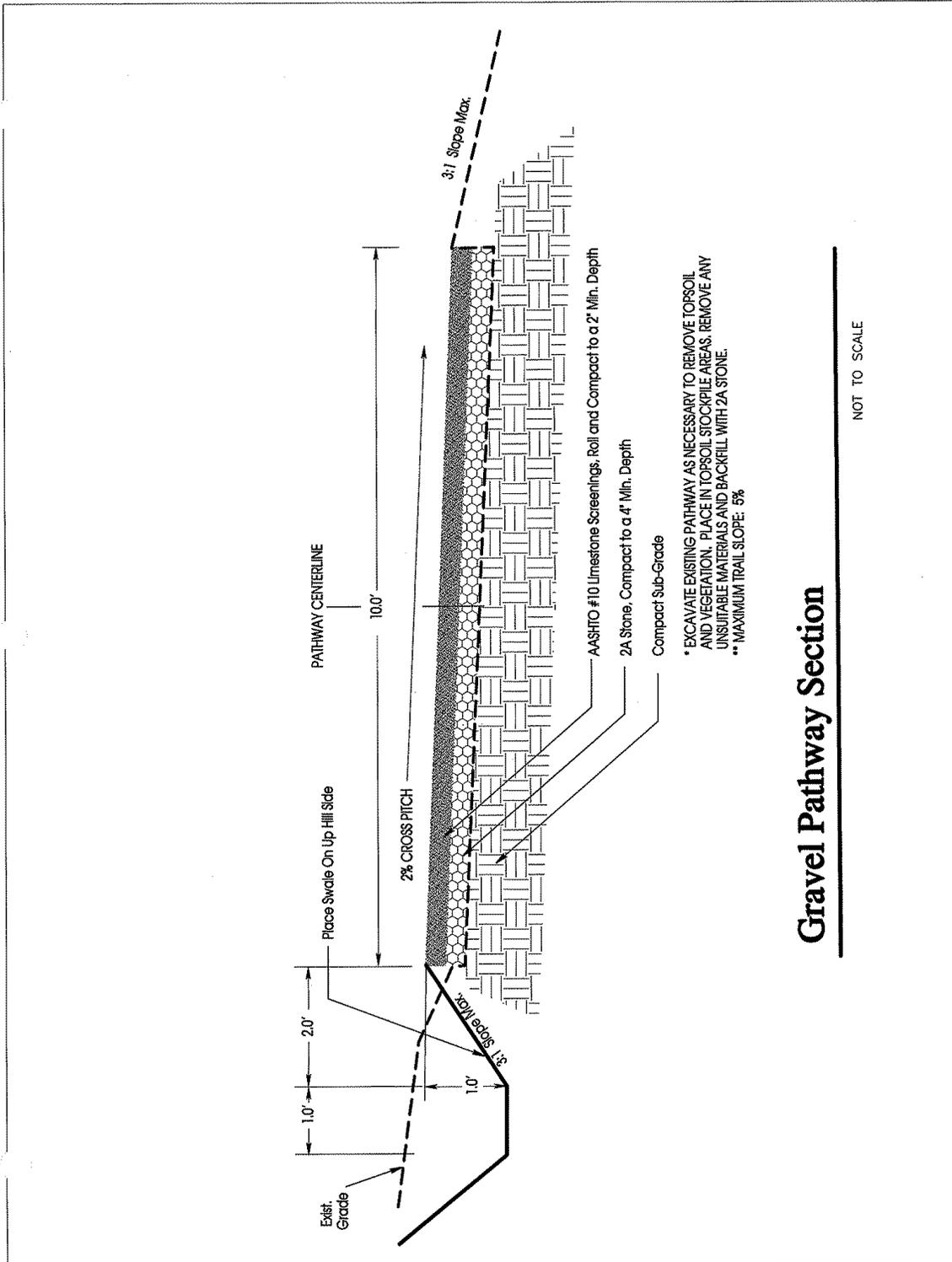
Darby Creek downstream from Providence Road

FIGURE G1
PAVED PATHWAY WITH SWALE



Source: URDC

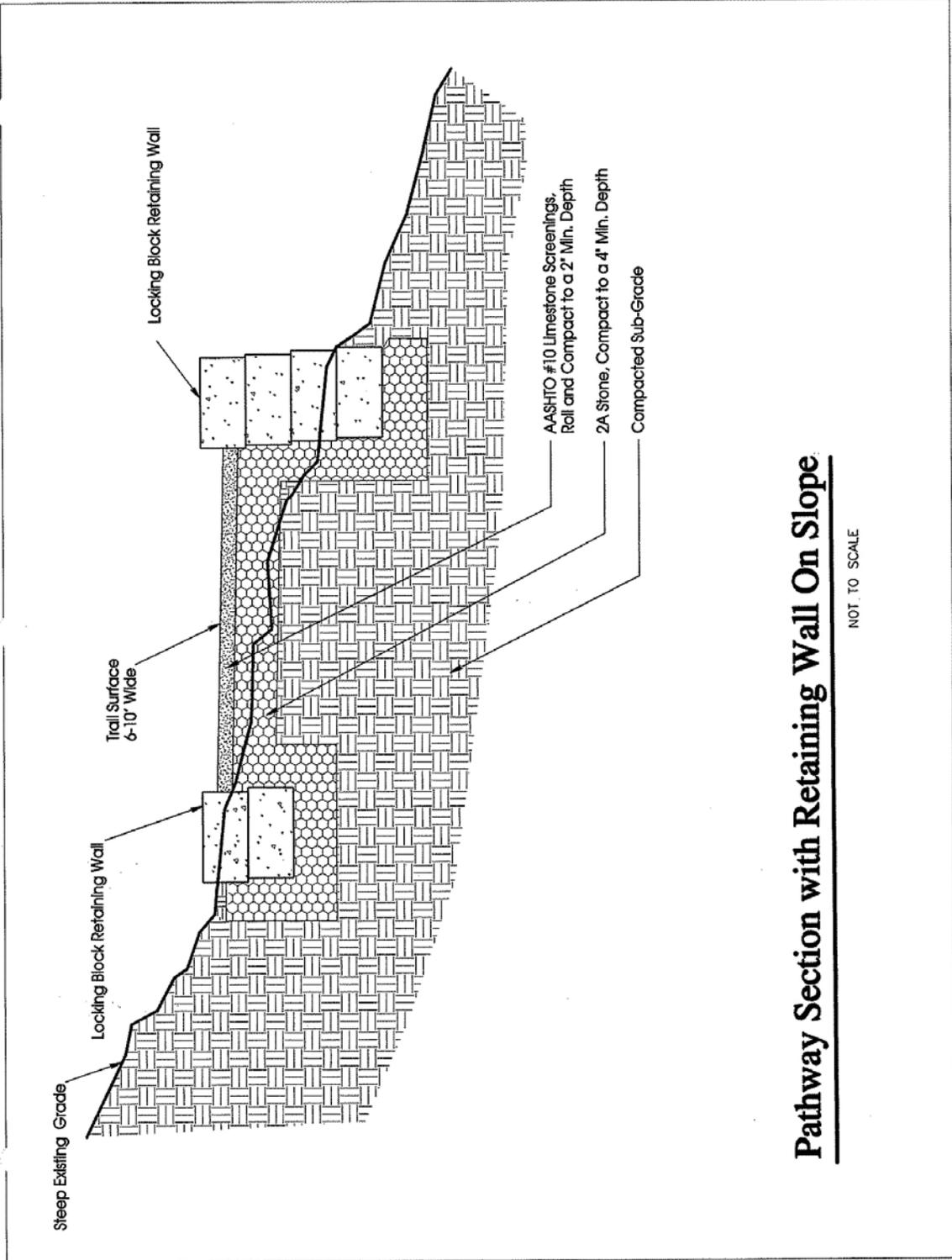
FIGURE G2
GRAVEL PATHWAY SECTION



Gravel Pathway Section

NOT TO SCALE

FIGURE G3
PATHWAY SECTION WITH RETAINING WALL ON SLOPE

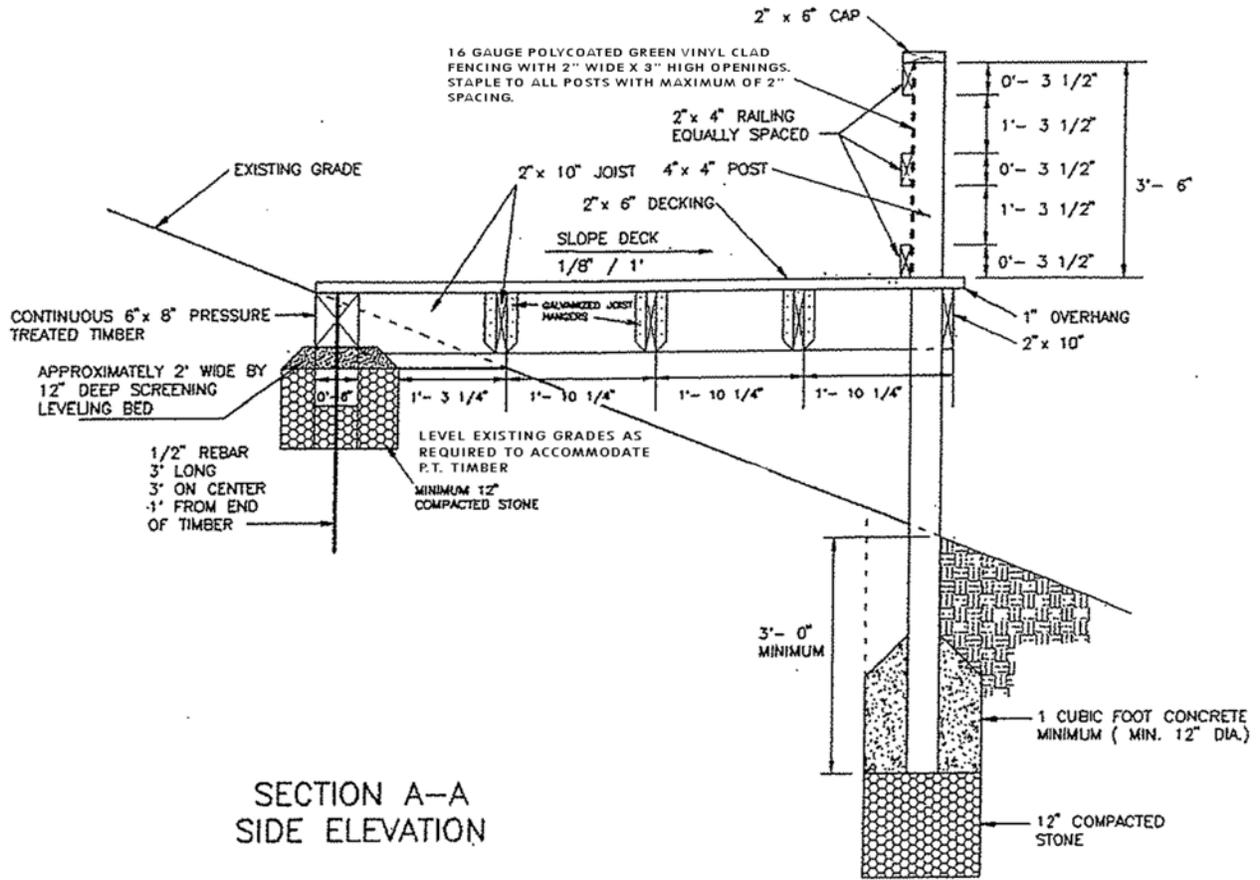


Pathway Section with Retaining Wall On Slope

NOT TO SCALE

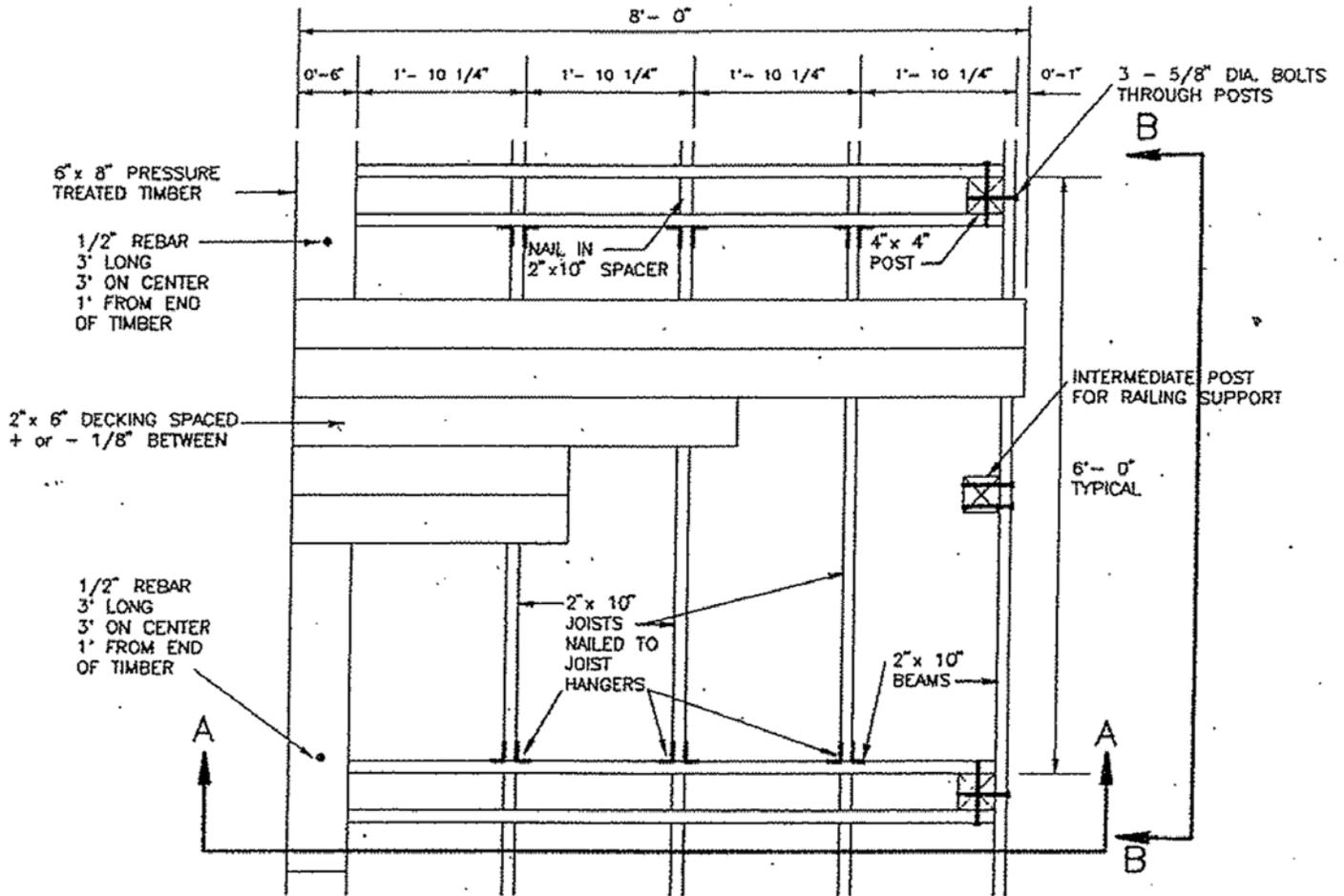
Source: URDC

FIGURE G4
DECK TRAIL ON SLOPE: SIDE ELEVATION



Source: URDC

FIGURE G5
DECK TRAIL ON SLOPE: PLAN

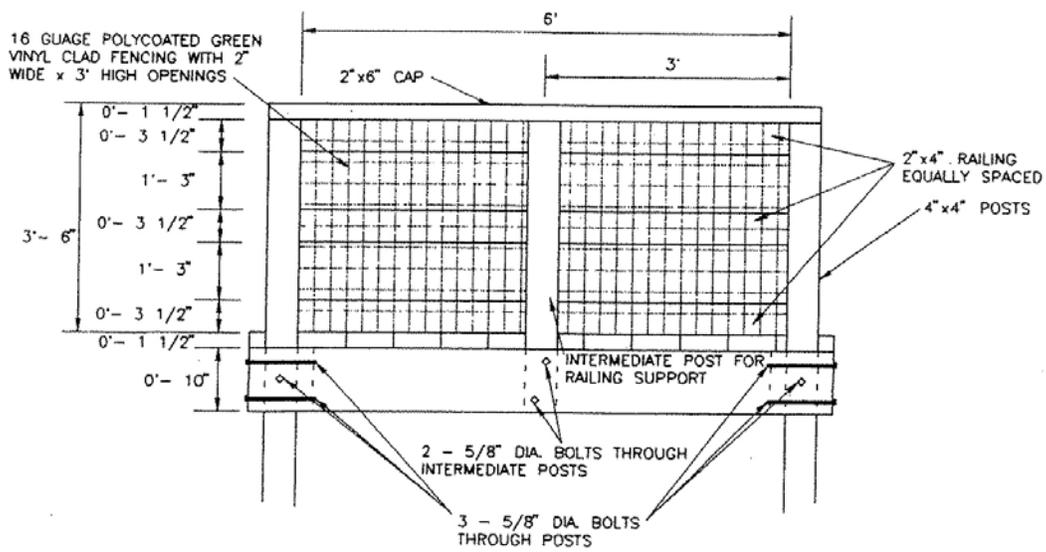


PLAN

NOTE: ALL LUMBER SHALL BE PRESSURE TREATED.

Source: URDC

FIGURE G6
DECK TRAIL ON SLOPE: FRONT ELEVATION



SECTION B-B
FRONT ELEVATION

Source: URDC

FIGURE G7
DECK TRAIL ON SLOPE



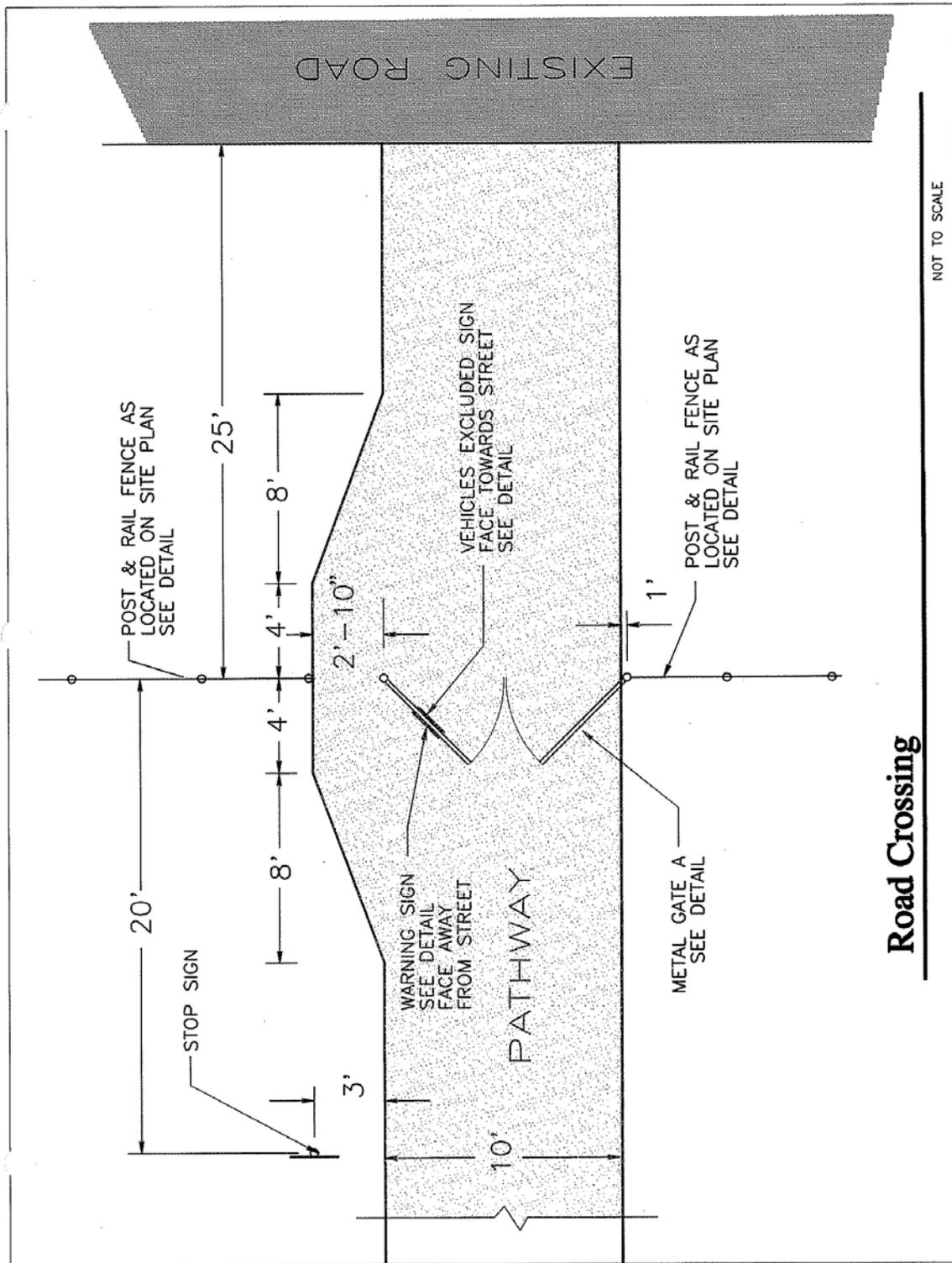
Source: URDC

FIGURE G8
DECK TRAIL ON SLOPE: SIDE



Source: URDC

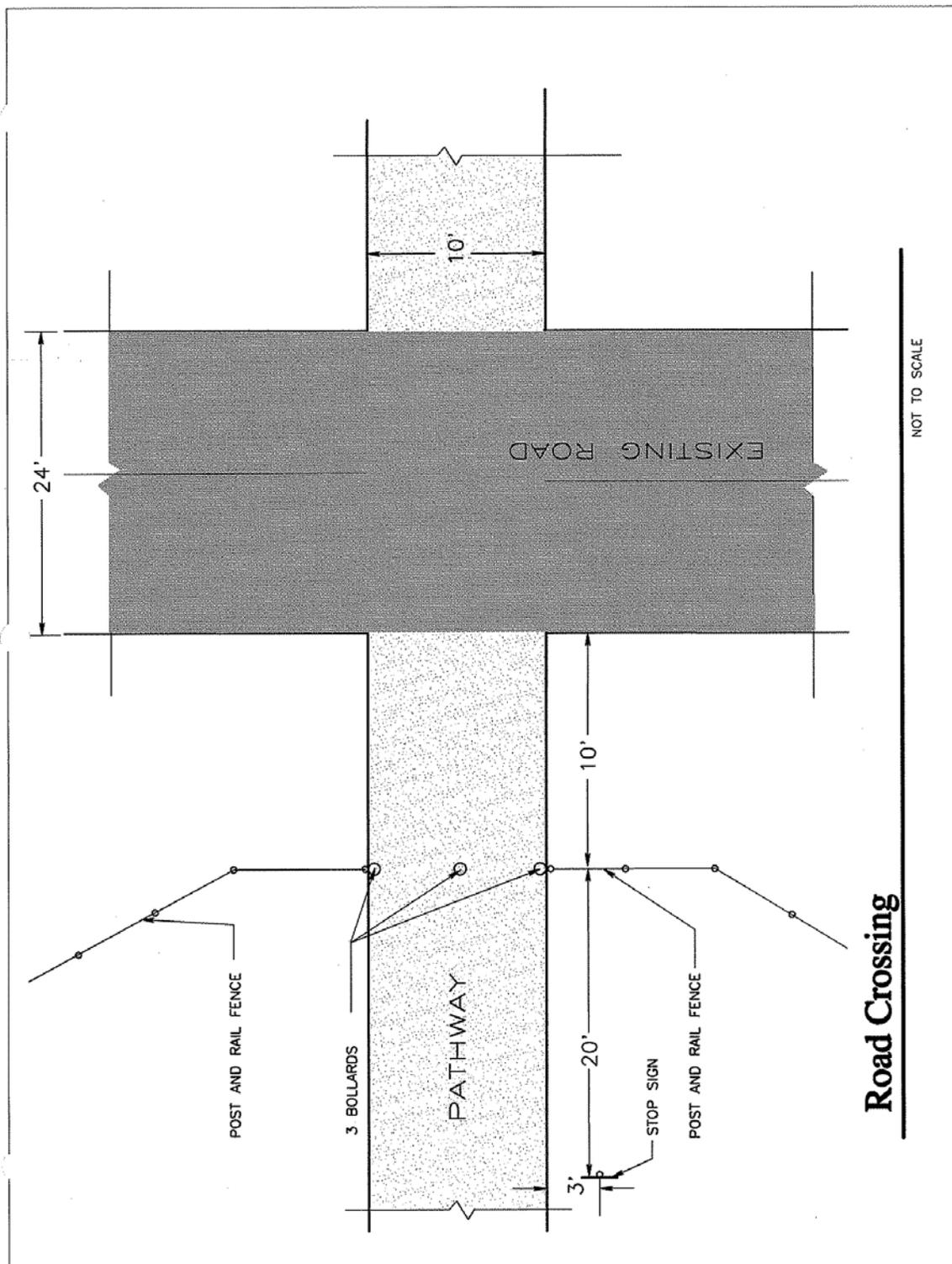
FIGURE G9
ROAD CROSSING WITH GATE: DETAIL



Road Crossing

Source: URDC

FIGURE G10
ROAD CROSSING WITH BOLLARD: DETAIL



Source: URDC

FIGURE G11
ROAD CROSSING WITH GATE



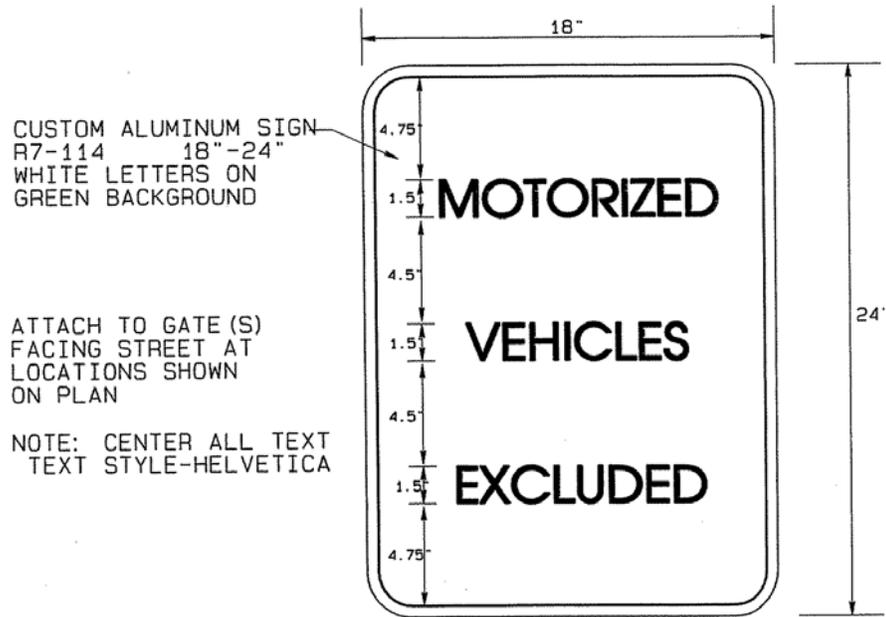
Source: URDC

FIGURE G12
ROAD CROSSING WITH BOLLARD



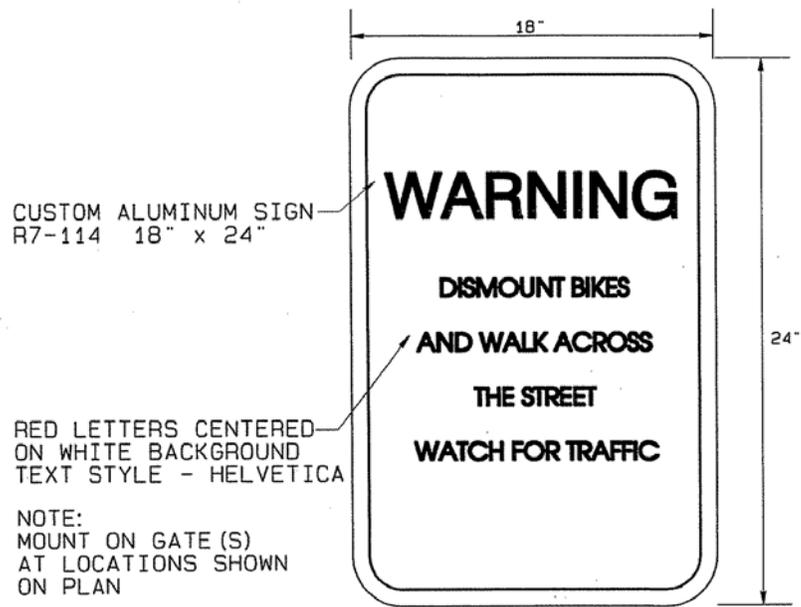
Source: URDC

FIGURE G13
"VEHICLES EXCLUDED" SIGN



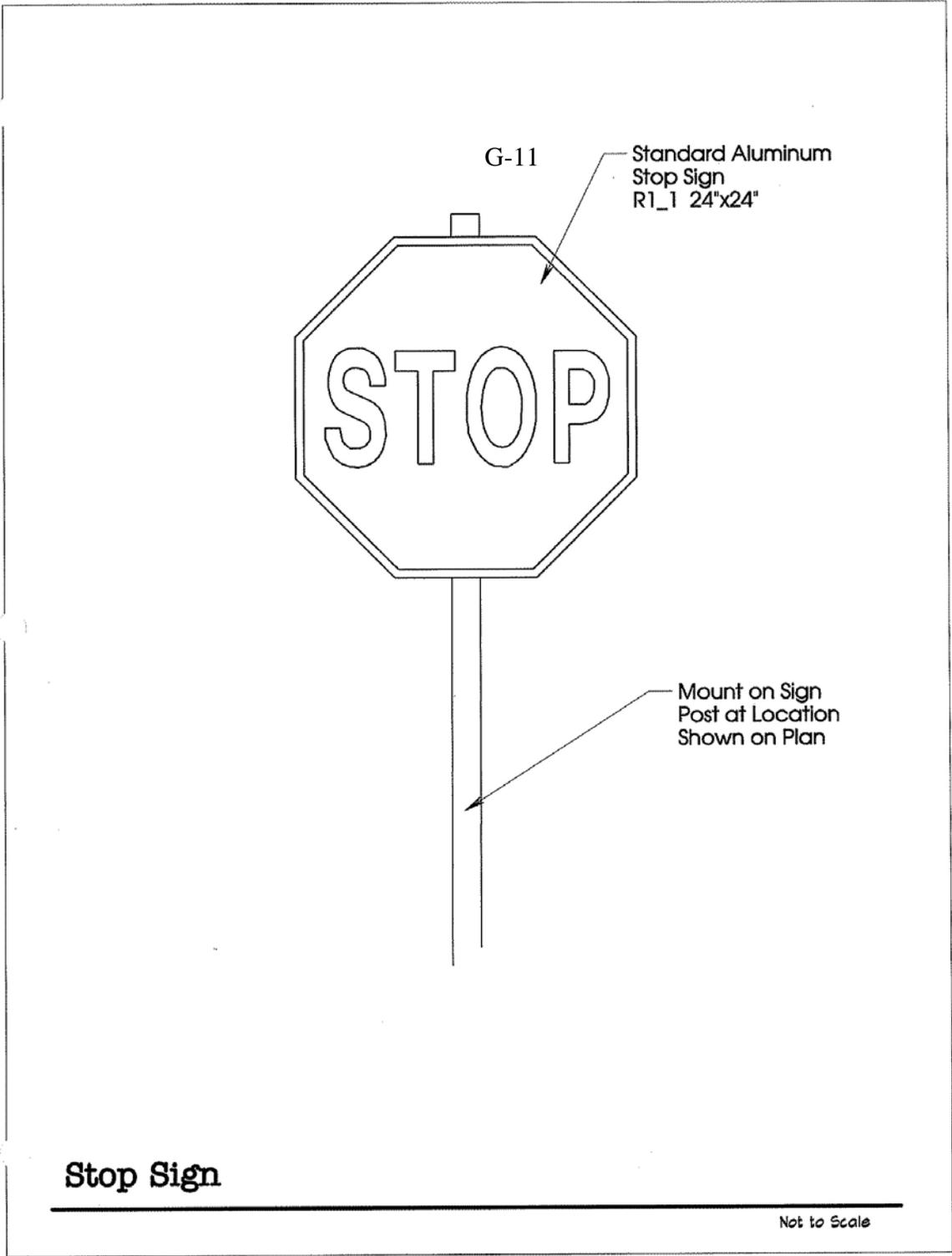
Source: URDC

FIGURE G14
WARNING SIGN



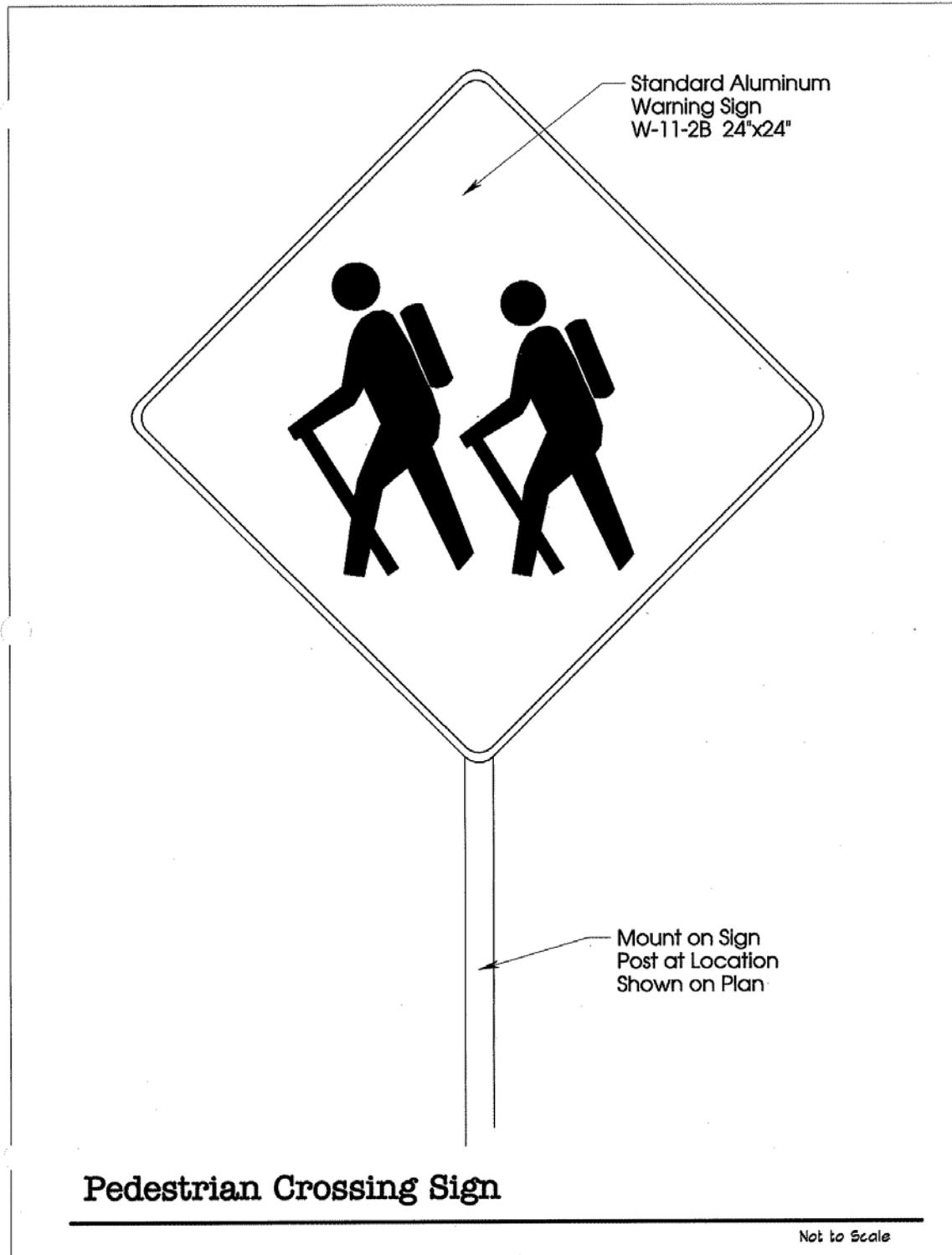
Source: URDC

FIGURE G15
STOP SIGN



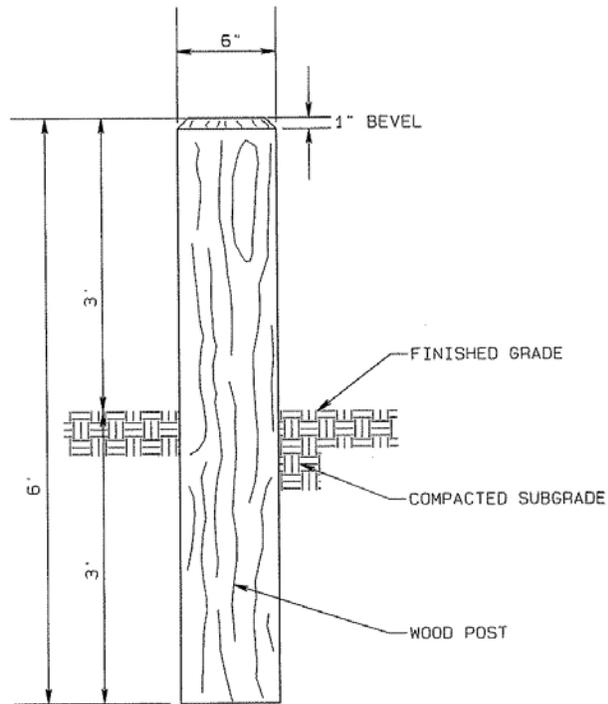
Source: URDC

FIGURE G16
PEDESTRIAN CROSSING SIGN



Source: URDC

FIGURE G17
WOODEN POST DETAIL

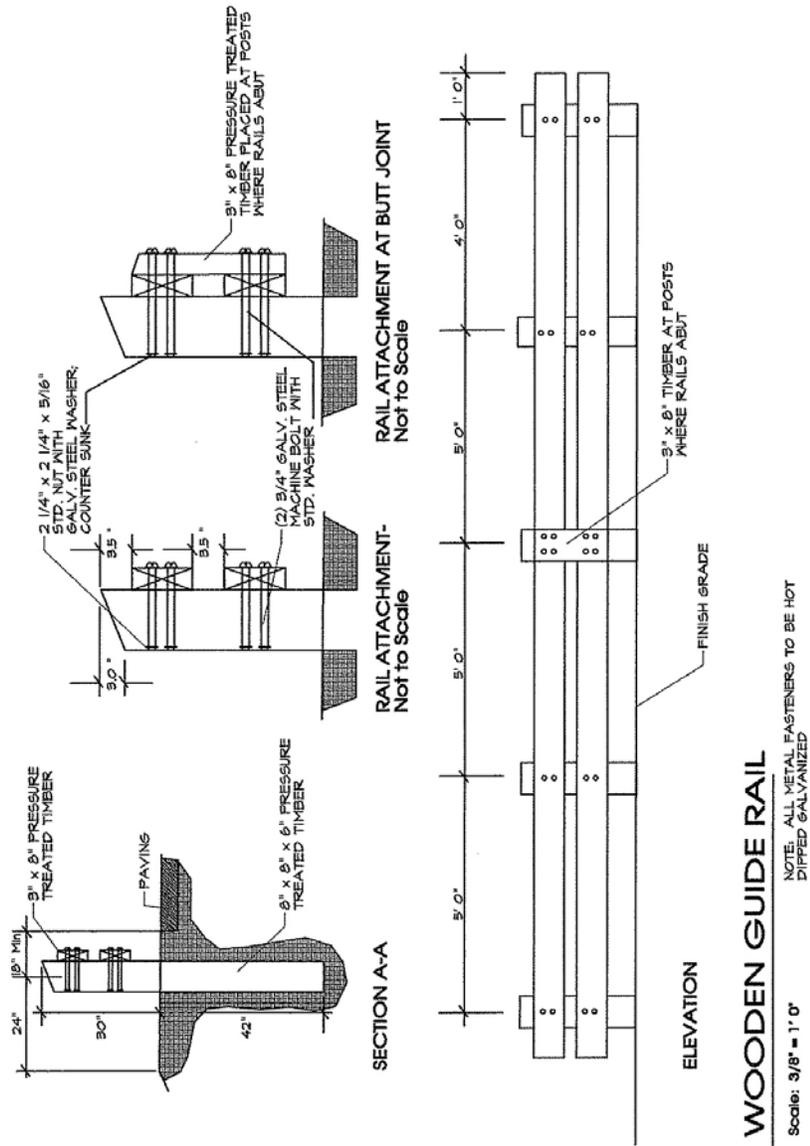


POST

NOT TO SCALE

Source: URDC

FIGURE G18
WOODEN GUIDE RAIL DETAIL



Source: URDC

FIGURE G19
WOODEN GUIDE RAIL



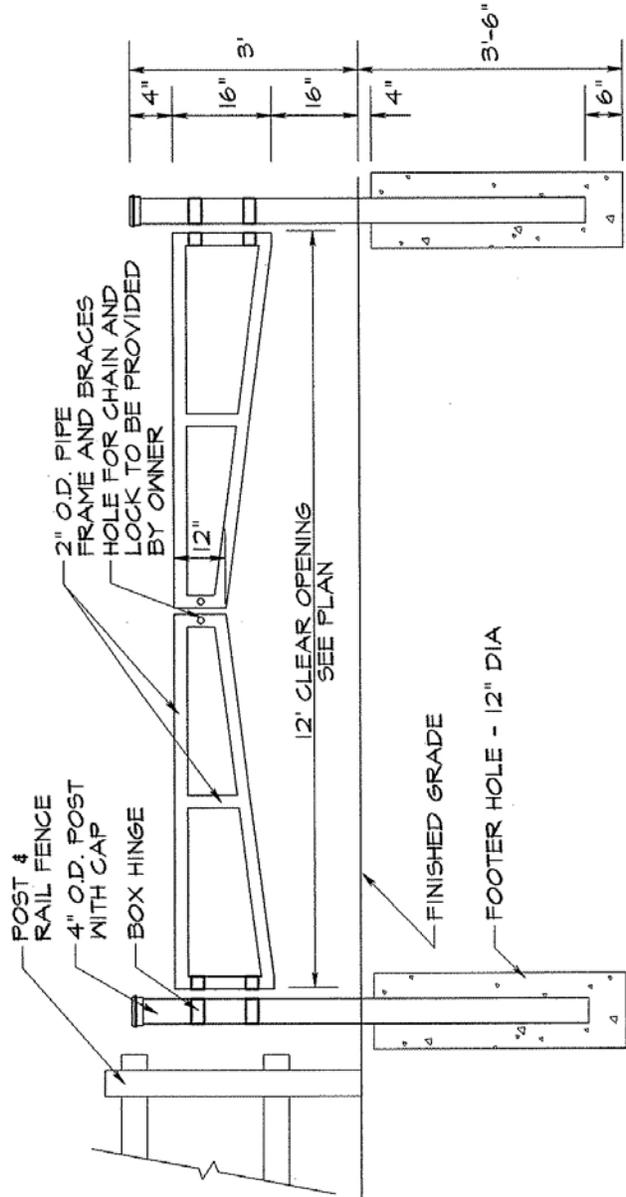
Source: URDC

FIGURE G20
POST GUIDE RAIL



Source: URDC

FIGURE G21
METAL GATE DETAIL



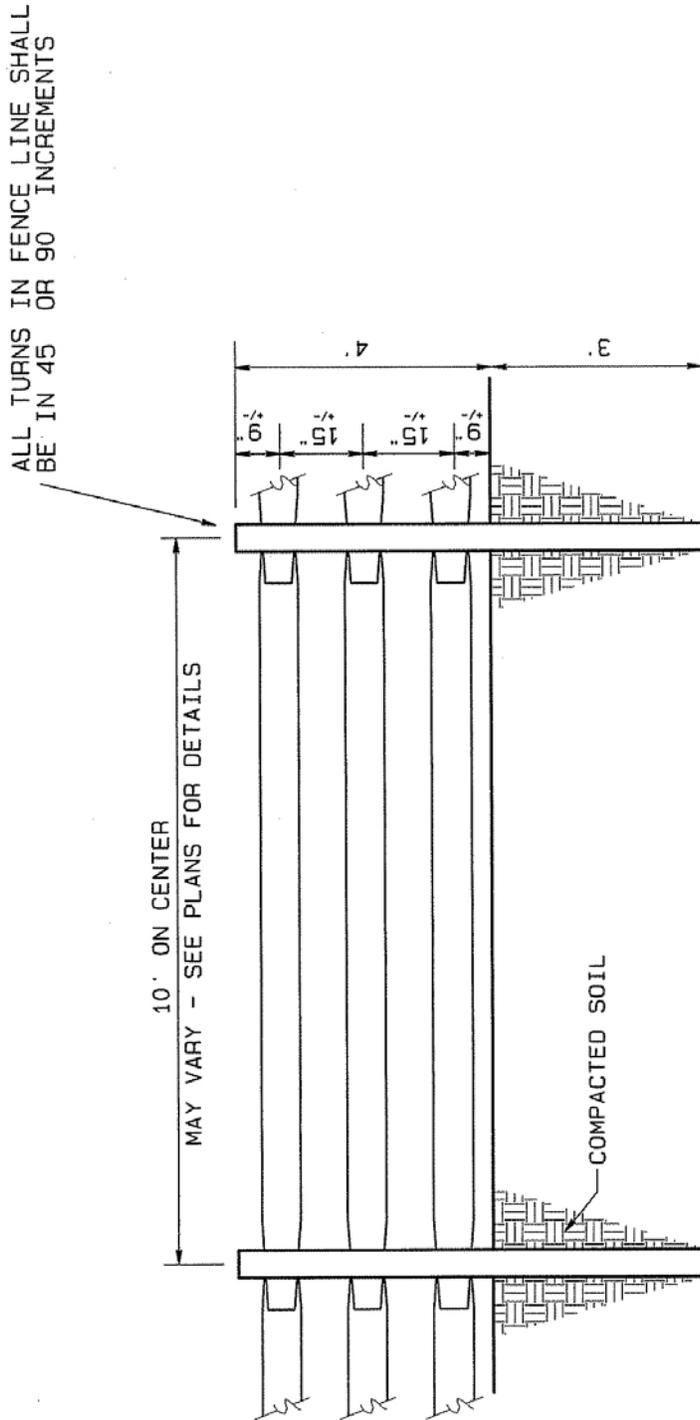
- NOTES:
1. WELD PIPE AND GRIND ALL WELDS SMOOTH.
 2. ALL GATE MATERIALS, WELDS AND CONNECTIONS TO BE GALVANIZED STEEL.
 3. SEE SITE PLAN FOR HINGE AND SWING SIDE OF GATE.
 4. SEE SITE PLAN FOR ABUTTING WOOD POST AND RAIL FENCE.
 5. PROVIDE CLOSING HASP & PROVISION PADLOCK USE.
 6. PROVIDE SHOP DRAWINGS OF GATE FOR REVIEW AND APPROVAL BY OWNER.

METAL GATE

NOT TO SCALE

Source: URDC

FIGURE G22
POST AND THREE-RAIL FENCE



NOTES:
1. WHITE CEDAR 6" THREE (3) RAIL FENCE
(PADDLED OVERLAP)

POST & 3 RAIL FENCE

NOT TO SCALE

Source: URDC

FIGURE G23
METAL GATE



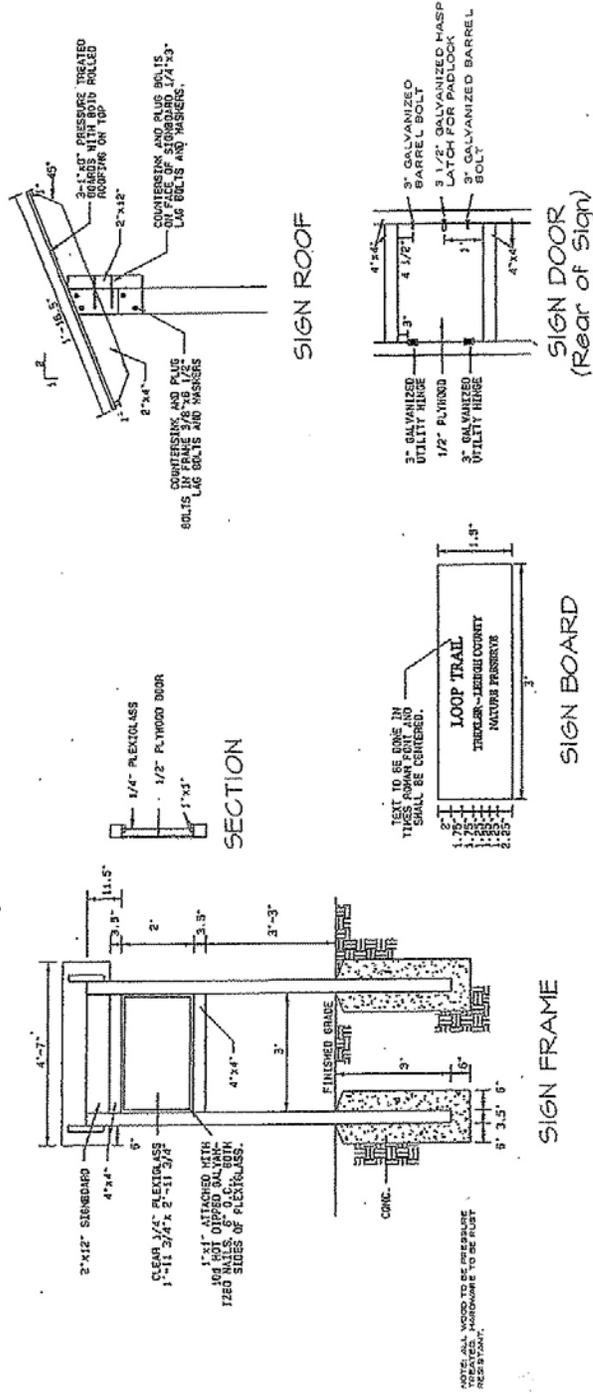
Source: URDC

FIGURE G24
GRAVEL PAVED PATHWAY: 12' WIDE



Source: URDC

FIGURE G25
KIOSK DETAIL



Kiosk

NOT TO SCALE

Source: URDC

FIGURE G26
KIOSK



Source: URDC

FIGURE G27
KIOSK: CLOSE-UP



Source: URDC

APPENDIX

Listing of Interviewed Persons and Focus Group Attendees

Many of the public participation activities conducted in September 2006 for the Greenway Plan for the Darby Creek Watershed were combined with those for the Darby Creek Stream Valley Park Master Plan. Only those people interviewed or part of focus groups that had some relevance to the study area of the Darby Creek Stream Valley Park Master Plan are listed here.

Darby Creek Watershed Greenway Plan Focus Groups and Interviews September 2006

Attendees (for Darby Creek Master Plan Area)

Focus Groups

1. Utility w/Right-of-way Organizations in the Watershed (9/12, 2:00 p.m.)
 - a. *PECO Energy – Ralph Brown*
 - b. *DELCORA – Ed Bothwell, Asset Planning and Construction Manager*

2. Outdoor Groups (9/12, 5:00 p.m.)
 - a. *David Damon – fisherman, engineer*
 - b. *Alan Samel – Stream Watch*
 - c. *Steve Kosiak – Delco Anglers*

3. Master Plan Area (Middle Watershed) Focus Group (9/12, 7:00 p.m.)
 - a. *David Forrest, Lansdowne Borough Manager*
 - b. *Jayne Young, Lansdowne Borough Mayor*
 - c. *Andrew Brazington, Yeadon Borough & StreetztoCreeks, LLC*
 - d. *Dan Procopio, Chair, Aldan Borough Planning Commission*
 - e. *Joseph Vasturia, Upper Darby Township Municipal Engineer*

4. Business/Tourism Interests (9/19, 11:00 a.m.)
 - a. *Marty Milligan, Brandywine Conference and Visitor’s Bureau*
 - b. *Jeff Vermuelen, Delaware County Chamber of Commerce*
 - c. *Betsy Mastaglio, McCormick-Taylor, Baltimore Pike Corridor Project*
 - d. *Richard Grocott, Vice President, Lansdowne Business Association*

5. Bicycling Interests (9/19, 7:00 p.m.)
 - a. *David Bennett, Delaware County Cycling Coalition*
 - b. *Dominic Zuppa, Delaware County Cycling Coalition*
 - c. *Justin Dula – DCPD Bicycle Planner*
 - d. *Emily Linn – Clean Air Council*
 - e. *Matt Huffnell – Haverford Township Police*
 - f. *Maura Williams–Lansdowne resident, bicyclist*

(There was a focus group for School Districts, but no one from the Darby Creek Stream Valley Park study area attended.)

Key Person Interviews

Interviewed by URDC and DCPD

1. *Richard Paul – Delaware County Heritage Commission (9/12, 10:00 a.m.)*
2. *Ed Magargee/Jamie Anderson – Conservation District (9/12, 11:00 a.m.)*
3. *Marc Manfre – Delaware County Parks Dept. (9/12, 1:00 p.m.)*
4. *Tom Witmer – Fairmount Park Commission, and Joanne Dahme – Philadelphia Water Department (9/12/06, 3:00 p.m.)*
5. *John Furth – DCVA (9/19/06, 9:00 a.m.)*
6. *Tim Denny – Haverford Township Parks and Recreation (9/19, 10:00 a.m.)*
7. *John Pickett – Director, DCPD (9/19, 12:00 p.m.)*
8. *Bill Kay, Owner – Drexelbrook Community, Upper Darby (9/19, 3:00 p.m.)*
9. *Cathy Judge-Fizzano – Mercy Fitzgerald Hospital (9/19, 4:00 p.m.)*
10. *David Bennett – 21 Pennock Place, Lansdowne resident. Tour of Pennock Woods 4/20/07*

Interviewed by DCPD staff

11. *Anne Ackerman – DCVA, local expert on the Cobbs Creek stream valley (1/18/07)*
12. *Mark Possenti – Darby Borough Manager (10/27/06)*
13. *Jack Ryan – Darby Township Manager (12/27/06)*
14. *Peter Williamson – Natural Lands Trust (1/4/07)*
15. *Frank Mustin – Owner of Mustin Tract, indicated a willingness to discuss a trail easement near Darby Creek on his property. (Phone conversations 2006-07)*

APPENDIX

Tools Used by Interviewers

The following materials were used by interviewers and focus group facilitators during the public participation process. All of these were provided by Urban Research and Development Corporation (URDC).

1. Greenway Key Person Interview Questions and Goals
2. Benefits of Greenways
3. Sample Types of Greenways

Greenway Key Person Interview Questions and Goals

Conversations in an interview can be started using some of the below inquiries:

- Information on the interviewee's ideas of what to incorporate in a greenway
- What exists that needs to be preserved or protected?
- What greenways or elements now exist and where are they? (Locate on a map)
- What do you think about public access along streams for fishing and other recreation? Good in selected areas along stream? Should access be allowed everywhere along streams?
- What areas now flood frequently? How can they be protected? (e.g., developed areas from floods, floodplain green space protected from development, etc.)
- Other than parks, what and where are the interesting areas, open spaces, etc. that could be greenways?
- What do you think would be the most important aspect/benefit of a greenway in your neighborhood?
- Trails: Are they needed?
 - Where are trails located now?
 - Where are trails needed?
 - If needed or wanted, what are the obstacles to a trail?
- What types of greenways do you think fit best in your neighborhood? What type would not fit?
 - Sample types of greenways: conservation greenways, landscape greenways, land-based trails, water-based trails, road-based greenways, and combinations.

Source: URDC, 2006

Benefits of Greenways

RECREATION

- Connect trail(s) between communities
- Offer access to unique and scenic areas
- Provide recreation close to home
- Connect major recreational areas
- Stand-alone recreation element

HISTORIC

- Offer access to historic places
- Protect historic places
- Provide information about historic places
- Publicize historic places
- Create educational opportunities for students regarding history

ENVIRONMENTAL

- Provide suitable habitat for native fish, plants, birds, and other wildlife
- Protect floodplains; aid in flood control
- Highlight waterway condition and water quality issues
- Protect open space and unique and scenic features
- Create educational opportunities for students regarding the environment

COMMUNITY PLANNING

- Encourage coordination between municipalities
- Promote sound planning practices
- Promote alternative transportation methods (walking, bicycle)

ECONOMIC

- Promote higher quality of life, which attracts and maintains people and businesses
- May tend to increase adjacent property values
- Help revitalize older neighborhoods
- Increase sales tax revenue from tourism
- Improve physical fitness, thereby possibly lowering health care costs
- Improve bicycle and pedestrian connections, which reduces gasoline consumption

Source: URDC, 2006

Sample Types of Greenways

1. *Conservation Greenways*

- Natural corridors
- Minimal or no human access
- Serve runoff filtration, stream temperature protection, wildlife habitat/biodiversity, flood/erosion control, air quality improvement and cooling, and visual relief
- Implemented most easily through regulation (federal standards to local controls)
- Conservation easements or acquisition of most important or vulnerable resources
- Recommend restoration of vegetation and tree cover in riparian zones
- *Stream-based* — streams and surrounding floodplains, riparian woodlands, steep slopes, and associated wetlands
- *Ridge-based* — ridge lines and associated woodlands and steep slopes

2. *Landscape Greenways*

- Wide (potentially several miles) corridors of scenic, historic, and/or environmentally-sensitive land
- Implemented through effective agricultural or rural conservation zoning, farmland preservation programs, sale of development rights, and other programs
- May be in private ownership and part of the greenway system to simply identify the visual landscape

3. *Land-based Trails*

- Usually follow linear features — abandoned rail beds, stream valleys, utility lines
- Often categorized by use (e.g., hiking, biking, equestrian, multiuse) or by surface and width (e.g., 12' asphalt ADA-compliant, 2' rugged hiking trail)

4. *Water-based Trails*

- Use existing streams and waterways for canoeing, kayaking, inner tubing, rafting, or any other nonmotorized water recreational use
- Often supplemented with access points, parking, signage, and/or guide maps

5. *Road-based Greenways*

- Low-traffic touring routes
- Highlight significant historic, natural, or scenic locations
- Often supplemented with signage (directional and/or interpretive), guide maps, bicycle facilities (lanes, racks, etc.), landscaping, traffic calming improvements, sign/billboard regulations, scenic road zoning and/or easements
- Short segment(s) sometimes used to complete an off-road trail network

6. *Combinations*

- Single greenways can be composed of more than one type of greenway
- Greenway systems will be composed of more than one type of greenway
- The most effective greenway system is composed of multiple systems of individual greenway types that can each stand alone but work together when combined to provide a more thorough network