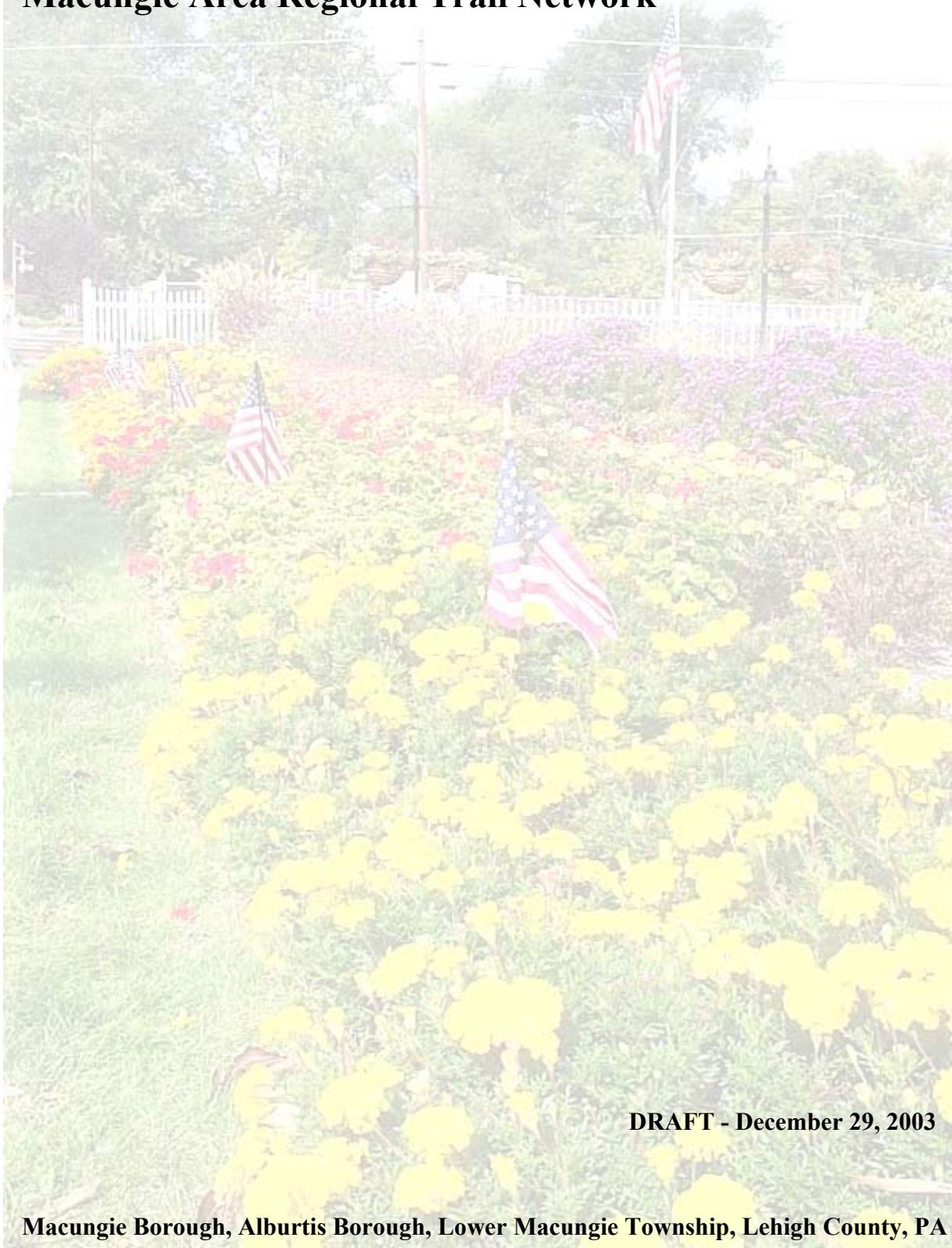


# **Trail Master Plan**

## **Macungie Area Regional Trail Network**



**DRAFT - December 29, 2003**

**Macungie Borough, Alburtis Borough, Lower Macungie Township, Lehigh County, PA**

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**Flower Park, Summer 2003**

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## Executive Summary

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In February 2003, the LVPC released *Municipal Population Forecasts* for 2010, 2020, and 2030. A dramatic population increase is projected for much of the Lehigh Valley, which has already been seen in Lower Macungie Township. Lower Macungie Township surrounds both Albutis and most of Macungie Boroughs. For Lower Macungie Township, an anticipated leap from 19,220 (Year 2000 Census) to 32,966 (Year 2030 LVPC Forecast) will directly impact the East Penn area with increased traffic, more homes, additional students, and park participants. A recent approval of a 700-home subdivision in Lower Macungie Township, between Macungie and Albutis Boroughs, exemplifies this development trend.

The Lehigh Valley Planning Commission (LVPC) conducted a Public Land Use Survey in April 1999, which solicited county residents on land use changes in the Lehigh Valley (Valley). Three-quarters of the 1,076 respondents lived in the Valley for more than 20 years. Almost half of the respondents felt the quality of life has gotten worse in the Valley in the past ten years. Respondents emphasized transportation planning should provide linkages among different modes of transportation to limit taking of lands for new right-of-ways. The second most needed park and recreation facility was trails.

The Lehigh and Northampton Transit Authority (LANTA) provides public transit from Macungie and Albutis Boroughs to major points in the Valley. Many of the new subdivisions in Lower Macungie Township do not have pedestrian-friendly access to LANTA routes, shopping, schools, and parks.

A popular on-road bike route, established by the LVPC and the Lehigh Wheelmen Association, follows Route 100, Church Street, Mountain Road, and Albutis Road. Planned development in this area will significantly compromise share-the-road use unless road improvements are completed. For many southwestern Lehigh residents, alternate transportation options are limited.

Residential neighborhoods, industry, commerce, parks, schools, and other resources are located throughout the immediate region. Allen Organ, Mack Trucks, Tyler Pipe, Buckeye Pipeline, and many other companies are established in this area. Flower Park, Macungie Memorial Park, Kalmbach Park, future Jaendl Linear Park, Lock Ridge Park, Albutis Wildlife Tract, and other parks are within the area, yet lack pedestrian-friendly connections.

Macungie Memorial Park has a diversity of recreation opportunities and a full events calendar. Recreation facilities include a public swimming pool, ball fields, band shell, indoor recreation hall, playground, picnic pavilions, and basketball courts. Das Awkscht Fescht, one of the largest events held at the park, can draw upwards of 130,000 visitors over a three-day weekend. Currently, residents, day cares, schools, and visitors walk to Macungie Memorial Park on local streets and fragmented sections of sidewalk. This park is the active recreation center for the Borough and surrounding municipalities. A recent citizens survey of neighboring Upper Milford Township residents found Macungie Memorial Park the second most visited park by respondents, confirming the park's regional use.

Lehigh County's Lock Ridge Furnace Park and Museum is a unique cultural and recreational resource for the surrounding community, yet access is currently limited and not pedestrian oriented. Picnic pavilion, walking path, baseball field, museum, and other interests could be within walking distance to thousands of residents.

A busy State Route 100 (Main Street) and an active Conrail freight line divide neighborhoods and communities. For example, one-third of Macungie Borough's

population, Weis Markets, a daycare facility, and shops are located north of the railroad tracks, making Route 100 and the railroad crossing intersection the only point providing pedestrian access to the rest of the Borough. In addition, almost half of the residents, the Borough Hall, and Kalmbach Park are located west of Route 100. Macungie Memorial Park, East Penn School Campus, a day care facility, shops, and businesses are located east of Route 100. On a daily basis, Borough residents cross these “barriers” in need to access work, schools, shops, parks, and community services. Lower Macungie Township and Alburty Borough have similar concerns about these barriers.

In an effort to combat these growing concerns, Macungie Borough, Alburty Borough and Lower Macungie Township have joined to plan a regional trail network. The five-mile trail system will link Macungie Borough, Alburty Borough, and Lower Macungie and Upper Milford Townships. The trail provides a safe alternative for residents, workers, students, and visitors to reach services and parks. Concrete sidewalks, asphalt paths, and stone dust trails link parks, schools, shops, and employments centers. This Master Plan provides the framework to which independent trail segments can be developed, in phases, to create a better connected community.

The trail plan’s initial phase links Macungie Memorial Park, Flower Park, and Kalmbach Park and their associated neighborhoods within Macungie Borough. The next phase ties the East Penn School District Campus, Macungie Institute, and Allen Organ together. A later phase coincides with the completion of a recently started subdivision, connecting Macungie Borough to Alburty Borough and Lock Ridge Furnace Park and Museum. A “wilderness” walking trail will be developed on Macungie Authority Lands connecting Kalmbach Park to Upper Milford Township. Eventually, it is anticipated the trail will also connect to Emmaus Borough and the Wildlands Conservancy’s Pool Wildlife Sanctuary.

The Master Plan details the trail network into a series of developable phases. The built-out trail system creates a regional trail network connecting Macungie and Alburdis Boroughs and Lower Macungie and Upper Milford Townships.

The Trail Master Plan includes a map and narrative describing existing, proposed, and future trail connections in and surrounding Macungie Borough. The map illustrates trail segments, both existing and proposed, creating a network of pedestrian routes connecting various points of interest. The written narrative describes existing and proposed conditions, including community demographics and development trends.

The trail network covers a variety of surfaces from concrete sidewalks to asphalt paths to stone dust trails. Trail improvements include surfaces, signage, street trees, and trail heads.

### **Geographical Information Systems**

Geographic Information Systems, coined GIS, link written data or facts with geography by allocating data to specific locations on a map. Vast amounts of data become accessible for analysis and study quickly, compared to previous mapping overlay techniques. Information is organized in layers which can be turned on and off, depending on the particular study. Roads, streams, topography, soils, zoning, tax parcels, utilities, political boundaries, and other information can be reviewed individually or together. Updates and new releases of raw data are easily added. A GIS provides municipalities with an expandable management tool for parks, trails, and open space. The plan is documented in GIS to provide an interactive planning tool to track and monitor trail development. The mapping was completed in ArcGIS 8.0.

### **Site Reconnaissance**

Throughout the planning process, BIA conducted a number of field visits. Once trail routes were located, each segment of trail was given a number and a letter. A complete inventory of each trail segment was completed in the fall of 2003. Existing conditions for each section were gathered including sidewalk width, trees, driveways, etc., and then this information was entered into a GIS database.

## **Background**

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Several previous planning efforts and recent events support the Borough's trail planning and construction efforts.

Macungie Borough's 1966 Comprehensive Plan recommended a trail connecting Macungie Memorial Park and Kalmbach Park.

The Southwestern Lehigh County Joint-Municipal Comprehensive Plan, started in 2003, creates an atmosphere encouraging joint municipal planning and will include this trail plan.

Recent acquisition and construction of Flower Park, at the intersection of Route 100 and the Conrail freight line, creates a critical hub and connection between neighborhoods.

## **Need**

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Lower Macungie Township's linear greenways create pockets of green space throughout the Township, awaiting opportunities for connection.

Ever increasing traffic on Route 100 has shifted traffic flows onto secondary streets, compromising walking and biking on these narrow country roads.

An active events calendar for Macungie Memorial Park requires transportation options and pedestrian conflict resolution.

Regionally, efforts to improve the quality of life for residents through alternative transportation routes connecting residential areas to work, school, and play is an important issue.

East Penn School District's Macungie/Shoemaker/Eyer Campus accommodates over 2,000 students from Macungie Borough, Lower Macungie, and Upper Milford Townships. Current class curriculum utilizes Kalmbach Park for nature studies. Students and teachers walk in back alleys to minimize pedestrian-vehicular conflicts.

A recent study concerning student health realizes a need to provide safe pedestrian connections to local schools to encourage exercise.

## Demographics

### Macungie Borough

Macungie Borough's population has grown since 1990, according to the 2000 Census, by 17%. A large portion of the increase (35.7%) has been in the retired or older community, with a slight decrease (0.4%) in school aged children. The male to female ratio remained unchanged at 48% male / 52% female.

Macungie Borough's population increase is directly related to development of 271 units (23%) over the 10-year period. New housing developments include Lock Ridge Hills, Brookfield Apartments, and the Ridings. A review of the Borough's working age population finds 88.7% drive alone to work daily, and only 8% carpooled. Two percent of residents walk to work. The average drive time to work increased to 22 minutes for residents on average.

According to the 2000 US Census, 41 residents use public transportation or walk to work. An additional 10 residents work from home. Although a majority of residents drive to work, over 12% drive less than 10 minutes.

### Population Growth 1990 – 2000, Macungie Borough

	1990	2000	Change	% Change
Total Population	2597	3039	442	17.0%
Age 19 and under	690	687	-3	-0.4%
Age 20 - 65	1607	1945	338	21.0%
Age 65 and over	300	407	107	35.7%
Median age	N/A	38.5	-	-
Total households	1086	1366	280	25.8%
Average household size	2.39	2.22	-0.17	-7.1%
Total housing units	1147	1418	271	23.6%

*\*Source: US Census Bureau*

### Estimated Land Use 2001, Macungie Borough

Type	Acres	% of Land
Residential	254.3	38.5
Agricultural & Vacant	127.2	19.3
Transportation & Utilities	99.2	15.0
Industrial	65.0	9.8
Parks & Recreation	63.8	9.7
Public & Quasi-Public	28.2	4.3
Commercial	20.1	3.0
Wholesale & Warehousing	2.2	0.3

Total    600.0

*\*Source: Assessment Dep't. for Lehigh and Northampton Counties*

**Alburtis Borough**

The 2000 census confirmed a 50% increase in the Borough residential population. Development of townhouses on the western side of town significantly influenced this increase. Currently, 27 residents (2.3%) aged 16 or older either work at home or walk to work. No Borough residents use public transportation to commute to work. Over 13% travel less than 10 minutes to work, likely remaining within the project area.

Unlike the other population forecasts for Boroughs in the Valley, Alburtis is projected to experience population growth. A portion of the Borough is undeveloped and most likely will be developed over the next thirty years as primarily residential development.

**Population Growth 1990 – 2000, Alburtis Borough**

	<b>1990</b>	<b>2000</b>	<b>Change</b>	<b>% Change</b>
Total Population	1415	2117	702	<b>49.6</b>
Age 19 and under	461	671	210	<b>45.55</b>
Age 20 - 65	833	1292	459	<b>55.10</b>
Age 65 and over	121	154	33	<b>27.27</b>
Median age	N/A	33.3	-	-
Total households	491	774	283	<b>57.64</b>
Average household size	2.88	2.74	-0.14	<b>-4.86</b>
Total housing units	502	799	297	<b>59.16</b>

*\*Source: US Census Bureau*

**Estimated Land Use 2001, Alburtis Borough**

<b>Type</b>	<b>Acres</b>	<b>% of Land</b>
Residential	167.9	<b>42.3</b>
Agricultural & Vacant	46.3	<b>11.7</b>
Transportation & Utilities	63.4	<b>16.0</b>
Industrial	7.2	<b>1.8</b>
Parks & Recreation	88.5	<b>22.3</b>
Public & Quasi-Public	14.6	<b>3.7</b>
Commercial	8.2	<b>2.1</b>
Wholesale & Warehousing	0.9	<b>0.2</b>
Total	660.0	

*\*Source: Assessment Dep't. for Lehigh and Northampton Counties*

### Lower Macungie Township

Lower Macungie Township has experienced significant growth in the past few years and the LVPC forecasts this growth to continue. In 1997-1998, announced changes to Township ordinances sparked numerous land development applications submitted for approval prior to adoption of the new regulations. As a result, development of housing stock in the Township has significantly impacted the landscape, as well as roads and the surrounding communities.

The 2000 US Census found 148 residents either walk or bike to work and an additional 26 use public transportation. Also, 290 residents work from home. Even though almost 95% of resident workers drive to work, 16.1% are within 10 minutes from their place of employment.

### Population Growth 1990 – 2000, Lower Macungie Township

	1990	2000	Change	% Change
Total Population	16871	19220	2349	<b>13.92</b>
Age 19 and under	5067	5194	127	<b>2.51</b>
Age 20 - 65	10237	11298	1061	<b>10.36</b>
Age 65 and over	1567	2728	1161	<b>74.09</b>
Median age	N/A	41.3	-	-
Total households	5965	7158	1193	<b>20.00</b>
Average household size	283	2.65	-0.18	<b>-6.36</b>
Total housing units	6171	7405	1234	<b>19.99</b>

*\*Source: US Census Bureau*

### Estimated Land Use 2001, Lower Macungie Township

Type	Acres	% of Land
Residential	3897.9	<b>26.6</b>
Agricultural & Vacant	7395.1	<b>50.5</b>
Transportation & Utilities	1154.8	<b>7.9</b>
Industrial	344.1	<b>2.3</b>
Parks & Recreation	1099.3	<b>7.5</b>
Public & Quasi-Public	310.4	<b>2.1</b>
Commercial	315.8	<b>2.2</b>
Wholesale & Warehousing	139.6	<b>1.0</b>

Total 14657.0

*\*Source: Assessment Dep't. for Lehigh and Northampton Counties*

### **Lehigh County 2005 Parks and Recreation**

Published in April 1997, the LVPC completed an update to the Lehigh County Parks 2000 study of parks and recreation in the Lehigh Valley. Macungie Borough has 61.6 acres of outdoor recreation in 1995, including 42.6 acres of mini parks, neighborhood, and community parks, and 19 acres of special use parks. Based on future population trends, Macungie Borough will require an additional 18.1 acres of active open space. Two parks, owned/managed by Lehigh County are located in Alburtis Borough – Lock Ridge Park and Furnace Museum and Alburtis Mountain Road Tract. Lower Macungie Township currently has 175.2 acres in local, close-to-home space, which meets existing and forecasted population needs.

Ten potential greenways were identified in the Valley, one of which is the South Mountain/Lehigh Mountain range. A portion of this greenway is located between Macungie and Alburtis Boroughs, in Lower Macungie Township. As the PA Department of Conservation and Natural Resources and the Commonwealth moves forward with its greenway initiative, the connection to a local greenway can be an asset for the regional trail network. Lehigh County is scheduled to develop county-wide greenway plan in 2004-2005. During the planning stages, this trail and any potential linkages should be included in the plan.

### **Lehigh County Population Projection**

In February 2003, the LVPC released *Municipal Population Forecasts* for 2010, 2020, 2030. Even though no population increase is projected for Macungie Borough and only a slight population increase for Alburtis Borough, both boroughs maintain strong housing occupancy rates and continue to experience development growth. However, a dramatic population increase is projected and has already been seen in Lower Macungie Township, which surrounds both Alburtis and most of Macungie Boroughs. A leap from 19,220 (Year 2000) to 32,966 (Year 2030) will directly impact both boroughs.

### **Lehigh Valley Land Use Public Opinion Survey - 1999**

The LVPC released in April 1999 the findings of a resident solicited land use survey. Of the 4000 surveys mailed, 1076 were returned. The respondents resided 15% in Boroughs, 58% in Townships and the rest in cities. Three quarters of the respondents lived in the Lehigh Valley for more than 20 years. Almost half of the respondents felt the quality of life has gotten worse in the Lehigh Valley in the past ten years. Respondents emphasized transportation planning should provide linkages among different modes of transportation to limit taking of lands for new right of way. The second most needed park and recreation facility was trails. Respondents least liked the traffic congestion in the Lehigh Valley. These findings support the development and need for trail connections beyond the local municipality.

### **Lehigh County Trails**

In 1993, the LVPC prepared a Rails-to-Trails Inventory for Lehigh and Northampton Counties. Although no abandon lines exist in or near this project area, the currently active rail line could potentially be a conduit for trail activity in the future. All municipalities should monitor rail activity and maintain a positive relationship with Conrail.

The Lehigh Wheelmen Association and the LVPC developed 17 on-road bike routes in the Valley. The Velodrome, located on Route 222 in Trexlertown, is a mecca for avid road/racing cyclists. The Lock Ridge Furnace Route passes through Macungie Borough, Alburtis Borough, and Lower Macungie Township along Route 100 to Church Street, then connecting to Mountain Road. The total tour is 7.4 miles.

As development brings increased traffic to the region, on-road bike routes become compromised. Narrow county roads, once open to occasional vehicular traffic, now become shortcuts for commuters, hoping to by-pass a congested State Route 100.

#### **Lehigh County Natural Area Inventory**

The Lehigh Valley Planning Commission (LVPC), in April 1999, inventoried 728 square miles of Lehigh and Northampton Counties and identified known outstanding natural features of flora, fauna, and geologic formations. The Pennsylvania Natural Diversity Inventory Data System (PNDI) was used to develop the basis for its findings. The Macungie Watershed, located just south of Macungie Borough, in Upper Milford and Lower Macungie Townships, was county ranked no. 4. The site contains fair to good quality Northern Appalachian Circumneutral Seeps Natural Community. The seeps potentially support habitat for several endangered plant species of state-wide significance. Portions of this land are owned by the Macungie Borough Water Authority who supplies Borough residents' water. Recommendations for these areas include environmental education, stewardship, conservation partnerships, land protection, acquisition, and planning. The Water Authority is currently considering a forest management plan for its lands.

#### **Macungie Borough Comprehensive Plan**

In 1966, Macungie Borough prepared a comprehensive planning guide to direct future development in the Borough. The creation of a trail connection between parks and open space in the Borough was an initiative to which the Borough has become active in completing.

#### **Lower Macungie Township Comprehensive Plan**

In 1988, Lower Macungie Township updated its comprehensive planning guide and made plan recommendations based on community needs. A new policy to implement a community bicycle/pedestrian pathway focused on providing recreational activities for persons of all ages. The study details the placement, dimension, and classification of these pathways.

#### **Alburtis Borough Comprehensive Plan**

The 1974 Alburtis Borough Comprehensive Plan is concerned with neighborhood and community facility development. The preservation and development of open spaces for passive, active, and scenic enjoyment is an initiative to which the Borough is actively pursuing.

#### **Southwestern Lehigh County Comprehensive Plan**

Macungie Borough, along with Alburtis and Emmaus Borough, Upper and Lower Milford and Lower Macungie Townships, is preparing a joint municipal comprehensive plan. The plan is in progress at the time of this plan. The study recommends trail development to resolve growing transportation issues and improve the quality of life in the region.

#### **Pennsylvania Natural Diversity Inventory**

On October 16, 2003, a PNDI Search was submitted to the Lehigh County Conservation District (LCCD) for the initial phase one trail development. LCCD responded with three potential conflicts with the Fish and Boat Commission (F&B), Department of Conservation and Natural Resources Bureau of Forestry (DCNR) and US Fish and Wildlife (USF&W). Detailed information was sent to each agency for further review and comment. All three agencies replied with no impact/no effect (copies of letters are in the appendix).

#### **Cultural Resource Notice**

On October 29, 2003, a Cultural Resource Notice was submitted to Pennsylvania Historical and Museum Commission (PHMC) for review and comment. PHMC found the project would have no effect and no archaeological investigations were necessary in the Phase 1 project area.

**Macungie Memorial Park**

Location: Macungie Borough: Walnut Street, Main Street (SR100), Lehigh Street and Mountain Creek

Lot: 34.3 acres

Classification: Neighborhood / Community Park,

Facilities:

- Baseball Fields
- Basketball Hoops
- Open Fields
- Playground
- Pool
- Sheltered Picnic Area
- Amphitheater
- Restrooms
- Gazebo
- Parking Lot

Note: Memorial Park is the largest active recreational facility available to the community. The Park is used extensively throughout the year by schools, organizations, and residents largely due to its ideal location adjacent to schools, Main Street businesses, and residential neighborhoods. An active yearly events calendar can draw upwards of 130,000 visitors over a 3-day event, significantly impacting surrounding streets and neighborhoods.

**Macungie Flower Park**

Location: Macungie Borough: Main Street (SR 100), Mill Alley and active Conrail Rail Line

Lot: 0.2 acres

Classification: Special Use Open Space

Facilities:

- Train Depot Shelter Area
- Water Fountain Feature
- Flower Garden
- Ornamental Plantings
- Stone Wall
- Benches
- Flag Pole

Note: Located on a high-traffic-volume road, the park space is an easy reference point for visitors. It is an ideal location for community information boards and trail head. Access across the neighboring railroad tracks and along side streets to this area is recently improved, making Flower Park a critical connection between the northern and southern portions of the Borough.

**Kalmbach Park**

Location: Macungie Borough: Bird Alley, Cotton Alley and Chestnut Street

Lot: 19.0 acres

Classification: Neighborhood / Community Park

Facilities:

- 1800's Farm House and Barn
- Arboretum
- Walking Trails
- Wooded Areas
- Parking Lot

Note: Kalmbach Park is a passive recreation facility, including education programs, nature trails and an arboretum. Accessibility can be increased by providing crosswalks on major roadways, and arterial path entries for

neighboring residents. Trail connections and development should respect passive character of the site which includes a preserved barn and house of the Kalmbach family.

**Eyer/Macungie/Shoemaker**

Location: Lower Macungie Township: Chestnut Street, Brookside Road, Fairview Street and Buttonwood Street.

Lot: 49.66 acres

Classification: Institution / East Penn School District

Facilities:

Elementary Schools

Middle School

Parking Lot

Bus Parking

Playground

Multipurpose Fields

Note: Sidewalk connections between facilities and adjacent streets are incomplete. The East Penn School District should provide an internal trail network which connects to the regional trail plan.

**Macungie Institute**

Location: Macungie Borough: Main Street (SR 100), N. Sycamore Street and Hickory Alley

Lot: 1.24 acres

Classification: Institution / Municipal Property

Facilities:

Historic Society Museum

Community Center/ Meeting Rooms

Parking Lot

Clock

Note: The community center is located on Main Street, between the Eyer Middle School and Kalmbach Park. It provides an ideal location for information on points of interest within the community.

**Macungie Borough Municipal Building**

Location: Macungie Borough: Church Street, Locust Street and Pine Street

Lot: 0.58 acres

Classification: Institution / Municipal Property

Facilities:

Borough Hall

Police Station

Note: Located in a residential area and one block from Main Street businesses, the Municipal building is the center of Borough management and business. Sidewalks are pedestrian friendly, providing ample walk width and scenery. Steps should be taken to ensure that the sidewalks are in good condition.

**Jaindl Park**

Location: Lower Macungie Township: Lower Macungie Township/Alburtis Boundary, active Conrail line, Scenic View Drive and Gehmen Road

Lot: 94.38 acres

Classification: Neighborhood / Community Park

Facilities:

Baseball Fields

Basketball Courts

Tennis Courts

Pavilions

Amphitheater  
Community Center  
Restrooms  
Tot Lots  
Open Space  
Trails  
Parking Lots

Note: A recently approved and soon to be developed 700-home community includes almost 100 acres of improved open space buffering the existing Conrail line and the new housing. This long stretch of property encompasses various landscape conditions: fields, wetland, floodplain, Swabia Creek, and railroad buffer. Small loop trails connect various housing areas with various recreational facilities creating a network of outdoor spaces. A linear trail parallels the railline, linking Gehman Road to the Alburdis Borough line and Church Street.

### **Lock Ridge County Park**

Location: Alburdis Borough: Church Street, Lauren Lane, Furnace Street, Franklin Street

Lot: 59.5 total acres (3.1 acres in Lower Macungie Township)

Classification: Historic Site, Community Park / Lehigh County

Facilities:

Baseball Field  
Museum  
Picnic pavilion  
Walking Trails  
Furnace Ruins  
Parking Lots

Note: Located along Church Street, this historic park contains remains of two 1868 anthracite coal burning furnaces. These landmarks are incorporated into the park's educational and recreational facilities.

### **Alburdis Mountain Road Tract**

Location: Alburdis Borough

Lot: 14.5 acres

Classification: Natural Area / Conservancy

Facilities:

Unimproved

Note: This wooded site provides a refuge for wildlife within Alburdis Borough. Primarily, the site is used informally by residents and bird watchers for passive recreation.

### **Conrail**

The adjacent municipalities should actively maintain a dialogue with Conrail. Consider impacts on the pedestrian routes through the community and potential resolutions through cooperative efforts. Potential parallel trails, as well as improved pedestrian crossings, should be addressed.

### Soils

In 1963, the USDA Soil Conservation Service, in cooperation with Penn State University and PA Department of Agriculture, prepared the Soil Survey of Lehigh County, Pennsylvania, which maps, identifies, and describes the different soil types within the county. The soil delineations were prepared from aerial mapping flown in 1959. The USDA is currently updating the soil types to be universal across the state.

The majority of soils in Macungie Borough are of the Washington silt loam type (WgA, WgA2, WgB2, WgC2) ranging from 0 to 15 percent slopes. Washington silt loam soil characteristics are generally deep and well drained. There are minimal building limitations except where slope is a concern. Two minor soil types are of interest: Fleetwood very stony loam (FhB) and Philo silt loam (Ph), located along a tributary to Swabia Creek in the Allen Organ property. These two soil types are typically located in floodplains, making them more suited for open space, park and recreational use rather than development.

The majority of soils in Alburdis Borough are Washington silt loams (WgA, WgA2, WgB2), and Murrill gravelly loam (MuB2) ranging in 0 to 8 percent slopes. Washington silt loam soil characteristics are generally deep and well drained. Minimal building limitations except where slope is a concern. Murrill gravelly loam soil characteristics are generally deep, well drained productive soils. Murrill is most suited for orchards and agricultural use, potential sinks limit development. Lindside (Ln) and Melvin (Mh) soils are found bordering Swabia Creek. These soil types are poorly drained, flat soils located in floodplains, making them more suited for open space, park and recreational use rather than development.

Similarly, soils in Lower Macungie Township are of the Washington silt loam (WgA, WgA2, WgB, WgB2, WgC2), and Murrill gravelly loam (MuB2) ranging in 0 to 15 percent slopes. Washington silt loam soil characteristics are generally deep and well drained. There are minimal building limitations except where slope is a concern. Murrill gravelly loam soil characteristics are generally deep, well drained productive soils. Murrill is most suited for orchards and agricultural use; potential sinks limit development. Chester series (ChD, ChF) and Made Land (Me) ranging in 0 to 50 percent slopes are located along wooded hillsides in Lower Macungie Township. Chester series characteristics are very stony silt loam and generally a good source for building material. Made Land series characteristics are limestone material that has already been disturbed, building limitations vary.

In addition to the Lindside (Ln) and Melvin (Mh) soils found along the Swabia Creek, Duffield (DuA2, DuB2, DuC2, DuD2, DuE2, DuF2, DuD3) soil was found along Lehigh Creek, ranging in 0 to 55 percent slopes. Duffield silt loam soil characteristics are generally well drained, with varying rock fragments. Duffield has high natural fertility, suited as source material.

### Watershed

Macungie Borough is in the Little Lehigh River Watershed; this watershed is a subcomponent of the Lehigh River Watershed.

#### Little Lehigh River Watershed

##### *Sub area – Swabia Creek*

The Swabia Creek headwaters originate on South Mountain, near Red Lion and Maple Grove in Longswamp Township, Berks County. The creek flows north east along the eastern border of Alburdis Borough. From the Borough, the creek flows east, paralleling the Conrail line into the Borough of Macungie. Mountain Creek converges with the Swabia Creek in the

Borough. The creek then flows north, northeast through Brookside Country Club and Lower Macungie Township until joining the Little Lehigh Creek.

*Sub area – Mountain Creek*

The headwaters start in Upper Milford Township on South Mountain Ridge. Several small tributaries combine and cascade down the forested hillside on the Water Authority property before entering the Borough at Kalmbach Park. The creek flows through Kalmbach Park crossing under Cotton Alley where it forms the western edge of the Fire Co. Number 1 lands. At this point the creek is channelized, flowing under Hickory Lane, continuing north under Main Street to Macungie Memorial Park. The stream is again unconfined as it forms the northern edge of Macungie Memorial Park. The creek continues under Lehigh Street and the Conrail line, before joining the Swabia Creek.

**Lower Lehigh River Watershed**

The plan recommends communities in the watershed permanently protect environmental features, retain traditional land development patterns, provide flexible standards for developers, and recognize the value for multi-municipal planning. Other plan recommendations include restoration and preservation of riparian buffers, conservation of woodlands, protection and restoration of wetlands, improvement of wastewater treatment and reduce single point discharge, planning for water supply needs, reduction of non-point source pollution, reduction of ponds and impoundments, education for landowners, identification of recreation opportunities, establishment of watershed-wide programs, assistance to municipalities with GIS technology, support of the formation of Environmental Advisory Council, development of detailed inventories of flora and fauna in the watershed, and assembling of natural and cultural resource inventory.

### **Kalmbach Park**

Many soft surface trails connect various park amenities and resources. Trail surfaces range from compacted stone dust to less formal woodchip paths and are typically 2' - 5' wide. Recently, park staff has begun developing a trail across Cotton Alley from the terminus of the Firehouse trail. This trail includes a fieldstone laid edge and will connect to the existing internal trail system.

### **Macungie Memorial Park**

Wide, paved asphalt paths are jointly used for access, maintenance, and service. The park's frequent event use requires more formal paths to handle vehicular traffic. Most paved routes in the park are minimally 12' wide and are as wide as 20', connecting various buildings and parking areas to Lehigh, Poplar, and Walnut Streets.

### **Flower Park**

Sidewalks parallel to Main and Mill Streets intersect at the parks main entrance. Internal walking paths of unit pavers create a loop around the center fountain. A newly created parking area, and planned Kiosk make this park an ideal trail head at the northern end of town. Walks in and around the flower garden are 5' wide.

### **Lock Ridge Park and Furnace Museum**

Asphalt and stone dust paths connect parking areas to historic sites and the museum, as well as the picnic area and playing field located on Church Street.

### **Jaindl Subdivision Project**

The proposed Jaindl subdivision includes a linear park with asphalt paved paths. The main path is proposed to be 6' wide, with adjoining 4' wide connectors.

### **Route 100/Main Street**

Recent developments of Wawa, Weis Markets, and CVS have included concrete sidewalks on the east side of Route 100 from the railroad tracks to Mill Creek Road. The 5' wide concrete walk includes curb cuts and handicap ramps at road crossings.

### **Boroughs/Subdivisions**

Within the Boroughs and some subdivisions, concrete sidewalks parallel streets. However, sidewalk networks and park trail systems often do not connect. Lower Macungie Township requires asphalt trails to be constructed surrounding and connecting different subdivisions. Some connections between developments are unresolved and awaiting completion.

### **Firehouse Property Trail**

The Firehouse trail is a stone dust trail edged in brick. The trail runs from Hickory Lane to Cotton Alley parallel to Mountain Creek. A wooden bridge 6' in width connects residents on Poplar Street to this trail.

## **Regional Trail Network**

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The entire trail network has been separated into sections and segments. Sections create a linkage between two major points. Each section is then subdivided into segments which typically begin and end at street crossings or property lines. Based on site reconnaissance, data was gathered and photos taken of each segment. Existing conditions were noted and recorded in a GIS database. A printout of the data is included in the appendix of the report.

The following sections link together to form the Regional Trail System:

Section 1 – East Penn School Loop

Section 2 – Macungie Institute / Kalmbach Connection

Section 3 – Main Street (SR 0100) east side

Section 4 – Main Street (SR 0100) west side

Section 5 – Macungie Memorial Park Loop

Section 6 – Church Street (SR 2018) south side

Section 7 – Kalmbach Park Loop

Section 8 – Macungie to Alburdis Connection

Section 9 – Kalmbach Park to Upper Milford Connection

## **Phased Development**

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The proposed trail development is separated into Phases, coordinating with existing, planned, and future trail projects critical to each section's completion.

Phase 1 –  
School Alley and Lehigh Street  
Poplar Street  
Poplar/Hickory Lane Trailhead

Phase 2 –  
East Penn School Loop  
Macungie Institute/Kalmbach Park Connection  
Main Street Eastside  
Main Street Westside  
Church Street  
Cotton Alley

Phase 3 –  
Locust Street  
Allen Organ Trail  
Alburdis Connection

Phase 4 –  
Macungie Memorial Park Trail  
Kalmbach Park to Upper Milford Connection

## **Proposed Trail Development – Phase 1**

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### **Flower Park to Macungie Memorial Park Connection**

Currently, there is no pedestrian route between these two facilities. This trail will follow Borough maintained Miller Street and School Alley and PennDOT maintained Lehigh Street. Macungie Borough is currently working with PennDOT's turn-back program to negotiate Borough acquisition of Lehigh Street.

The proposed trail from Flower Park to Memorial Park is a 5' wide concrete sidewalk. The trail will connect the existing sidewalk, which terminates at School Alley, continue south on the east side of School Alley crossing Lehigh Street, and then continue east along the south side of Lehigh Street. The trail will include a pedestrian bridge over Mountain Creek before terminating at the Macungie Memorial Park Entrance. Total length of the Flower Park to Macungie Memorial Park connection is 1,233 feet.

The trail is located in an area mixed with residential, industrial and commercial businesses, and open space. Issues include: adjustment of an inlet at the intersection of School Alley and Depot Street, relocation of a utility pole at the corner of School Alley and Lehigh Street, and the stream crossing at Mountain Creek.

### **Macungie Memorial Park to Firehouse Trail**

Poplar Street is the main vehicular entrance into the park from Main Street (SR 100). Overflow event parking on the Firehouse property requires attendees to walk along Poplar Street, crossing Main Street (SR 100) to enter the park. The trail is located in an area of mixed residential and business uses. Issues include: sidewalk repair and crossing safety.

Currently there is a concrete sidewalk and marked crosswalk at Main Street (SR 100). However, the sidewalk is uneven in areas and does not provide handicap access from the Park. The crossing at Main Street (SR 100) is inadequate for the width of road, traffic, and pedestrian use.

The proposed trail from Memorial Park to the existing Firehouse Trail will be a 5' wide concrete sidewalk. The trail will connect Memorial Park entrance at Fern Alley, continue west along the northern side of Poplar Street, cross over Main Street (SR 100) and connect to the existing trail at the end of Firehouse Trail across Hickory Lane. Total length of the Macungie Memorial Park to Firehouse Trail is 434 feet.

### **Firehouse Park Trailhead**

Poplar Street western terminus is at Hickory Lane, opposite Macungie Borough Fire Company lands. An existing paver lined, stone dust trail parallels Mountain Creek between Cotton Alley and Hickory Lane.

The proposed trailhead at Hickory Lane shall include benches, bicycle racks, information map/kiosk, trash receptacles, signage, and a 12-car paved parking lot. A gate at the end of the parking area provides access to a large open lawn for expanded parking during special events. The trailhead shall reflect the community character. A storm drain inlet sunken into Hickory Lane will need to be raised and the grate replaced for trail use.

In October 2003, the Borough applied for a Transportation Enhancement Grant to build Phase 1 trails.

## School Alley and Lehigh Street

## Proposed Trail – Phase 1

The proposed trail segments follow Borough-maintained School Alley and PennDOT-maintained Lehigh Street. Currently, there are no pedestrian provisions on either of these streets. School Alley is a short, one-way street which permits two-way access to the Tyler Pipe parking lot. Lehigh Street is a busy two-way connector street, connecting Route 100 to Brookside Road. Macungie Borough is currently working with PennDOT’s turn-back program to negotiate Borough acquisition of Lehigh Street (SR 2018).



5E

### Existing Conditions

Segments:	C-D Lehigh Street (1127LF) E School Alley (96LF)
Total Length:	1223.0 ft
Surface:	soft
Width:	-
Condition:	no sidewalk
ADA accessible:	no
Issues:	-
Utility Poles:	2
Signage:	(1) do not pass (1) through traffic only (1) do not enter (2) no parking
Hydrants:	2
Street Trees:	(1) Sycamore
Street Lights:	1
Crosswalk:	no
Crosswalk Length:	5C-5D 25’ 5D-5E 24’ 5E-5G 18’
Driveway Cuts:	5D 26’,21’
Parking Lot Cuts:	5D 26’
Points of Interest:	Mountain Creek Memorial Park Flower Park Naturalized vegetation by creek
Ownership:	C-D PennDOT Right-of-Way E Macungie Borough Right-of-Way



5E



5D



5D



5D

Surrounding Land Use: Residential  
 Industrial  
 Commercial Business  
 Recreation/ Open Space

**Proposed Improvements**

**5C Lehigh Street (Creek Alley to Macungie Memorial Park entrance)**

Surface: (545LF) 5' concrete sidewalk and curb

ADA Accessible: (2) handicap ramps

Street Trees: (13) 1 every 40'

Signage: (2) pavement trail markers

Other: (1) pedestrian bridge  
 (2) 15' ramps  
 (2) abutments



5C

**5D Lehigh Street (School Alley to Creek Alley)**

Surface: (582LF) 5' concrete sidewalk and curb  
 (2) driveway cuts  
 (1) parking lot cut

ADA Accessible: (2) handicap ramps

Street Trees: (14) 1 every 40'

Signage: (2) pavement trail markers

Crosswalk: C-D 24' painted

Infrastructure: relocate utility pole



5C

**5E School Alley**

Surface: (96LF) 5' concrete sidewalk and curb

ADA Accessible: (2) handicap ramps

Street Trees: (2) 1 every 40'

Signage: (2) pavement trail markers

Crosswalk: E-D 24' painted

Infrastructure: Relocate fire hydrant  
 Install inlet box



5C

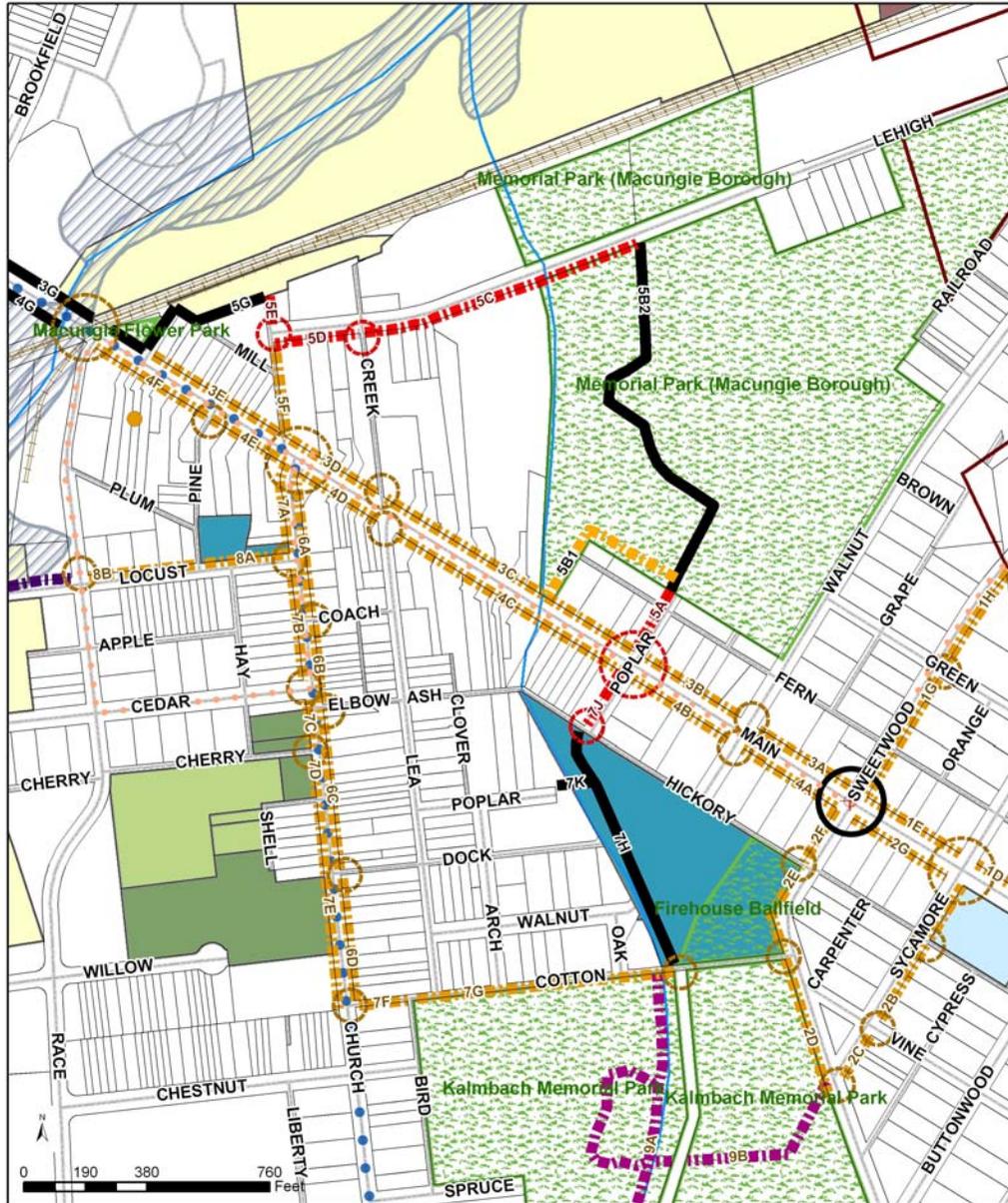


5C



5C

Segments 5C, 5D, 5E



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
|---|---|--|--|

Macungie Trail Project  
Borough of Macungie, Lehigh County, Pennsylvania

**BARRY ISETT & ASSOCIATES**  
Consulting Engineers & Surveyors  
88 S. Route 100 & Kressler Lane  
P.O. Box 147  
Trenton, PA 18607-0147  
610-395-0904

## Poplar Street

## Proposed Trail – Phase 1

The proposed trail connects Macungie Municipal Park across Main Street (SR 100) to the existing trail at Hickory Lane. Currently, there is a concrete sidewalk and marked crosswalk at Main Street. The sidewalk is uneven in areas and does not provide handicap access from the Park. The crossing at Main Street is inadequate for the width of road, traffic, and pedestrian use.

### Existing Conditions

Segment:	5A Poplar Street (227LF) 7J Poplar Street (207LF)
Total Length:	434.0'
Surface:	concrete sidewalk
Width:	4.5 - 5.0' wide/varies
Condition:	fair - poor
ADA accessible:	no
Issues:	wooden fence narrow ADA ramps
Utility Poles:	3
Signage:	(1) stop sign (1) park rules
Hydrants:	0
Street Trees:	Sycamores (resident owned)
Street Lights:	1
Crosswalk:	yes
Crosswalk Length:	7J-7K 15'
Driveway Cuts:	5A 16', 20'
Parking Lot Cuts:	7J 26', 28'
Points of Interest:	Main Street Businesses Memorial Park Entrance Firehouse Trail
Ownership:	5A Macungie Borough Right-of-Way 7J Macungie Borough Right-of-Way 5A-7J PennDOT Right-of-Way Trail Head - Macungie Fire Company
Surrounding Land Use:	Residential Business Recreational



5A



5A



5A



5A-7J Crosswalk

**Proposed Improvements**

**5A Poplar Street (Macungie Memorial Park to Main Street)**

Surface: (227LF) 5’ concrete sidewalk and curb  
(2) driveway cuts

ADA Accessible: (2) handicap ramps

Street Trees: Existing – none proposed

Signage: (2) pavement trail markers



**5A-7J Main Street Crossing**

Surface: lighted crosswalk system  
(50LF) pavement marking  
painted bulb-outs

ADA Accessible: (2) handicap ramps

Signage: (2) pavement trail markers

Landscape: (2) large planters/ plantings

7J



**7J Poplar Street (Main Street to Hickory Alley)**

Surface: (207LF) 5’ concrete sidewalk and curb  
(2) parking lot cuts

Crosswalk: J-H 24’ painted

ADA Accessible: (2) handicap ramps

Street Trees: (7) 1 every 40’

Signage: (2) pavement trail markers

7J



**7H Trail Head**

Surface: (5,689SF) asphalt paving parking lot

ADA Accessible: (1) handicap ramp

Street Trees: (10) 1 every 40’ (410LF parking lot)

Signage: (1) information kiosk  
(1) handicap parking space sign  
(1) identification sign  
(1) stop sign  
(1) timber gate 12’ wide  
(2) warning signs  
(2) bicycle racks  
(4) benches  
(4) bollards

7J

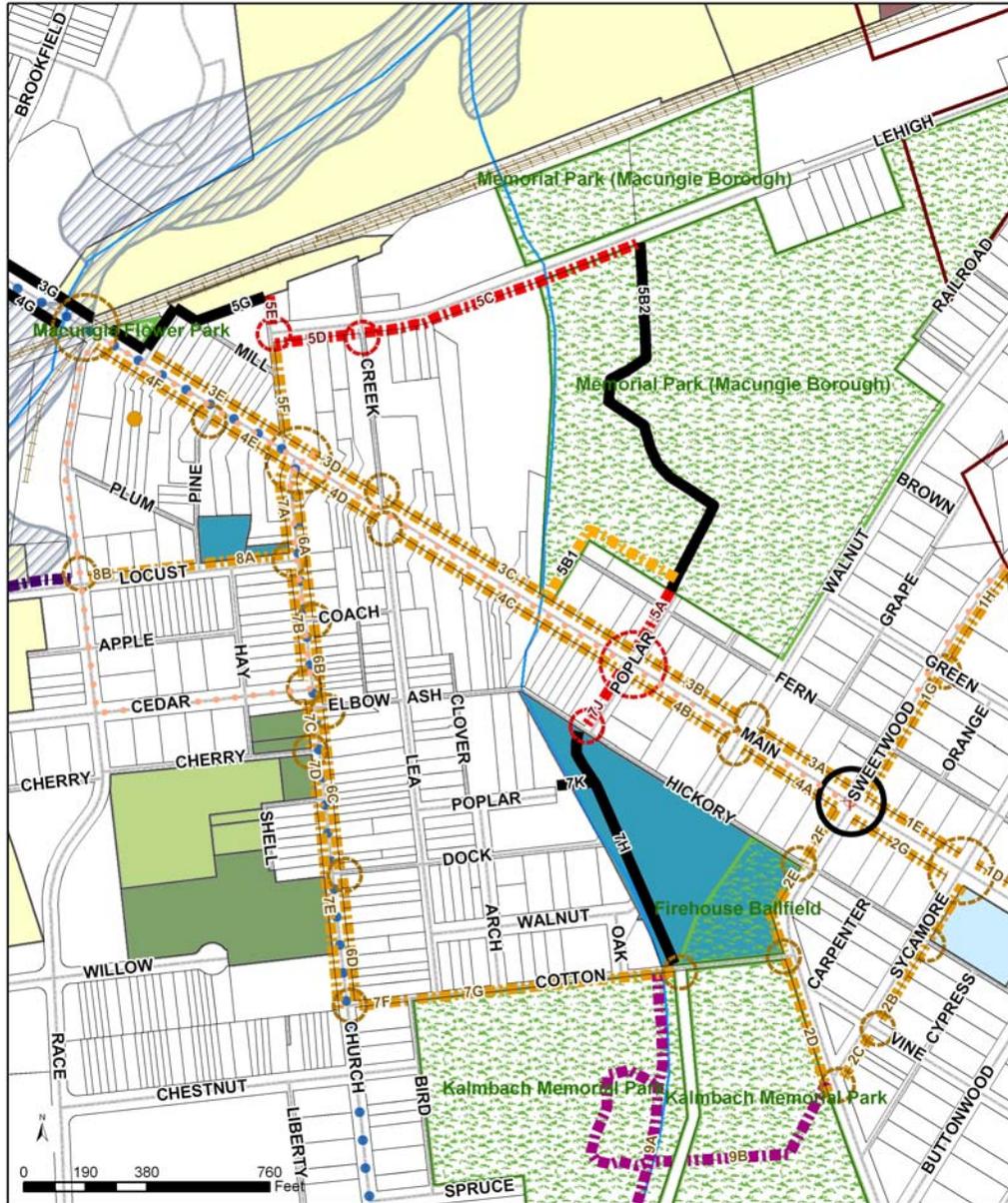


7J-7K Crosswalk

Infrastructure: Raise/adjust M-inlet on Hickory Lane

Ownership: Negotiate long-term lease for trail head

Segments 5A, 7J



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
|---|---|--|--|

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## Proposed Trail Development – Phase 2

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*It is envisioned subsequent sections of trail will be constructed as funding becomes available.*

### **East Penn Schools to Kalmbach Park Loop**

East Penn School District has a campus of two elementary and one middle school at the corner of Chestnut Street and Brookside Road in Lower Macungie Township, bordering Macungie Borough. Busy roads, limited sidewalks and trails, and inadequate road crossings prevent many students living in Macungie Borough from walking to school. Conversely, Eyer/Macunige/Shoemaker students currently visit Kalmbach Park for study.

East Penn School District is currently preparing a master plan for the campus, including trail connections within and to adjacent streets.

The trail begins at the school property and continues west on the north side of Buttonwood Street to Main Street. The trail will then turn north on Main Street to the lighted intersection at Chestnut Street. From this controlled crossing, the trail will cross both Chestnut and Main Streets to the opposite, northwest corner. The trail then continues west along the northern side of Chestnut Street to Kalmbach Park trail entrance. The proposed trail is to be a 5' wide concrete sidewalk.

The trail joins two areas: East Penn Schools and Kalmbach Park. The trail incorporates scholastic, residential, business, and recreational uses.

Benefits of this trail include a safer route for school students and improved access to Kalmbach Park.

### **Main Street Trail**

The proposed improvements along Main Street are to be a minimum 5' wide concrete sidewalk. The walks parallel Main Street on both east and west sides of the street. The northern end connects the Flower Park with the East Penn School loop trail at Buttonwood Street.

The trail is located along a major access road of mixed business and residential uses. Already used by many pedestrians, Main Street is a strong spine connecting all trail branches and loops.

### **Church Street**

The proposed trail along Church Street is to be a 5' wide concrete sidewalk. The Church Street trail begins at Main Street and continues west on both north and south sides to Cotton Alley. At this point, the trail will follow Cotton Alley to Kalmbach Park. The trail connects several residential areas with Main Street shopping, Borough Hall/Police Station, and Kalmbach Park. Already used by many pedestrians, Church Street is a strong residential corridor.

### **Locust Street**

The first stage will be the creation of a trail from Church Street, proceeding north on Locust Street from the Macungie Borough Hall to the Allen Organ property. This stretch of trail will be 5' wide concrete sidewalk. The trail is in a primarily residential area, connecting Allen Organ Company and adjacent industrial uses to the Borough. Employees of these facilities often walk adjacent neighborhoods during breaks for exercise and recreation. The trail network will support this existing use.

A connection to these community resources will facilitate current and projected uses. Accessibility can be increased by providing crosswalks at major road crossings and sidewalks from neighboring residential areas.

**Existing Conditions**

Segment:	A-C North Sycamore Street (665LF) D-F Chestnut Street (843LF) G Main Street (350LF)
Total Length:	1858.0'
Surface:	soft - concrete
Width:	0 - 5.5' wide/varies
Condition:	missing - good
ADA accessible:	yes, except for 2D, 2E, 2F
Issues:	views into Kalmbach Park
Utility Poles:	11
Signs:	(1) 20 mph (1) Route 100 (3) no parking
Hydrants:	0
Street Trees:	(3) Pear resident owned / woods
Street Lights:	1
Crosswalk:	no
Crosswalk Width:	G-A 7.5' painted
Crosswalk Length:	G-A 39' painted
Driveway Cuts:	2B 10', 10' 2G 16', 12'
Parking Lot Cuts:	-
Points of Interest:	Kalmbach Park Macungie Institute
Ownership:	A-F Macungie Borough Right-of-Way 2C-2D PennDOT Right-of-Way G PennDOT Right-of-Way
Surrounding Land Use:	Residential Borough Fire House



2A



2B



2B



2C



2C-2D Crosswalk

**Proposed Improvements**

**2A North Sycamore Street (Main Street to Hickory Alley)**  
Surface: (200LF) 5' concrete sidewalk and curb  
  
Crosswalk: A-B 15' painted  
  
ADA Accessible: (2) handicap ramps  
  
Street Trees: (5) 1 every 40'  
  
Signage: (2) pavement trail markers



2D

**2B North Sycamore Street (Hickory Alley to Vine Street)**  
Surface: (290LF) 5' concrete sidewalk and curb  
(2) driveway cuts  
  
Crosswalk: B-C 30' painted  
  
ADA Accessible: (2) handicap ramps  
  
Street Trees: (6) 1 every 40'  
  
Signage: (2) pavement trail markers



2D

**2C North Sycamore Street (Vine Street to Chestnut Street)**  
Surface: (175LF) 5' concrete sidewalk and curb  
  
Crosswalk: C-D 25' painted  
  
ADA Accessible: (2) handicap ramps  
  
Street Trees: (4) 1 every 40'  
  
Signage: (2) pavement trail markers



2E

**2D Chestnut Street (Kalmbach Park Trail to Cotton Alley)**  
Surface: (390LF) 5' concrete sidewalk and curb  
  
Crosswalk: D-E 20' painted  
  
ADA Accessible: (2) handicap ramps  
  
Street Trees: (10) 1 every 40'  
  
Signage: (2) pavement trail markers



2E

**2E Chestnut Street (Cotton Alley to Hickory Alley)**  
Surface: (250LF) 5' concrete sidewalk and curb  
  
Crosswalk: E-F 17' painted  
  
ADA Accessible: (2) handicap ramps  
  
Street Trees: (6) 1 every 40'



2E

Signage: (2) pavement trail markers

**2F Chestnut Street (Hickory Alley to Main Street)**

Surface: (203LF) 5' concrete sidewalk and curb

ADA Accessible: (2) handicap ramps

Street Trees: (5) 1 every 40'

Signage: (2) pavement trail markers

Landscape: relocate planting material

**2G Main Street (Chestnut Street to North Sycamore Street)**

Surface: (350LF) 5' concrete sidewalk and curb  
(2) driveway cuts

Crosswalk: G-A 37' painted

ADA Accessible: (2) handicap ramps

Street Trees: (9) 1 every 40'

Signage: (2) pavement trail markers



## East Penn School Loop

## Proposed Trail – Phase 2

East Penn School District has a campus of two elementary and one middle school at the corner of Chestnut Street and Brookside Road in Lower Macungie Township, bordering Macungie Borough. Busy roads, limited sidewalks and trails, and inadequate road crossings, prevent many students living in Macungie Borough from walking to school

### Existing Conditions

Segment:	A-C Buttonwood Street (653LF) D-E Main Street (726LF) F-G Chestnut Street (429LF) H Buckeye Road (1089LF)
Total Length:	2897.0'
Surface:	A-H concrete A,G missing concrete sections
Width:	5.0 – 5.5'
Condition:	poor – good
ADA accessible:	yes, except for segment 1A, 1F, 1G
Issues:	ADA ramp accessibility concerns raised curbs low wooden seat wall mail boxes man holes inconsistent pavement conditions
Utility Poles:	10
Signs:	(1) 25mph (1) 35 mph (1) 15 mph school zone flashing (1) adopt a highway (1) curved road next 1.5 mi (1) pedestrian crossing ahead (2) turn lane (2) no parking
Hydrants:	1
Street Trees:	(4) Pears Maples (resident owned) wooded area
Street Lights:	4
Crosswalk:	no, except for 1D, 1E
Crosswalk Width:	across Buttonwood 7.5' 1E-1D 6.0' painted



1F



1A



1B



1C



1D-1E Crosswalk

Crosswalk Length:	across Buttonwood 37.0' 1E-1D 35.0' painted
Driveway Cuts:	1A 12' 1B 18' 1D 17', 12' 1E 12', 18' 1G 18', 12', 15'
Parking Lot Cuts:	1F 25' 1H 20'
Points of Interest:	East Penn Schoo-ls Macungie Institute
Ownership:	A-C Macungie Borough Right-of-Way E-D PennDOT Right-of-Way F-H Macungie Borough Right-of-Way H East Penn School District Right-ofWay
Surrounding Land Use:	Residential Scholastic Business



1E



1F



1F



1G



1H

### Proposed Improvements

#### **1A Buttonwood Street (School Property to Green Street extension)**

Surface: (232LF) 5' concrete sidewalk and curb  
(1) driveway cut

ADA Accessible: (1) handicap ramp

Street Trees: (6) 1 every 40'

Signage: (2) pavement trail markers

Landscape: Existing planting trimmed 7' clearance

#### **1B Buttonwood Street (Green Street extension to Fern Alley)**

Surface: (259LF) 5' concrete sidewalk and curb  
(1) driveway cut

Crosswalk: B-C 11' painted

ADA Accessible: (1) handicap ramp

Street Trees: (6) 1 every 40'

Signage: (2) pavement trail markers

#### **1C Buttonwood Street (Fern Alley to Main Street)**

Surface: (162LF) 5' concrete sidewalk and curb

ADA Accessible: (2) handicap ramp

Street Trees: (4) 1 every 40'

Signage: (2) pavement trail markers

**1D Main Street (Buttonwood Street to N. Sycamore Street)**

Surface: (362LF) 5' concrete sidewalk and curb  
(2) driveway cuts

Crosswalk: Across Buttonwood Street 37' painted

ADA Accessible: (2) handicap ramp

Street Trees: (9) 1 every 40'

Signage: (2) pavement trail markers



1H

**1E Main Street (N. Sycamore Street to Chestnut Street)**

Surface: (364LF) 5' concrete sidewalk and curb  
(2) driveway cuts

Crosswalk: E-D 35' painted

ADA Accessible: (2) handicap ramp

Street Trees: (9) 1 every 40'

Signage: (2) pavement trail markers



1H

**1F Chestnut Street (Main Street to Fern Alley)**

Surface: (160LF) 5' concrete sidewalk and curb  
(1) parking lot cut

Crosswalk: F-G 11' painted

ADA Accessible: (2) handicap ramps

Street Trees: (4) 1 every 40'

Signage: (2) pavement trail markers



1H

**1G Chestnut Street (Fern Alley to Green Street extension)**

Surface: (269LF) 5' concrete sidewalk and curb  
(3) driveway cuts

ADA Accessible: (1) handicap ramp

Street Trees: (7) 1 every 40'

Signage: (2) pavement trail markers

**1H Chestnut Street (Green Street extension to School Property)**

Surface: (1089LF) 5' concrete sidewalk and curb  
(1) parking lot cut

ADA Accessible: (1) handicap ramp

Street Trees: (27) 1 every 40'

Signage: (2) pavement trail markers

Landscape: Existing planting trimmed 7' clearance

Segments 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
|---|---|--|--|

Macungie Trail Project  
Borough of Macungie, Lehigh County, Pennsylvania

**BARRY ISETT & ASSOCIATES**  
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P.O. Box 147  
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## Main Street

## Proposed Trail – Phase 2

The northern trail connects the existing trail at Flower Park, continues south along Main Street until joining with the East Penn School loop trail at Buttonwood Street. Already used by many pedestrians, the Main Street trail is a strong spine connecting all trail branches and loops within the Borough.

### Existing Conditions

Segment:	3A-E Main Street (2443LF) 4A-F Main Street (2542LF)
Length:	4985.0'
Surface:	concrete sidewalk
Width:	4.0 - 5.5' wide/ varies
Condition:	poor - good
ADA accessible:	yes
Issues:	mid-street pedestrian crossing surface drains across sidewalk pitched walk tree lawn strip
Utility Poles:	50
Signs:	(1) one way (1) Macungie Park directional (1) swimming pool directional (2) turn lane (2) Route 100 (3) bus stop (3) no parking (4) 35 mph (8) pedestrian crossing ahead
Hydrants:	7
Street Trees:	(34) Pear (9) Maple (1) Crabapple Cherry (resident owned)
Street Lights:	11
Crosswalk:	yes, expect for segments 4B, 4E, 4F
Crosswalk Width:	3C-3B 5.0'                      3A-1E 6.0' 2G-4A 7.5'                      3B-3A 6.0' 3D-3C 8.0'                      3E-3D 6.0' 4C-4D 9.5'                      4A-4B 6.0' 4D-4E 6.0'



3A



3B



3C



3C

Crosswalk Length: 2G-4A 39' 3A-1E 37'  
 3B-3A 36' 3C-3B 30'  
 3D-3C 18' 3E-3D 31'  
 4A-4B 38' 4B-4C 37'  
 4C-4D 48' 4D-4E 41'  
 4E-4F 10' 4F-4G 130'

Driveway Cuts: 3C 12', 15'  
 3D 34'  
 4A 11', 22'  
 4C 9'  
 4F 18'

Parking Lot Cuts: 3A 32', 144'  
 3C 17', 22'  
 4B 19', 23'  
 4F 28'

Points of Interest: Main Street Shops  
 Flower Park  
 Mountain Creek  
 Macungie Institute

Ownership: 3A-E PennDOT Right-of-Way  
 4A-F PennDOT Right-of-Way

Surrounding Land Use: Mixed Business  
 Residential  
 Recreation / Open Space



3C



3C (5A-7J Crosswalk)



3E



3E



4G

**Proposed Improvements**

**4A Main Street (Chestnut Street to Walnut Street)**  
 Surface: (358LF) 5' concrete sidewalk and curb  
 (2) driveway cuts

ADA Accessible: (2) handicap ramps

Street Trees: (9) 1 every 40'

Signage: (2) pavement trail markers

**4B Main Street (Walnut Street to Poplar Street)**  
 Surface: (363LF) 5' concrete sidewalk and curb  
 (2) parking lot cuts

Crosswalk: B-C 37' painted

ADA Accessible: (2) handicap ramps

Street Trees: (9) 1 every 40'

Signage: (2) pavement trail markers

**4C Main Street (Poplar Street to Lea Street)**  
 Surface: (830LF) 5' concrete sidewalk and curb  
 (1) driveway cuts

- ADA Accessible: (2) handicap ramps
- Street Trees: (21) 1 every 40'
- Signage: (2) pavement trail markers

**4D Main Street (Lea Street to Church Street)**

Surface: (299LF) 5' concrete sidewalk and curb

- ADA Accessible: (2) handicap ramps
- Street Trees: (7) 1 every 40'
- Signage: (2) pavement trail markers



4F

**4E Main Street (Church Street to Pine Street)**

Surface: (275LF) 5' concrete sidewalk and curb

- Crosswalk: E-F 10' painted
- ADA Accessible: (2) handicap ramps
- Street Trees: (6) 1 every 40'
- Signage: (2) pavement trail markers



4F

**4F Main Street (Pine Street to Race Street)**

Surface: (417LF) 5' concrete sidewalk and curb  
 (1) driveway cut  
 (1) parking lot cut

- Crosswalk: F-G 130' painted/ crossing railroad tracks
- ADA Accessible: (2) handicap ramps
- Street Trees: (10) 1 every 40'
- Signage: (2) pavement trail markers



4E

**3E Main Street (Mill Alley to School Alley)**

Surface: (464LF) 5' concrete sidewalk and curb

- ADA Accessible: (2) handicap ramps
- Street Trees: (11) 1 every 40'
- Signage: (2) pavement trail markers



4C

**3D Main Street (School Alley to Creek Alley)**

Surface: (333LF) 5' concrete sidewalk and curb  
 (1) driveway cut

- ADA Accessible: (2) handicap ramps
- Street Trees: (8) 1 every 40'



4C

Signage: (2) pavement trail markers

**3C Main Street (Creek Alley to Poplar Street)**

Surface: (923LF) 5' concrete sidewalk and curb  
(2) driveway cuts  
(2) parking lot cuts

ADA Accessible: (2) handicap ramps

Street Trees: (23) 1 every 40'

Signage: (2) pavement trail markers



4B

**3B Main Street (Poplar Street to Walnut Street)**

Surface: (364LF) 5' concrete sidewalk and curb

ADA Accessible: (2) handicap ramps

Street Trees: (10) 1 every 40'

Signage: (2) pavement trail markers



4A

**3A Main Street (Walnut Street to Chestnut Street)**

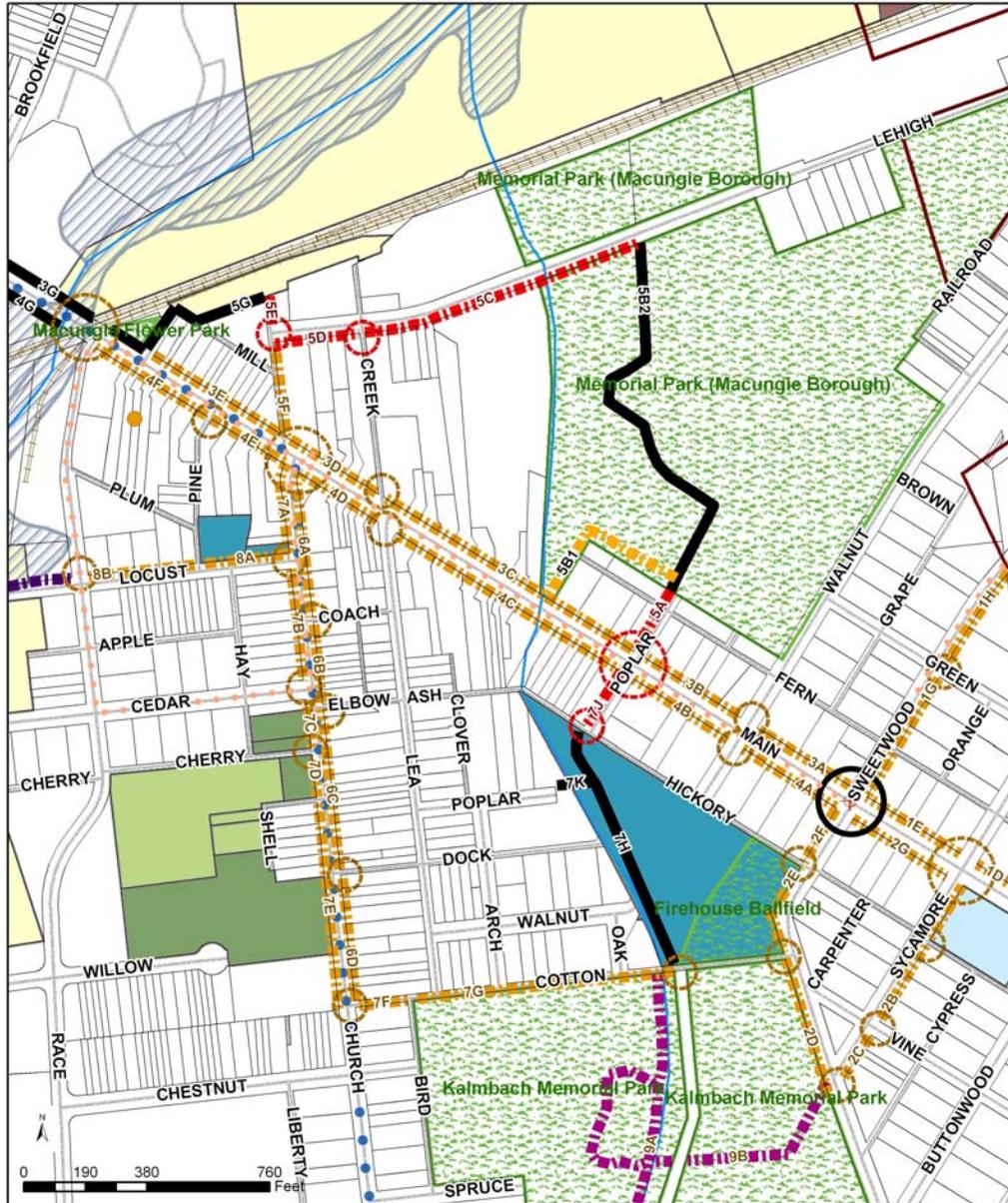
Surface: (359LF) 5' concrete sidewalk and curb  
(2) parking lot cuts

ADA Accessible: (2) handicap ramps

Street Trees: (10) 1 every 40'

Signage: (2) pavement trail markers

Segments 3A, 3B, 3C, 3D, 3E, 4A, 4B, 4C, 4D, 4E, 4F



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
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Macungie Trail Project  
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**BARRY ISETT & ASSOCIATES**  
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88 S. Route 100 & Kressler Lane  
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610-395-0904

## Church Street

## Proposed Trail – Phase 2

The trail connects several residential areas with Main Street shopping and Borough Hall/Police Station. Already used by many pedestrians, Church Street is a strong residential corridor.

### Existing Conditions

Segment:	5F School Alley (321LF) 6A-D Church Street (1613LF) 7A-E Church Street (1575LF)
Length:	3509.0'
Surface:	concrete sidewalk
Width:	4.0 - 9.0' wide/ varies
Condition:	good
ADA accessible:	yes
Issues:	surface drains inclined walk stained concrete
Utility Poles:	17
Signs:	(1) 35 mph (1) handicap parking (1) timed parking (1) children at play (2) Route 100 directional (3) snow route (7) no parking
Hydrants:	3
Street Trees:	(3) Pear Many (resident owned)
Street Lights:	3
Crosswalk:	no
Crosswalk Width:	-
Crosswalk Length:	-
Driveway Cuts:	6A 16', 12' 6D 17' 7E 15'
Parking Lot Cuts:	6A 20', 20' 6D 15' 7E 22'



6A



6B



6C



7A



7B

Points of Interest: Macungie Borough Hall / Police Station  
Kalmbach Park  
Main Street

Ownership: 6A-D PennDOT Right-of-Way  
7A-E PennDOT Right-of-Way  
5F Macungie Borough Right-of-Way

Surrounding Land Use: Residential  
Business  
Church/Cemetery



7B

### Proposed Improvements

#### 5F School Alley (Lehigh Street to Main Street)

Surface: (321LF) 5' concrete sidewalk and curb

Crosswalk: 5F-7A 40' painted

ADA Accessible: (2) handicap ramps

Street Trees: (8) 1 every 40'

Signage: (2) pavement trail markers



7C

#### 6A Church Street (Main Street to Coach Alley)

Surface: (460LF) 5' concrete sidewalk and curb  
(2) driveway cuts  
(1) parking lot cut

Crosswalk: A-B 14' painted

ADA Accessible: (2) handicap ramps

Street Trees: (12) 1 every 40'

Signage: (2) pavement trail markers

Landscape: Existing trees trimmed 7' clearance



7D

#### 6B Church Street (Coach Alley to Elbow Alley)

Surface: (262LF) 5' concrete sidewalk and curb

Crosswalk: B-C 12' painted

ADA Accessible: (2) handicap ramps

Street Trees: (7) 1 every 40'

Signage: (2) pavement trail markers

Landscape: Existing trees trimmed 7' clearance



7E

**6C Church Street (Elbow Alley to Dock Alley)**

Surface: (500LF) 5' concrete sidewalk and curb

Crosswalk: C-D 13' painted

ADA Accessible: (2) handicap ramps

Street Trees: (13) 1 every 40'

Signage: (2) pavement trail markers

Landscape: Existing trees trimmed 7' clearance

**6D Church Street (Dock Alley to Cotton Alley)**

Surface: (391LF) 5' concrete sidewalk and curb  
(1) driveway cut

Crosswalk: C-D 13' painted

ADA Accessible: (2) handicap ramps

Street Trees: (10) 1 every 40'

Signage: (2) pavement trail markers

**7A Church Street (Main Street to Locust Street)**

Surface: (285LF) 5' concrete sidewalk and curb  
(1) parking lot cut

Crosswalk: A-B 30' painted

ADA Accessible: (2) handicap ramps

Street Trees: (7) 1 every 40'

Signage: (2) pavement trail markers

**7B Church Street (Locust Street to Cedar Street)**

Surface: (367LF) 5' concrete sidewalk and curb

Crosswalk: B-C 35' painted

ADA Accessible: (2) handicap ramps

Street Trees: (9) 1 every 40'

Signage: (2) pavement trail markers

**7C Church Street (Cedar Street to Cheery Alley)**

Surface: (164LF) 5' concrete sidewalk and curb

Crosswalk: C-D 15' painted

ADA Accessible: (2) handicap ramps

Street Trees: (4) 1 every 40'  
Signage: (2) pavement trail markers

**7D Church Street (Cheery Alley to Shell Alley)**

Surface: (135LF) 5' concrete sidewalk and curb

Crosswalk: D-E 19' painted

ADA Accessible: (2) handicap ramps

Street Trees: (3) 1 every 40'

Signage: (2) pavement trail markers

**7E Church Street (Shell Alley to Cotton Street)**

Surface: (624LF) 5' concrete sidewalk and curb

(1) driveway cut

(1) parking lot cut

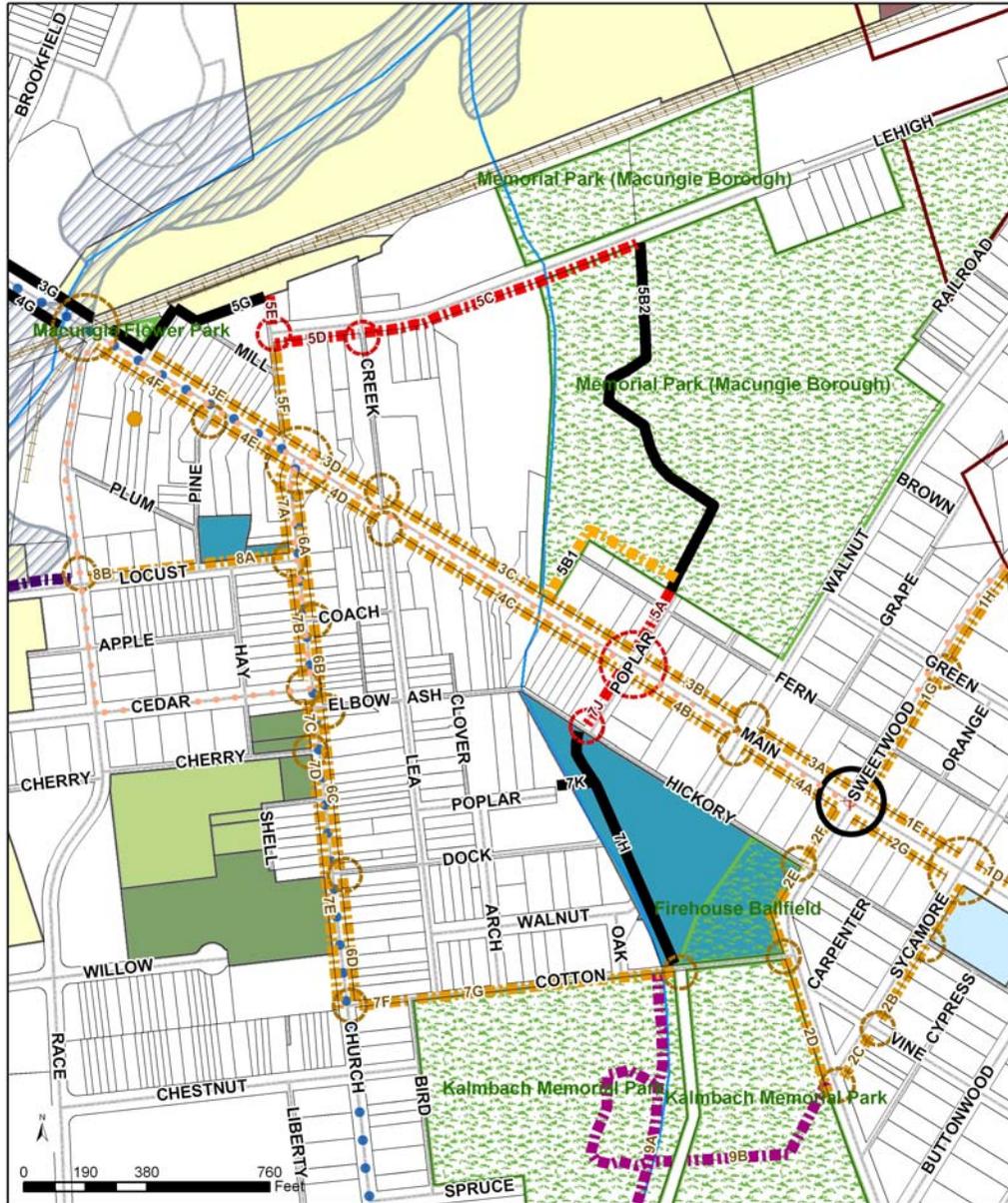
Crosswalk: E-F 41' painted

ADA Accessible: (2) handicap ramps

Street Trees: (16) 1 every 40'

Signage: (2) pavement trail markers

Segments 5F, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, 7E



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
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## Cotton Alley

## Proposed Trail – Phase 2

Cotton Alley is a side street with low volume traffic, connecting Church Street to Chestnut Street and Kalmbach Park. Cotton Alley is a narrow street, currently allowing two-way traffic. It is recommended it become one-way from Church Street to improve traffic circulation and provide space for the trail.

### Existing Conditions

Segment:	F-G Cotton Alley (990LF)
Total Length:	990.0'
Surface:	soft
Width:	-
Condition:	no pedestrian walkway designated
ADA accessible:	no
Issues:	raised berm landscaped retaining wall (privately owned)
Utility Poles:	6
Signs:	(1) 25 mph
Hydrants:	0
Street Trees:	Many (resident owned)
Street Lights:	3
Crosswalk:	no
Crosswalk Width:	-
Crosswalk Length:	7E-7F 41' 7G-7H 20'
Driveway Cuts:	7F 25'
Parking Lot Cuts:	7G 24'
Points of Interest:	Kalmbach Memorial Park FirehouseTrail
Ownership:	F-G Macungie Borough Right-of-Way
Surrounding Land Use:	Recreation / Open Space Residential



7F



7F



7F



7G

**Proposed Improvements**

- 7F Cotton Alley (Church Street to Bird Alley extension)**  
Surface: (182LF) 5' concrete sidewalk and curb  
(1) driveway cut
- ADA Accessible: (1) handicap ramp
- Street Trees: (5) 1 every 40'
- Signage: (2) pavement trail markers
- Landscape: relocate planting material



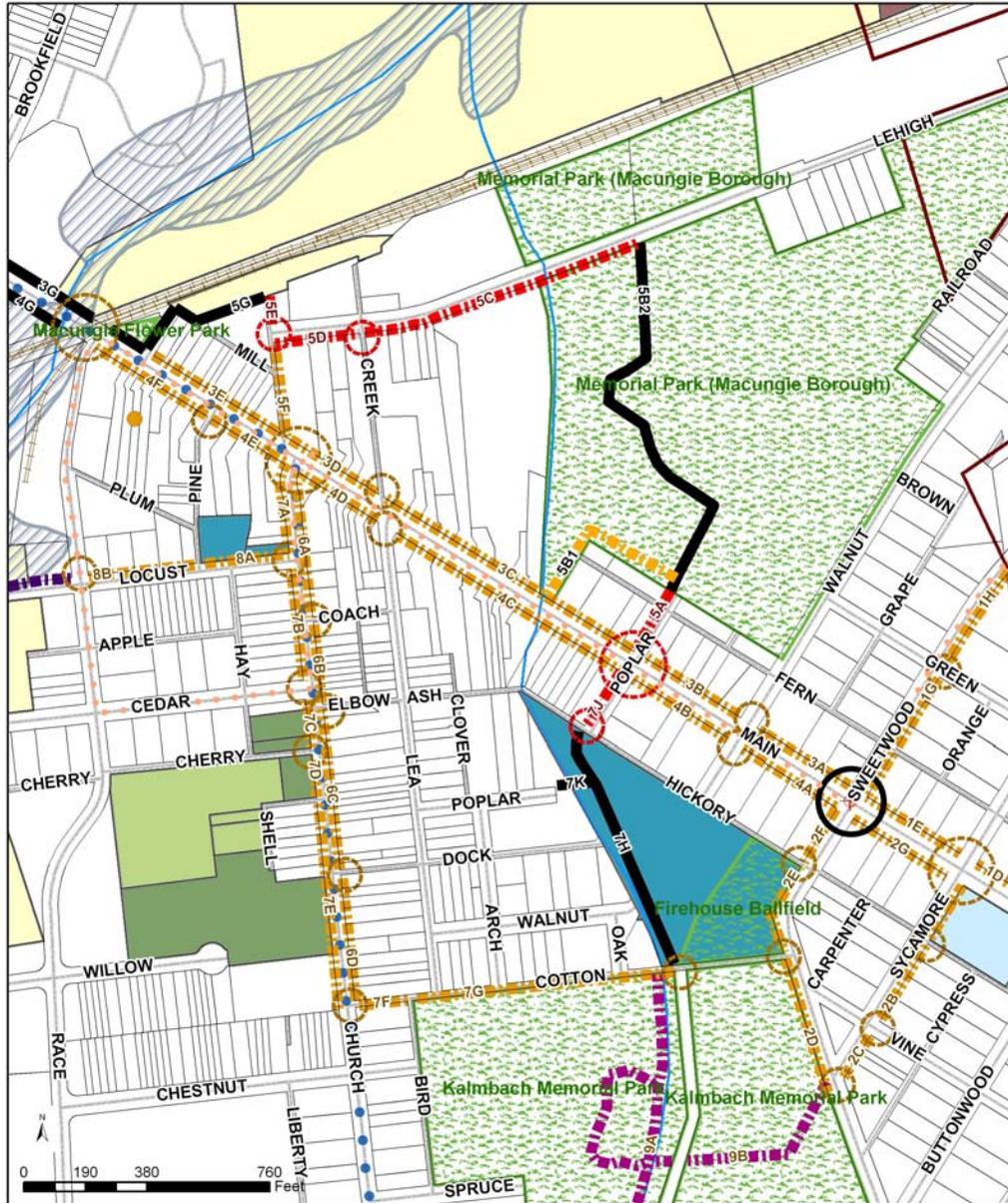
7G

- 7G Cotton Alley (Bird Alley extension to Fire House Trail)**  
Surface: (808LF) 5' concrete sidewalk and curb  
(1) parking lot cut
- ADA Accessible: (1) handicap ramp
- Street Trees: (20) 1 every 40'
- Signage: (2) pavement trail markers



7G-7K Crosswalk

Segments 7F, 7G



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
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## Locust Street

## Proposed Trail – Phase 2

The Locust Street trail segment connects Church Street at the Borough Hall with the Allen Organ property. Locust Street is primarily through a residential neighborhood.

### Existing Conditions

Segment:	A-B Locust Street (575LF)
Length:	615.0'
Surface:	concrete sidewalk
Width:	5.0'
Condition:	good
ADA accessible:	yes
Issues:	utility poles in sidewalk
Utility Poles:	5
Signs:	(1) stop sign (2) snow emergency route
Hydrants:	0
Street Trees:	private residence owned (Pines)
Street Lights:	2
Crosswalk:	no
Crosswalk Width:	-
Crosswalk Length:	-
Driveway Cuts:	8B 10', 10', 12'
Parking Lot Cuts:	-
Points of Interest:	Macungie Borough Hall Swabia Creek
Ownership:	A-B Macungie Borough Right-of-Way
Surrounding Land Use:	Industrial Municipal/ Institution Residential



8A



8B



8B



8B

## Proposed Improvements

### **8A Locust Street (Church Street to Pine Street)**

Surface: (278LF) existing sidewalk condition good

Crosswalk: A-B 15' painted

ADA Accessible: Existing ramps condition good

Street Trees: (7) 1 every 40'

Signage: (2) pavement trail markers

### **8B Locust Street (Pine Street to Race Street)**

Surface: (337LF) 5' concrete sidewalk and curb  
(3) driveway cuts

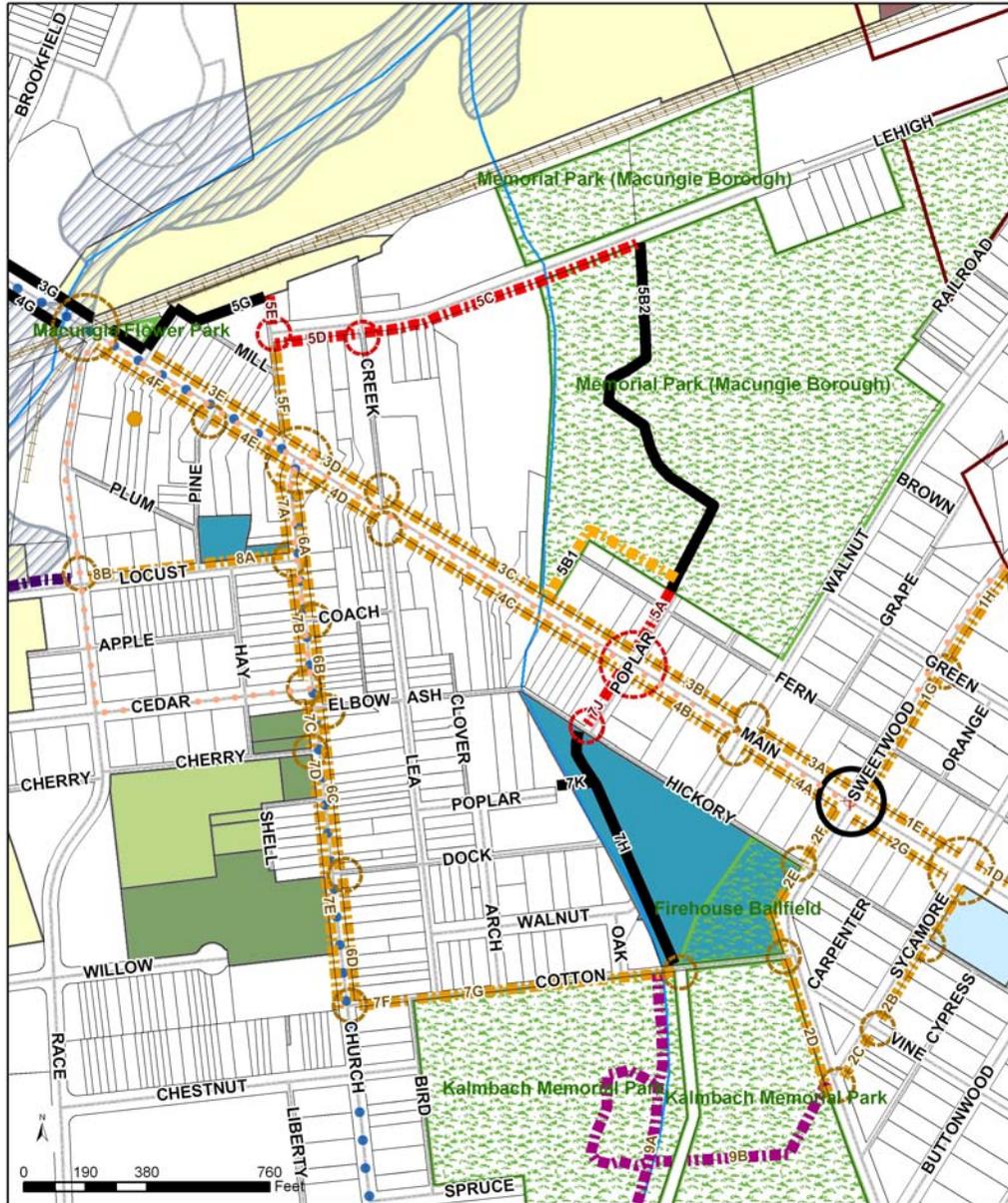
Crosswalk: B-C 48' painted

ADA Accessible: (2) handicap ramps

Street Trees: (8) 1 every 40'

Signage: (2) pavement trail markers

Segments 8A, 8B



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
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## Proposed Trail Development – Phase 3

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The trail connection between Macungie and Albutis Boroughs will be completed in three major stages.

### **Allen Organ Link**

A trail from the intersection of Locust and Race Streets will proceed to Gehmen Road through the Allen Organ property. This trail section, depending on the alignment, will be asphalt, possibly combined with an elevated boardwalk. Much of this trail segment parallels Swabia Creek and includes crossing a small tributary near Gehman Road.

Negotiations with Allen Organ will need to be conducted to best define a trail location, construction, and easement agreement. The connecting trail at Gehman Road accommodates bicycle use, so this section of trail is recommended to be constructed a minimum 6' wide with a hard surface to allow bike use and minimize maintenance.

### **Jaindl Connection/Greenway**

The proposed land development between Gehman Road to the south and Lock Ridge Park to the north includes an asphalt trail. The trail connects not only the 700 homes planned in the subdivision, but it also connects to Albutis Borough at Church Street.

### **Jaindl to Albutis Borough**

The final linkage is the connection at Church Street in Albutis Borough. The Church Street Swabia Creek crossing is narrow, so the pedestrian crossing is proposed to connect with the existing trail in Lock Ridge Park. Future bridge improvements on Church Street should include a pedestrian crossing and sidewalk improvements to better connect the trail to the Borough.

Winding through the land of Allen Organ Company, the path runs along the flood plain of Swabia Creek. This flat area is ideal for multi use and its location is an opportunity to connect the Jaindl Trail with Locust Street.

**Existing Conditions**

Segment:	4K Main Street (568LF) 8C off road trail (2907LF) 10A Gehmen Road (2086LF)
Total Length:	5561.0'
Surface:	-
Width:	-
Condition:	-
ADA accessible:	-
Issues:	floodplain stream crossing easement agreement
Utility Poles:	-
Signs:	-
Hydrants:	-
Street Trees:	-
Street Lights:	-
Crosswalk:	-
Crosswalk Width:	-
Crosswalk Length:	8C-8D 24' painted
Driveway Cuts:	-
Parking Lot Cuts:	-
Points of Interest:	Allen Organ Swabia Creek Wetlands & Wildlife habitat
Ownership:	4K PennDOT Right-of-Way 10A Lower Macungie Township Right-of-Way 8C Allen Organ
Surrounding Land Use:	Industrial Business Agricultural Flood Plain

## Proposed Improvements

### **4K Main Street (W. End Road to Gehmen Road)**

Surface: (568LF) 8' wide asphalt path

ADA Accessible: (2) handicap ramps

Street Trees: (14) 1 every 40'

Signage: (2) pavement trail markers

### **8C Allen Organ Trail (Race Street to Gehmen Road)**

Surface: (2907LF) 8' wide asphalt path

Crosswalk: C-D 24' painted

ADA Accessible: (2) handicap ramps

Street Trees: (73) 1 every 40'

Signage: (2) pavement trail markers  
(2) roadway crossing ahead  
(2) pedestrian crossing ahead  
(2) stop signs

### **10A Gehmen Road (Main Street to Jandl Trail)**

Surface: (2086LF) 8' wide asphalt path

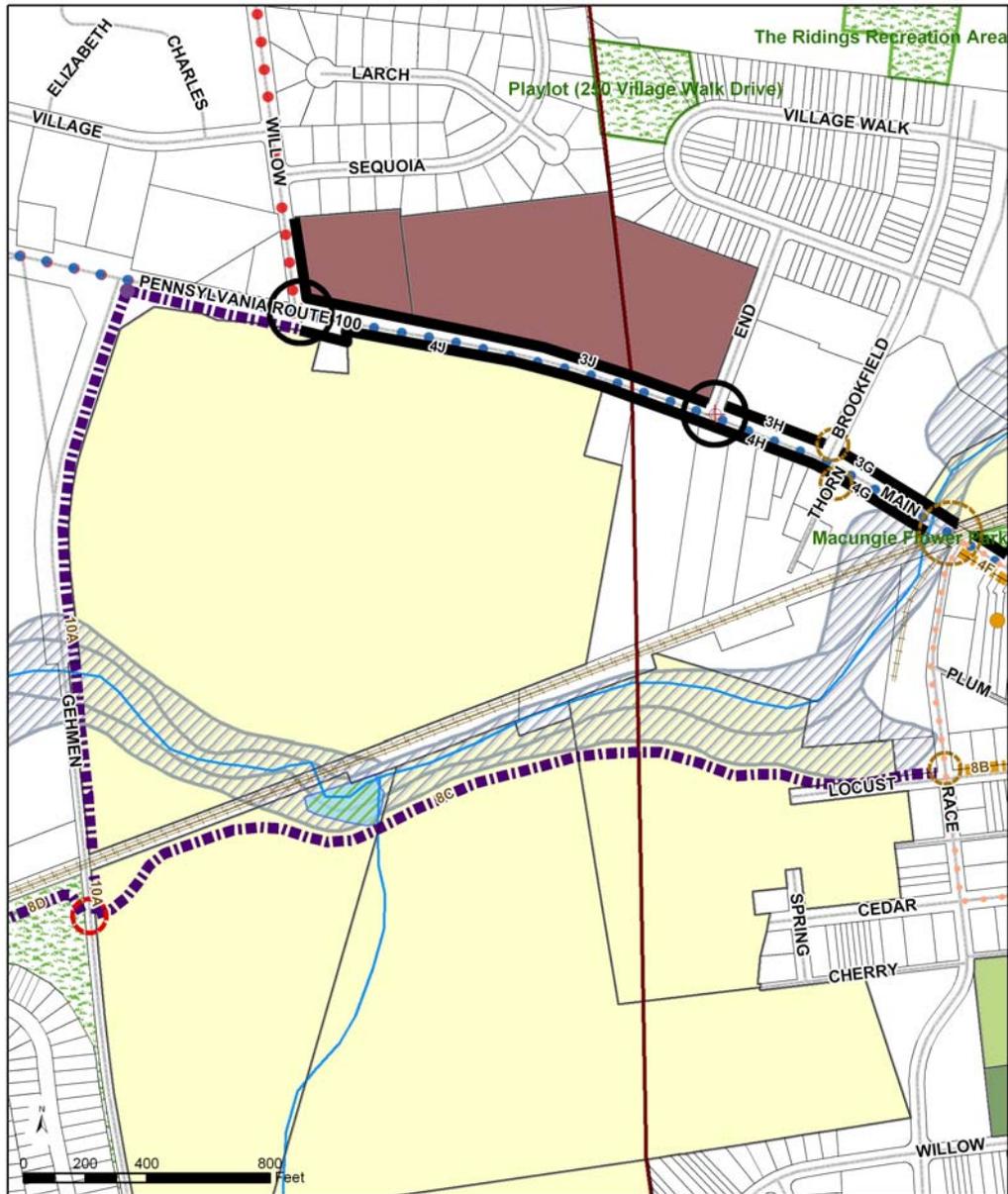
ADA Accessible: (2) handicap ramps

Street Trees: (52) 1 every 40'

Signage: (2) pavement trail markers  
(2) pedestrian crossing ahead  
(2) stop signs

Other: (1) 20' pedestrian bridge  
(2) 15' ramps  
(2) abutments

Segments 4K, 8C, 10A



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
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## Jaindl Trail

## Proposed Trail – Phase 3

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A long stretch of property encompassing various landscape conditions, such as open field, wetland, floodplain, Swabia Creek, and railroad buffer. Jaindl Trail loops around various active and passive recreational facilities through Lock Ridge's 700-home subdivision bordering Albutis.

### Existing Conditions

Segment:	D-G Jaindl Trail (7920LF)
Total Length:	7,920'
Surface:	-
Width:	-
Condition:	-
ADA accessible:	-
Issues:	-
Utility Poles:	-
Signs:	-
Hydrants:	-
Street Trees:	-
Street Lights:	-
Crosswalk:	-
Crosswalk Width:	-
Crosswalk Length:	-
Driveway Cuts:	-
Parking Lot Cuts:	-
Points of Interest:	Swabia Creek Wetlands and Flood Plain areas Lock Ridge Park Open Fields
Ownership:	D-G Lower Macungie Township
Surrounding Land Use:	Residential Recreation / Open Space

## Proposed Improvements

### **8D Jaindl Trail (Gehmen Road to Orchard Road)**

Surface: (3544LF) 8' wide asphalt path

Crosswalk: D-E 35' painted

ADA Accessible: (2) handicap ramps

Street Trees: (88) 1 every 40'

Signage: (2) pavement trail markers  
(2) roadway crossing ahead

### **8E Jaindl Trail (Orchard Road to Schoeneck Road)**

Surface: (2215LF) 8' wide asphalt path

Crosswalk: E-F 33' painted

ADA Accessible: (2) handicap ramps

Street Trees: (55) 1 every 40'

Signage: (2) pavement trail markers

### **8F Jaindl Trail (Schoeneck Road to Alburdis/ Lower Macungie Boundary)**

Surface: (1550LF) 8' wide asphalt path

ADA Accessible: (1) handicap ramps

Street Trees: (39) 1 every 40'

Signage: (2) pavement trail markers

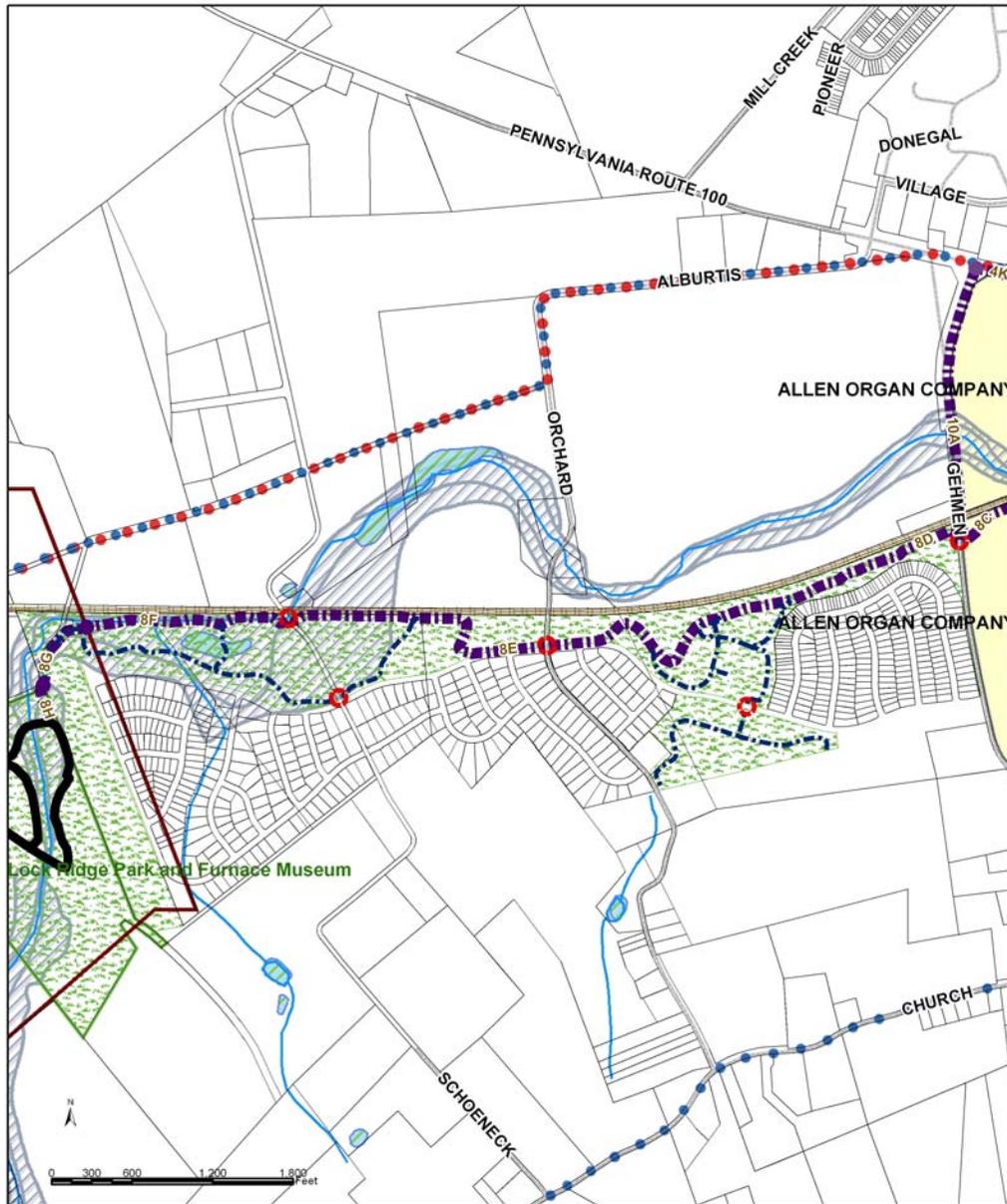
### **8G Jaindl Trail (Alburdis/ Lower Macungie Boundary to Lock Ridge Park Boundary)**

Surface: (611LF) 8' wide asphalt path

Street Trees: (15) 1 every 40'

Signage: (2) pavement trail markers

Segments 8D, 8E, 8F, 8G



**Macungie Trail Project**  
 Borough of Macungie, Lehigh County, Pennsylvania

**BARRY ISETT & ASSOCIATES**  
 Consulting Engineers & Surveyors

88 S. Route 107 & Kivester Lane  
 P.O. Box 147  
 Heidelberg, PA 19027-0147  
 610-396-0904

Linking the Macungie Borough Trail system, at the Jaindl Trail, with Alburtis Borough, at the Lock Ridge Furnace and Museum Park, affirms the Southwestern Lehigh County Comprehensive Plan initiatives. Residents will have access to an extensive recreational system which will improve quality of life throughout the communities.

**Existing Conditions**

Segment:	8H Lock Ridge Park (296LF)
Total Length:	296.0'
Surface:	-
Width:	-
Condition:	-
ADA accessible:	-
Features:	-
Utility Poles:	-
Signs:	-
Hydrants:	-
Street Trees:	-
Street Lights:	-
Crosswalk:	-
Crosswalk Width:	-
Crosswalk Length:	-
Driveway Cuts:	-
Parking Lot Cuts:	-
Points of Interest:	Lock Ridge Park Furnace Park
Ownership:	H Lehigh County
Surrounding Land Use:	Recreation / Open Space Historical Preservation

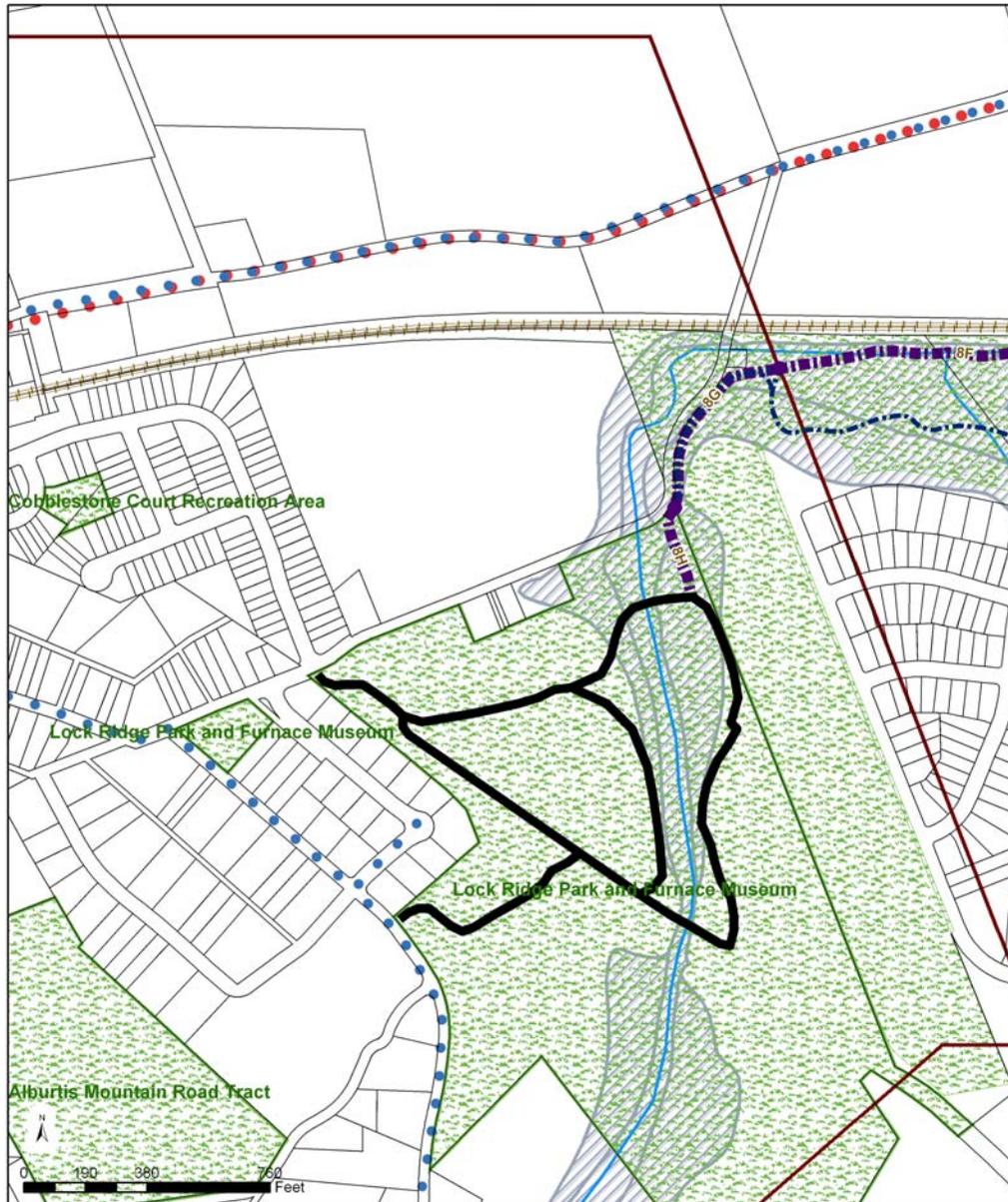
## **Proposed Improvements**

### **9A segment (Lock Ridge Park Boundary to Lock Ridge Trail)**

Surface: (296LF) 8' wide asphalt path

Signage: (2) pavement trail markers  
(1) direction sign (Macungie 1 mi.)

Segment 8H



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
|---|---|--|--|

Macungie Trail Project

Borough of Macungie, Lehigh County, Pennsylvania

**BARRY ISETT & ASSOCIATES**  
 Consulting Engineers & Surveyors  
 85 S. Route 100 S. Kressler Lane  
 P.O. Box 147  
 Trebleton, PA 18087-0147  
 610-395-0044

## **Proposed Trail Development – Phase 4**

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### **Macungie Authority Wilderness Trail**

Macungie Water Authority-owned lands in Lower Macungie and Upper Milford Townships, south of Macungie Borough, protect the headwaters of Mountain Creek, which provides water supply to Macungie Borough residents. The Lehigh Valley Planning Commission designated this area as a state wide significant natural area. The community, lead by the Boy Scouts, yearly conducts a Thanksgiving morning trail walk up the mountain. A trail connection from Kalmbach through this area will be an asset to their outdoor education programs. Due to the site's sensitive nature, a trail alignment must be carefully planned to minimize impacts to existing vegetation, storm water runoff, and natural wildlife. Final trail surface should not disturb the woodland floor or require significant grading or excavation. A proposed forest management program should coincide with trail planning. Logging roads/paths can be maintained as recreation walking trails.

The best way to plan this trail is to walk the proposed alignment with a GPS unit to trace the trail.

### **Future Macungie Memorial Park Trail**

An internal trail at Macungie Memorial Park parallel to Mountain Creek links Main Street (SR 100) to Lehigh Street. The trail will be a mix of asphalt pavement and stone dust, depending on the trails proximity to the creek. The trail should be a minimum of 6' wide to accommodate ADA accessibility within the park.

## Kalmbach Park to Upper Milford Connector

## Proposed Trail – Phase 4

Wooded area will provide scenic hiking trails from Kalmbach Park through the southern hillsides of Macungie Borough.

### Existing Conditions

Segment:	A-B Kalmbach Park (1269LF) C-D Water Authority (4967LF)
Total Length:	6,236.0'
Surface:	-
Width:	-
Condition:	-
ADA accessible:	-
Issues:	-
Utility Poles:	-
Signs:	-
Hydrants:	-
Street Trees:	-
Street Lights:	-
Crosswalk:	-
Crosswalk Width:	-
Crosswalk Length:	-
Driveway Cuts:	-
Parking Lot Cuts:	-
Points of Interest:	Kalmbach Park Macungie Fire House Trail Wooded trails
Ownership:	A-B Private (to be negotiated) C-D Water Authority
Surrounding Land Use:	Water Authority Recreation / Open Space Historical Preservation Residential



9A

## Proposed Improvements

### **9A Kalmbach Park Trail (Cotton Alley to Kalmbach Park Boundary)**

Surface: (865LF) 3' wood chip path

Signage: (8) trail marker post (+/- 100')

Landscape: Native plants to stabilize path edge

### **9B Kalmbach Park Trail (9A segment to Chestnut Street)**

Surface: (683LF) 3' wood chip path

Signage: (6) trail marker post (+/- 100')

Landscape: Native plants to stabilize path edge

### **9C Segment (Kalmbach Park Boundary to Water Authority Parcel)**

Surface: (760LF) 3' wood chip path

Signage: (7) trail marker post (+/- 100')

Landscape: Native plants to stabilize path edge

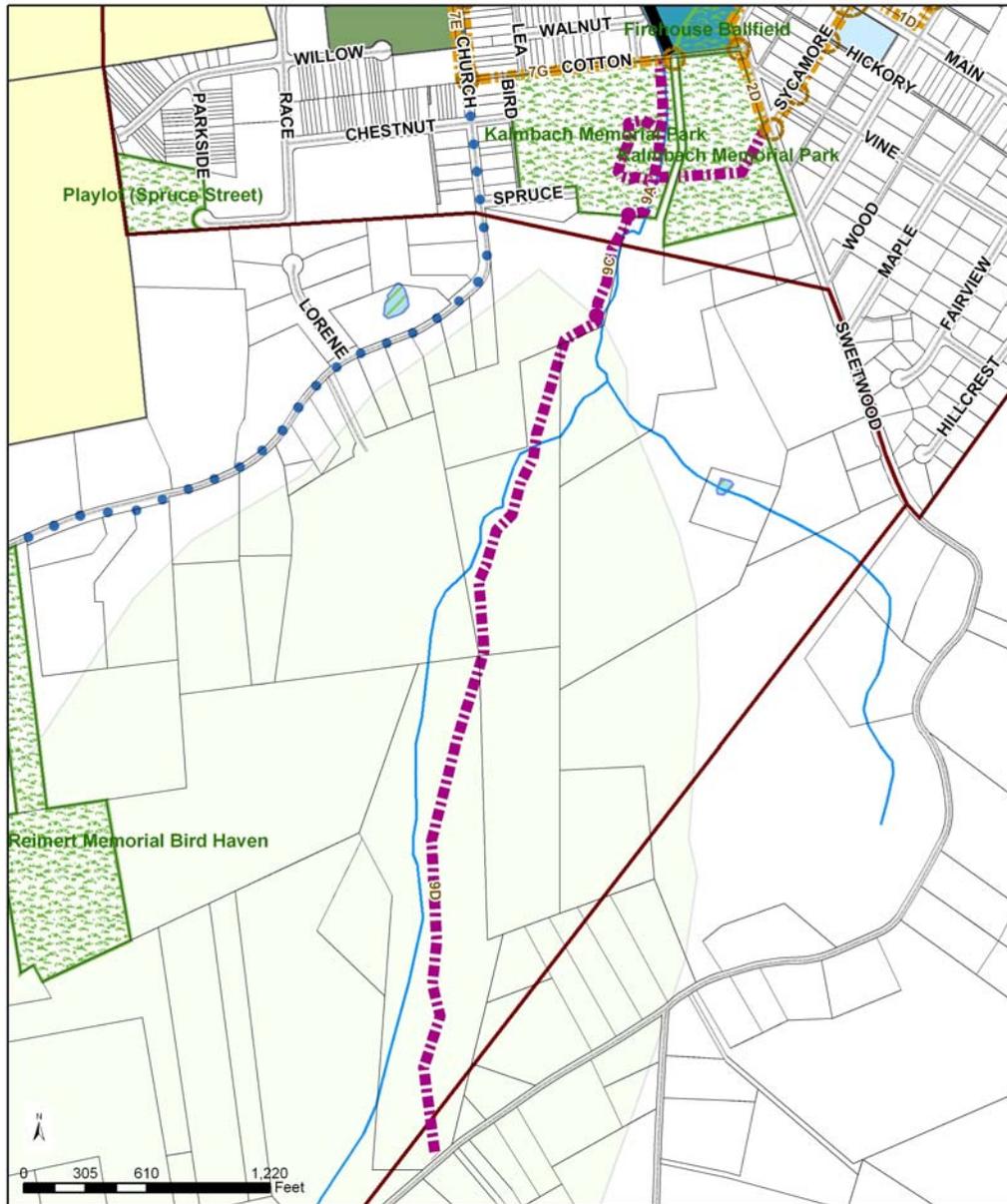
### **9D Segment (Water Authority Parcel to Sweetwood Drive)**

Surface: (4207LF) 3' wood chip path

Signage: (42) trail marker post (+/- 100')

Landscape: Native plants to stabilize path edge

Segments 9A, 9B, 9C, 9D



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
|---|---|--|--|

Macungie Trail Project  
Borough of Macungie, Lehigh County, Pennsylvania

**BARRY ISETT & ASSOCIATES**  
Consulting Engineers & Surveyors  
88 S. Route 100 & Kressler Lane  
P.O. Box 147  
Trenton, PA 18667-0147  
610-395-0904

# Macungie Memorial Park

# Proposed Trail – Phase 4

Memorial Park is the largest public recreational space available to the community and can accommodate both active and passive activities. An internal trail at Macungie Memorial Park will parallel Mountain Creek linking the Poplar Street entrance with the Lehigh Street entrance.

## Existing Conditions

Segment:	5B1-B2 Memorial Park Drive (1890LF)
Total Length:	1,896.0'
Surface:	soft – loose gravel/ lawn
Width:	-
Condition:	no designated sidewalk
ADA accessible:	no
Issues:	flood plain riparian buffer project large events planning
Utility Poles:	5
Signs:	0
Hydrants:	1
Street Trees:	Many
Street Lights:	8
Crosswalk:	-
Crosswalk Width:	-
Crosswalk Length:	-
Driveway Cuts:	-
Parking Lot Cuts:	-
Points of Interest:	Memorial Park facilities Mountain Creek
Ownership:	5B1 Macungie Borough Right-of-Way
Surrounding Land Use:	Recreation / Open Space Business Residential Church



5B1



5B1



5B2



5B2



5B2

## **Proposed Improvements**

### **5B1 Memorial Park Road (Poplar Street to Lehigh Street)**

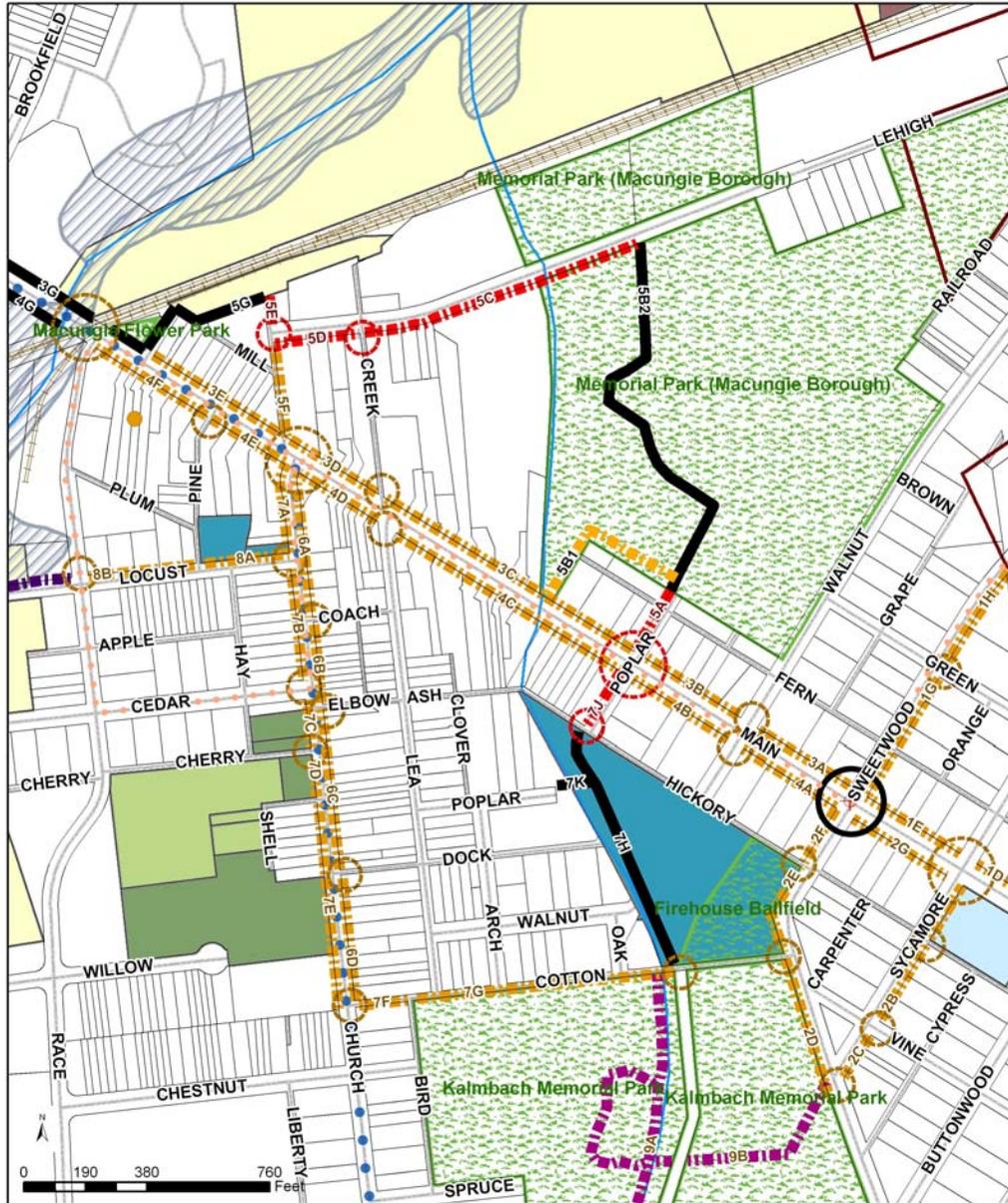
Surface: (586LF) 6" stone dust

ADA Accessible: (2) handicap ramps

Street Trees: (15) 1 every 40'

Signage: (2) pavement trail markers

Segments 5B1, 5B2



Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li> Traffic Lights</li> <li> Lanta Bus Stops</li> <li> Lanta Routes</li> <li> Existing Crossings</li> <li> Proposed Primary Trail Crossing</li> <li> Proposed Secondary Trail Crossing</li> </ul> | <ul style="list-style-type: none"> <li> Existing Trails</li> <li> Proposed Trails Phase 1</li> <li> Proposed Trails Phase 2</li> <li> Proposed Trails Phase 3</li> <li> Proposed Trails Phase 4</li> <li> Lock Ridge Furnace Bike Trail</li> <li> Velodrome Bike Trail</li> </ul> | <ul style="list-style-type: none"> <li> Streets</li> <li> Railroad</li> <li> Streams</li> <li> Wetlands</li> <li> Parks</li> <li> Floodplains</li> <li> Natural Areas</li> </ul> | <ul style="list-style-type: none"> <li> Non-Residential Parcels</li> <li> Cemetery</li> <li> Church</li> <li> Commercial</li> <li> Government</li> <li> Industrial</li> <li> School</li> </ul> |
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Macungie Trail Project  
Borough of Macungie, Lehigh County, Pennsylvania

**BARRY ISETT & ASSOCIATES**  
Consulting Engineers & Surveyors  
88 S. Route 100 & Kressler Lane  
P.O. Box 147  
Trenton, PA 18607-0147  
610-395-0904

**Timeline**

	<b>Negotiations/ Agreements</b>	<b>Design</b>	<b>Construction</b>	<b>Optional</b>	<b>Funding Source</b>	<b>Notes</b>
<b>PHASE 1</b>						
Lehigh Street	-	2004	2004 - 2005			
Poplar Street	-	2004	2004 - 2005			
<b>PHASE 2</b>						
Chestnut/ Buttonwood School Connection						
Main Street						
Church Street						
Cotton Alley						
<b>PHASE 3</b>						
Locust Street						
Allen Organ						
Jaindl Park						
Lock Ridge						
<b>PHASE 4</b>						
Water Authority						
Macungie Memorial Park						
<b>FUTURE</b>						
Emmaus Borough/ Wildlands						
Alburtis Borough Parks						
Lower Macungie Municipal Bldg. Pool						

## Environmental Clearance

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In October, a Pennsylvania Natural Diversity Inventory Search Form indicated three potential conflicts. All three potential conflicts have been cleared.

- DCNR Bureau of Forestry – cleared Nov. 14, 2003
- PA Fish and Boat Commission – cleared Oct. 29, 2003
- US Fish and Wildlife – cleared Oct. 24, 2003

On October 29, 2003, a Cultural Resource Notice was submitted to the Pennsylvania Historical and Museum Commission. On November 20, 2003, the project received clearance.

The project sponsor and engineer have contacted and met on-site with the PennDOT District 5-0 Environmental Unit. James Ruth and Lisa Benack walked the project site.

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## Funding

*The following grant information was prepared by PA Greenways. These funding sources and others may be searched and reviewed on the Lehigh County Website Grant Database, <http://www.lehighcounty.org>.*

### **Federal Funding Sources**

#### ***Transportation Equity Act for the 21st Century (TEA21)***

<http://www.istea.org/>

The former primary source of federal funding for greenways, the Transportation Equity Act of 1998 (TEA21), formerly the Intermodal Surface Transportation Efficiency Act (ISTEA), is currently up for reauthorization. Updates on the nation's surface transportation program scheduled for renewal in 2003.

ISTEA provided millions of dollars in funding for bicycle and pedestrian transportation projects across the country. Federal Highway Administration and PennDOT utilized funding from many subsets of TEA21:

Surface Transportation Program (STP) funds

Transportation Enhancements Program

Transit Enhancements Program

National Recreational Trails Fund Act (NRTFA)

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

#### ***Transportation and Community and System Preservation Pilot Program (TCSP)***

<http://www.fhwa.dot.gov/tcsp/>

The TCSP provides funding for a comprehensive initiative including planning grants, implementation grants, and research to investigate and address the relationships between transportation and community and system preservation and to identify private sector-based initiatives. The TCSP is a Federal Highway Administration program being jointly developed with the Federal Transit Administration, the Federal Rail Administration, the Office of the Secretary, the U.S. Department of Transportation, and the U.S. EPA. This program has been authorized \$20 million for 1999, and \$25 million is authorized for each of the years 2000-2003. States, Municipal Planning Organizations (MPO), and local governments are eligible to receive planning and implementation grants for projects that: reduce impacts of transportation on the environment, reduce the need for costly future infrastructure investments, and improve the efficiency of the transportation system. Projects involving partnerships among public and private sectors are given priority.

### ***Land and Water Conservation Fund (LWCF) Grants***

<http://www.ncrc.nps.gov/programs/lwcf/>

This federal funding source was established in 1965 to provide park and recreation opportunities to residents throughout the United States. Money for the fund comes from the sale or lease of nonrenewable resources, primarily federal offshore oil and gas leases and surplus federal land sales. LWCF funds are used by federal agencies to acquire additions to National Parks, Forests, and Wildlife Refuges. In the past, Congress has also appropriated LWCF monies for so-called "state-side" projects. These "state-side" LWCF grants can be used by communities to acquire and build a variety of park and recreation facilities, including trails and greenways. These funds are distributed by the National Park Service to the Pennsylvania Department of Conservation and Natural Resources. They require a 50 percent match from the local project sponsor. In PA, contact DCNR, Recreation and Conservation, 717-783-2659.

### ***Wetlands Reserve Program***

<http://www.nrcs.usda.gov/programs/wrp/>

<http://www.ngpc.state.ne.us/wildlife/wrp.html> - informational site

The Department of Agriculture also provides direct payments to private landowners who agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors.

### ***Watershed Protection and Flood Prevention (Small Watersheds) Grants***

<http://www.epa.gov/owow/watershed/wacademy/fund/prevent.html>

The USDA Natural Resources Conservation Service (NRCS) provides funding to state and local agencies or nonprofit organizations authorized to carryout, maintain, and operate watershed improvements involving less than 250,000 acres. The NRCS provides financial and technical assistance to eligible projects to improve watershed protection, flood prevention, sedimentation control, public water-based fish and wildlife enhancements, and recreation planning. The NRCS requires a 50 percent local match for public recreation and fish and wildlife projects.

### ***Rivers, Trails, and Conservation Assistance Program***

[http://www.ncrc.nps.gov/programs/rtca/ContactUs/cu\\_apply.html](http://www.ncrc.nps.gov/programs/rtca/ContactUs/cu_apply.html)

The National Parks service operates this program aimed at conserving land and water resources for communities. Eligible projects include conservation plans for protecting these resources, trail development, and greenway development.

## **Local Government Funding Sources**

Contact your local government for more information on the funding sources listed below.

### ***Taxes***

Greenways can be funded through sales tax revenues. One example of a community that is using sales tax dollars to fund bicycle and pedestrian facilities is Cobb County, Georgia, where citizens voted to implement a one percent local sales tax to provide funding for transportation projects. Over four years, Cobb County Department of Transportation will receive \$3.8 million of this sales tax revenue for bicycle improvements alone, to be used as a match for federal dollars. Another example is Oklahoma City, where voters approved a temporary \$0.01 sales tax, which generated millions of dollars for greenway acquisition and development.

### ***Bond Referendums***

Communities across the nation have successfully placed propositions on local ballots to support greenway development. The Charlotte-Mecklenburg County, North Carolina, area passed four consecutive referendums that generated more than \$3 million for greenways. Guilford County, North Carolina also passed a referendum that

appropriated \$1.6 million for development of the Bicentennial Trail. Since bonds rely on the support of the voting population, an aggressive education and awareness program will need to be implemented prior to any referendum vote.

### ***Private Sector Sources***

Many communities have solicited greenway funding from a variety of private foundations, corporations, and other conservation-minded benefactors. As a general rule, local foundations and businesses will have a greater interest in, and be more likely to fund, local projects. These local sources should be approached first before seeking funds outside the community.

### ***Local Businesses***

Local industries and private businesses may agree to provide support for development of greenways through:

- Donations of cash to a specific greenway segment
- Donations of services by corporations to reduce the cost of the greenway
- Implementation, including equipment and labor to construct and install elements of a trail
- Donations in the cost of materials purchased from local businesses which support greenway implementation and can supply essential products for facility development.

This method of raising funds requires a great deal of staff coordination. One example of a successful endeavor of this type is the Swift Creek Recycled Greenway in Cary, North Carolina. A total of \$40,000 in donated construction materials and labor made this trail an award-winning demonstration project. (Some materials used in the "recycled trail" were considered waste materials by local industries!)

### ***Trail Sponsors***

A sponsorship program for trail amenities allows for smaller donations to be received both from individuals and businesses. The program must be well planned and organized, with design standards and associated costs established for each amenity. Project elements which may be funded can include wayside exhibits, benches, trash receptacles, entry signage, and picnic areas. Usually, plaques recognizing the individual contributors are placed on the constructed amenities or at a prominent entry point to the trail.

### ***Volunteer Work***

Community volunteers may help with trail construction, maintenance, fund raising, and a whole host of other activities. Potential sources of volunteer labor in Butler and Hamilton Counties could include local bicyclists, local historical groups, neighborhood associations, local churches, conservation groups, school groups, and local civic clubs such as Kiwanis, Rotary, and Lions Clubs.

A good example of a volunteer greenway program is Cheyenne, Wyoming, which generated an impressive amount of community support and volunteer work. The program has the unusual problem of having to insist that volunteers wait to begin landscaping trails until construction is completed. A manual for greenway volunteers was developed in 1994 to guide and regulate volunteer work. The manual includes a description of appropriate volunteer efforts, request forms, waiver and release forms, and a completion form (volunteers are asked to summarize their accomplishments). Written guidelines are also provided for volunteer work in 100-year floodplains.

To better organize volunteer activity, Cheyenne developed an "Adopt-a-Spot" program. Participants who adopt a segment of trail are responsible for periodic trash pick-up, but can also install landscaping, prune trail-side vegetation, develop wildlife enhancement projects, and install site amenities. All improvements must be consistent with the

Greenway Development Plan and must be approved by the local Greenway Coordinator. "Adopt-a-Spot" volunteers are allowed to display their names on a small sign along the adopted section of greenway.

### ***"Buy-a-Foot" Programs***

"Buy-a-Foot" programs have been successful in raising funds and awareness for trail and greenway projects across the country. Under local initiatives, citizens are encouraged to purchase one linear foot of the greenway by donating the cost of construction. An excellent example of a successful endeavor is the High Point (North Carolina) Greenway "Buy-a-Foot" campaign, in which linear greenway "feet" were sold at a cost of \$25 per foot. Those who donated were given a greenway T-shirt and a certificate. This project provided an estimated \$5,000 in funds.

### ***Developer Dedications***

Cary, North Carolina, has used a dedication program to acquire land for its greenway program. Other communities have used such programs to build facilities such as sidewalks, trails, and other amenities, as part of new development. The developer typically fronts the cost of these improvements and passes the costs along to home buyers.

### ***American Greenways DuPont Awards***

The Conservation Fund's American Greenways Program has teamed with the DuPont Corporation and the National Geographic Society to award small grants (\$250 to \$2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, building trails, and other creative projects. Grants cannot be used for academic research, institutional support, lobbying, or political activities.

### **Pennsylvania Funding Sources**

#### ***PennDOT***

<http://www.dot.state.pa.us/>

PennDOT's primary means of funding greenways projects is through the Transportation Enhancements Program that is part of TEA-21. Greenways projects with a tie to transportation, historic preservation, bicycle/pedestrian improvements, or environmental quality, are eligible candidates for Transportation Enhancements funding. PennDOT received \$40 million in funding for the fall 2001 funding cycle; \$32 million is available for projects selected by MPOs/LDDs and the remaining \$8 million is a set-aside for use at the Secretary's discretion and for projects of statewide significance. For more information contact Dante Accurti, 717-787-2838.

#### ***The Community Conservation Partnership Program***

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

The State of Pennsylvania makes available grant moneys to municipal governments through this program to support greenway and park planning, design and development. Applications for these grants are due in October of each year, and a 50 percent match is required from the local project sponsor. The amount of maximum award varies with the requested activity. Planning grants are typically awarded \$50,000 or less. Land acquisition and construction grants range from \$150,000 to \$200,000. Small community grants are also available through this program for municipalities with populations less than 5,000. These grants can support up to 100 percent of material costs and professional design fees for recreational facilities. Grants for these projects are typically limited to \$20,000. The program had \$10-12 million allotted for the year 2000. For more information contact regional advisors: Southeast: Don Gephart & Fran Rubert (215) 644-0609, Northeast: Michelle F. Breslin & Dennis De Mara (570) 963-

4157, Southcentral& Northcentral: Cindy Dunlap (Southcentral) Lori Kieffer Yeich (Northcentral) (717) 772-3839, Southwest: Kathy Frankel & Tracy Robinson (412) 880-0486, and Northwest: Mark Kulich (814) 871-4190.

#### ***Rails-to-Trails Grants***

The Rails-to-Trails Grants provide 50 percent funding for the planning, acquisition, or development of rail-trail corridors. Eligible applicants include municipalities and nonprofit organizations established to preserve and protect available abandoned railroad corridors for use as trails or future rail service. Approximately \$1 million was allotted for the program for fiscal year 1999-2000. For more information contact Wilmer Henninger at 717-772-3704.

#### ***Urban and Community Forestry Grants***

These grants can be used to encourage the planting of trees in Pennsylvania communities. Municipal challenge grants provide 50 percent of the cost of the purchase and delivery of trees. Special grants are available for local volunteer groups, civic clubs, and municipalities to train and use volunteers for street tree inventories, and other projects in urban and community forestry. The program's annual allotment varies but is generally around \$500,000. For more information contact Norm Lacasse at 717-783-0385.

#### ***The Recreational Trails Program (DCNR)***

National Recreation Trails Fund Act (NRTFA) or Symms Act Grants. This source of funding is a subset of TEA-21, and is administered by DCNR. Funds from this program can be used for the acquisition of land and the construction of trail tread and trail facilities. Applications for this funding are due in March 1999. Land acquisition will require a 50 percent match from the local sponsor. Construction projects will require a 20 percent match from the local sponsor. The typical maximum award has been \$150,000. The program had \$1 million allotted to it for fiscal year 1999-2000. For more information contact Vanyla Tierney at 717-783-2654.

#### ***Department of Community and Environmental Development***

<http://www.inventpa.com/default.asp?path=Communities%20in%20PA/Community%20Resources/Community%20Resources.xml> - one step application for all DCED funding. DCED's mission includes four elements that each have a relationship to greenways: economic development, travel and tourism, technical assistance and community development. Each of DCED's funding programs is listed and described below.

#### ***Main Street Program***

The Main Street Program provides grants to municipalities and redevelopment authorities to foster economic growth, promote and preserve community centers, creating public/private partnerships, and improve the quality of life for residents. The program has two components, a Main Street Manager and Commercial Reinvestment. The Main Street Manager component funds a staff position that coordinates the community's downtown revitalization activities. The Community Reinvestment component provides funding for actual improvement projects in the community. The Main Street Manager is partially funded for a 5-year period while the Community Reinvestment activities require a minimum of a 50% match. A business district action plan must be completed for eligibility in this program. The program had a \$2.5 million allotment for 1999-2000. For more information contact Diana Kerr, 717-787-5327.

#### ***DEP Growing Greener***

Growing Greener is the largest single investment of state funds in Pennsylvania's history. Growing Greener directs nearly \$650 million over five years to the new Environmental Stewardship Fund. Growing Greener funds can be used for farmland-preservation projects, preserving open space, cleanup of abandoned mines, watershed

planning, recreational trails and parks, and help communities address land use concerns. Eligible applicants include non-profit groups, counties, and municipalities. A local match is encouraged, but not required. For more information contact the Growing Greener Helpline at 877-724-7336.

***Environmental Fund for Pennsylvania***

This fund is available to environmental, conservation, and recreation organizations for projects that improve the quality of life for Pennsylvania communities. For more information contact Tim Schlitzer at 215-545-5880.

***Environmental Education Grants***

This program uses a 5 percent set aside of the pollution fines and penalties collected in the Commonwealth each year for environmental education in Pennsylvania. There are eight different grant tracks with grants ranging from \$1,000 to \$20,000, most requiring a 20 percent match. Public and private schools, non-profit conservation/education organizations and county conservation districts may apply for the grants. For more information contact DEP at 717-772-1828 or by e-mail at [DEPLearningCenter@state.pa.us](mailto:DEPLearningCenter@state.pa.us).

### Trail Surface

Different trail surface options:

*Concrete* – Minimum 4 inches pour-in-place (3,000 psi) concrete over 4-6 inches of compacted 2A stone. Reinforcement and concrete thickness will be required at locations where vehicles will cross or use the walk. Provide a maximum 2% cross slope to move storm water off the surface. Maintenance – sweep clean surface monthly, remove and replace cracked or settled sections.

*Asphalt* – Minimum 2 inches bituminous concrete over 4-6” of compacted 2A stone and geotextile. Additional thickness is required when the trail will also be used by vehicles. Maintenance – sweep clean surface monthly, repair cracks and settled areas.

*Stone Dust* – Minimum 2 inches of stone dust over a layer of geotextile and 4 inches of compacted 2A stone. Stone dust trails must not exceed 3% slope or cross slope. Maintenance – inspect surface following major rainfall events for washouts, repair washout areas as needed. Rake surface once yearly and supplement and compact surface material yearly.

*Wood Chip* – Minimum 4” thick woodchip surface. Edges may need to be extended or lined with logs or similar natural material to maintain a good 4” of cover in the area of use. Wood chip trails must not exceed 4% slope or cross slope. Maintenance – supplement wood chip surface yearly. Check surface quarterly for any areas requiring repair. Inspect/replace edge material as necessary.

*Compacted Earth* – Cleared trail, often man-made from use. Maintain minimum width 3 feet. Compacted earth trails should not exceed 5% slopes; however, can handle greater slopes with proper design to remove storm water off the surface to prevent erosion.

*Lawn (not referenced)* – Maximum mowed height of 4 inches, preferably 2-3 inches for easy walking. Minimum width 5’; however, maintenance equipment will determine ultimate width. Maintenance – mow as needed to maintain desired lawn height, remove accumulated cuttings, seed surface in the fall to supplement growth.

### ADA Accessibility

Every effort shall be made to provide ADA accessibility. Slopes on trails should not exceed 5% to prevent the need for handrails and landings, as well as to minimize maintenance issues. Surfaces shall be sufficient to accommodate wheelchair use. Trails should be constructed a minimum of 3 feet wide and typically 5 feet wide to accommodate a wheelchair. Consult current published ADA Standards prior to trail development to ensure project compliance.

### Surface Selection Criteria

The selection of a surface is dependent on:

Surroundings –

- Urban areas – concrete
- Subdivisions – concrete
- Suburban areas – concrete/asphalt
- Regional/linear parks – asphalt
- Bike/Pedestrian trails – asphalt
- Smaller parks – stone dust trail
- Natural areas – stone dust or woodchip surfaces.

User –

- Walker – all surfaces
- Wheelchair – concrete, asphalt, stone dust
- Stroller – concrete, asphalt
- Bicycle – asphalt, stone dust
- Mountain Bike – stone dust, compacted earth
- Roller Skate – concrete, asphalt

Skateboard – concrete, asphalt  
Jogger – stone dust, compacted earth, woodchip  
Equestrian – lawn

Frequency –  
High – concrete/asphalt  
Medium – concrete, asphalt, stone dust  
Low – stone dust, lawn, woodchip  
Commuter – asphalt, concrete  
Casual – stone dust, woodchip  
Formal – concrete, asphalt

