East Hanover Township
Trails and Greenways Master Plan
Meeting Agenda

- Team Introduction
- Project Schedule
- Project Scope
- Process
- Greenways
- Trails 101
- Initial Site Investigation
- Online Survey
- Discussion
- Next Steps
Project Team

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Committee Meeting 1  
10.10.2017
## Project Schedule

<table>
<thead>
<tr>
<th>Task Description</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
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<td>Analyze Data / Proposed Trail &amp; Greenway Network Mapping</td>
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<td>Trail Guide Brochure</td>
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<td>Focus Group Meeting #1 (trails groups / conservancies)</td>
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<td>Focus Group Meeting #2 (businesses, employers)</td>
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<td>Administer Web Survey</td>
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<td>Press releases, meeting posters, media contacts</td>
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*All meetings (except one*) are at the Municipal Building, 60346 Roads End Rd, Cranberry Twp.

*Modified: 10.10.17

*Committee Meeting 1, Oct 10th, is at old Municipal Building 365 North Crawford Rd, Cranberry Twp. 17028
Project Scope

C. Inventory
D. Analyze Data / Proposed Trail & Greenway Network
E. Mapping
F. Action Plan
G. Executive Summary
H. Trail Guide Brochure
I. Draft Plan
J. Revisions and Final Products
Project Scope

Public Participation

• 4 Public Meetings
• 4 Study Advisory Committee Meetings
• 1 PennDOT Coordination Meeting
• 2 Focus Group Meetings
The Process

The Master Plan is only the first step in a long process of creating improvements. This process usually is repeated several times – phase by phase – to complete each phase of improvements.
Greenways
What is a greenway?

Greenways are corridors of land that generally parallels creeks and streams. They often have conservation, ecological, cultural, historic and recreational value. The primary purpose to designate a “Greenway” is to foster the preservation and protection of critical habitats and protect and enhance the water quality. Greenways may or may not contain a trail or allow access.

In East Hanover Township they are protected under Zoning Ordinance Section 250 - Riparian Buffers which regulated permitted uses, setbacks and maintenance.
Trails 101
Trail User Groups

**Adult Cyclists**
- **Experienced and Confident** *(Advanced Bicyclists)* - Generally use their bicycles as they would a motor vehicle.
- **Casual / Less Confident** *(Basic Bicyclists)* – Less confident adult riders may also be using their bicycles for transportation purposes, but prefer to avoid roads with fast and busy motor vehicle traffic.

**Child Cyclists** – Riding on their own or with their parents, Child Cyclists may not travel as fast as their adult counterparts but still require access to key destinations in their community.
Trail Guidelines

**AASHTO** – *American Association of State Highway Transportation Officials*

- Guidelines for both on-road and off-road (shared use path) facilities.
- Improvements **must** adhere to AASHTO standards to receive State and Federal funding.

**NACTO** – *National Association of City Transportation Officials*

- State-of-the-practice solutions to create “complete streets.”

**MUTCD** – *Manual on Uniform Traffic Control Devices*

- Standards for Design and implementation of traffic control devices.
- Signage and pavement standards.
AASHTO Standards - Trail Facility Types

• **On-Road Facilities** – Bicyclists ride within the existing cartway:
  - **Shared Lanes** – Contains no special accommodation for the cyclist. Signs are used to define the route and the cyclist shares the roadway with vehicular traffic.
  - **Bicycle Lanes** - Designated bicycle lanes within a roadway for exclusive use of the cyclist. Contains special pavement markings and signage.

• **Shared Use Paths** – Completely separated from the roadway. Also known as ‘off-road trails’, ‘greenways’, ‘shared use paths’, and/or ‘multi-use paths’.
AASHTO Standards - On-Road Facilities

- Bicyclists share the cartway with motorists

- Roadways should carry low to very low traffic volumes with low speeds.
  - Rural roadways with good sight distances are the exception = 55 mph speeds allowed

- Four primary on-road facilities:
  - Signage only
  - Shoulder Improvements
  - Shared Lane Striping (Sharrows)
  - Bike Lanes
SIGNAGE ONLY

• Lane widths of 14’ allow motorists to pass bicyclists without encroaching in the adjacent lane
  ▪ However this lane width is not a requirement

• Signage types (MUTCD Standards):
  ▪ Share the Road (W11-1 and W16-1P)
  ▪ Bicyclist May Use Full Lane (R4-11)

• Where to place signs:
  ▪ Beginning of the bicycle route
  ▪ Roadway intersections
  ▪ Throughout the segment if there are long roadway stretches without intersections
SHOULDER IMPROVEMENTS

- Paved Shoulders with no vertical obstructions = at least 4’ wide
- Paved Shoulders with vertical obstructions (curbs, guiderails, etc.) = at least 5’ wide
- Rumble Strips can be placed along the edge of road
  - Travel path of bicyclists is on the outside of the rumble strip
  - Minimum 4’ shoulder from the edge of pavement to the rumble strip
SHARED LANE STRIPING ‘SHARROWS’

- Shared-Lane Striping adheres to MUTCD standards (9C-9)

- Position of Sharrow on Cartway:
  - On-Street with Parallel Parking = at least 11’ from face of curb or edge of cartway
  - On-street no Parking = 4’ from face of curb or edge of cartway

- Signage still needed
BIKE LANES

- Bicyclists operate within a designated portion of the roadway that is separate from motor vehicle traffic

- Bike Lane Widths
  - Not adjacent to Curb = 4’ minimum
  - Adjacent to curb or other obstacle = 5’ minimum
  - Adjacent to Parallel Parking = 5’ minimum (7’ preferred) – to be placed between parking lane and vehicle travel lane

- 6’ – 8’ bike lanes allow bicyclist to pass without leaving the bike lane

- MUTCD Signage – R3-17 ‘Bike Lane’ at periodic intervals
AASHTO Standards - Shared-Use Paths

- Characterized as Bikeways that are physically separated from the cartway by a physical barrier or open space
- Should comply with current ADA requirements
- Typical Users include:
  - Upright Adult Bicyclists
  - Recumbent Bicyclists
  - Bicyclists pulling trailers
  - Hand Cyclists
  - Child Bicyclists
  - Inline Skaters
  - Roller Skaters
  - Skateboarders
  - Kick Scooter Users
  - Pedestrians
  - Runners
AASHTO Standards – Shared-Use Paths

- **Trail Width** = 10’ minimum to 14’
  - 8’ is permitted under rare circumstances
  - Wider trails are permitted to meet higher anticipated volumes

- **Trail Shoulder Width** = 2’ minimum
  - 3’ to 5’ shoulder is preferred
  - Slope of Shoulder = 1 foot vertical to 6 foot horizontal (1:6)
  - Under rare circumstances a 1’ shoulder is permitted between a trail and physical barrier

- **Slope of Trail Surface**
  - Cross Slope: Not to exceed 2% (1% is preferred)
  - Grade Slope: Maximum should be 5% or match that of the adjacent roadway
Trail Facility Types

- Asphalt (impervious / porous)
  - Pavers / Concrete
- Stone Dust / Stone screenings
  - Rubberized Surfaces
  - Compact Earth
- Mulch / Boardwalks (wetlands)
Trail Facility Types

- Asphalt (impervious / porous)
  - Pavers / Concrete
- Stone Dust / Stone screenings
  - Rubberized Surfaces
  - Compact Earth
- Mulch / Boardwalks (wetlands)
Trail Facility Types - NACTO Guidelines

• Additional guidelines for the development of trails – AASHTO standards should still be followed

• Provides additional guidelines for:
  ▪ Bike Lanes
  ▪ Cycle Tracks
  ▪ Intersection Treatments
  ▪ Bicycle Signals
  ▪ Bikeway Signing and Marking
  ▪ Bicycle Boulevards

https://nacto.org/publication/urban-bikeway-design-guide/
Trail Facility Types - NACTO Guidelines

**STRIPING - SHARROWS**

When a parking lane is present at T intersection with a bike lane, it is critical to provide an alternative path for cyclists. SHARROWS, also known as sharrows, are a type of road marking designed to indicate a designated lane or route for cyclists. They consist of solid and dashed lines, typically painted diagonally, to indicate the presence of a designated bike lane or path. SHARROWS are particularly useful in areas where there is a high volume of cyclists and where traditional bike lanes may not be feasible due to infrastructure constraints.

**Optimal SHARROW Applications**

- On streets with posted 25 mph speed limits or lower, SHARROWS can be used to indicate a dedicated bike lane.
- On streets with posted 30 mph speed limits, SHARROWS can be used to indicate a shared lane between bike and auto traffic.
- On streets with posted 35-50 mph speed limits, SHARROWS can be used to indicate a designated bike lane for higher speeds.

**Lateral Placement of SHARROWS**

- Lateral placement is critical to encourage riders to use the "bicycle lane" and to encourage safe passing behavior. NACTO guidelines recommend the following placements:
  1. **Lateral placement to avoid the "bike lane":** The SHARROWS should be placed on the shoulder of the road, away from the bicycle lane, to encourage safe passing.
  2. **Lateral placement to avoid the "car lane":** The SHARROWS should be placed on the edge of the road, away from the car lane, to encourage safe passing.

**Design Guidance**

- SHARROWS should be used on streets with 25 mph speed limits or lower, where it is critical to minimize the risk of collisions with motor vehicles.
- SHARROWS should be used on streets with 30 mph speed limits and higher, where it is critical to provide a clear indication of the presence of bike lanes.
- SHARROWS should be used on streets with 35-50 mph speed limits and higher, where it is critical to provide a clear indication of the presence of bike lanes and to encourage safe passing.

**Additional Information**

- SHARROWS can be used to indicate a designated bike lane for higher speeds.
- SHARROWS can be used to indicate a shared lane between bike and auto traffic.

www.nacto.org
BIKE LANEs

**Design Guidance**

**Conventional Bike Lane**

- **Required Features**
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.

- **Recommended Features**
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.

- **Optional Features**
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.
  - The dedicated bike lane width should be at least as wide as the width of the designated bike lane.

**BIKE LANES**

Trail Facility Types - NACTO Guidelines

www.nacto.org
• Manual of Uniform Traffic Control Devices
• Signage, Pavement Standards and highway traffic signals for both on-road and off-road trail facilities
• Provide for safe and efficient transportation
Small Town and Rural Multimodal Networks

- Federal Highway Administration (FHWA)

- For small towns and rural communities to design and implement safe and accessible trails for people of all ages and abilities

- Includes information on:
  - Mixed traffic Facilities
  - Visually Separated Facilities
  - Physically Separated Facilities
  - Key Network Opportunities

Pennsylvania Trail Design and Development Principles

- Produced by PA DCNR
- Guidelines for a wide range of trail types:
  - Hiking Trails
  - Mountain Biking trails
  - Shared Use Paths and Rail trails
  - Equestrian Trails
  - Cross-Country Skiing Trails
  - Snowshowing and Winter Hiking Trails
  - Accessible Trails
- References AASHTO and NACTO

Pennsylvania Trail Design and Development Principles

Rule of Thumb for Ride Distances

- One hour loop
  3-5 miles

- Two hour loop
  6-10 miles

- Three hour loop
  8-15 miles

Equestrian Trail Guidelines

- Preferred Clearing Height = 10’ – 12’
  (9’ is minimum)

- Single Track trails are preferred
  - Horses are easier to manage
  - Less trail maintenance
  - Natural Surface

- Bridges need to be 6’ – 8’ wide

- Variety is desirable: water crossings, hill climbs, decents, open areas, and woods

- Trailheads require large areas for trailers
## Pennsylvania Trail Design and Development Principles

### Equestrian Trail Guidelines

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<thead>
<tr>
<th>Trail Type</th>
<th>Easiest (Interpretive)</th>
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<tr>
<td>Clearing Height</td>
<td>10 feet</td>
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<td>Clearing Width*</td>
<td>8 feet</td>
<td>6-8 feet</td>
<td>3-6 feet</td>
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<td>Treadway Width**</td>
<td>2 feet</td>
<td>2 feet</td>
<td>18 inches</td>
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<td>Treadway Slope***</td>
<td>Less than 10%</td>
<td>Less than 10%</td>
<td>Less than 15%</td>
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<td>Less than 5% Maximum: 15% up to 200 feet</td>
<td>Less than 10% Maximum: 25% up to 300 feet</td>
<td>Less than 15% Maximum: 30% up to 500 feet</td>
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<td>Treadway Cross Slope</td>
<td>0-2%</td>
<td>0-5%</td>
<td>0-10%</td>
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<td>Turning Radius</td>
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<td>Not critical but avoid sharp turns on steep slopes or using switchbacks (30 inches if necessary)</td>
<td>Not critical but avoid sharp turns on steep slopes or using switchbacks (30 inches if necessary)</td>
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<td>Sight Distance</td>
<td>Two-way traffic: 50-100 feet Motorized road crossings: 100-200 feet</td>
<td>Two-way traffic: 50-100 feet Motorized road crossings: 100-200 feet</td>
<td>Two-way traffic: 50-100 feet Motorized road crossings: 100-200 feet</td>
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<td>Surface Materials</td>
<td>Surfacing as needed for stability. Native surface with some imported material. Sidehill trail is constructed. Smooth tread with few obstacles.</td>
<td>Native surface with constructed sidehill trails. Occasional roots and rocks to 6 inches.</td>
<td>Native with limited grading. Roots, rocks, and logs to 12 inches.</td>
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* Along a precipice or hazardous area, the trail clearing width should be at least to 5 feet to provide safety to riders and their animals.
** Increase tread width 1 foot on switchbacks.
*** Upper limit of treadway grade and distance depends on soil type, amount of rock, vegetation type, and other conditions affecting trail surface stability.
Water Trails
Site Tour
Manada Creek Bridge - Allentown Boulevard
Preserved Farm Land
Manada Bottom Road
Furnace Road
Manada Bottom Road - PPL Power lines
Manada Bottom Road
Stony Valley Railroad
Mountain Road
Bow Creek Road
Firehouse Road
Bow Creek Road at Allentown Blvd (Future Sheetz)
East Hanover Community Park
Online Survey
Discussion

Trails Map from Township

Comprehensive Recreation Plan

Committee Meeting 1