The Cynwyd Heritage Trail

PHASE II PLAN

Lower Merion Township, Montgomery County

May 2015
The Cynwyd Heritage Trail

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Natural Lands Trust

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EXECUTIVE SUMMARY

The Vision

Trails in the Philadelphia region, like much of the nation, are having a moment. Trails are popular again. Communities are embracing them, rather than fearing them. People want to walk—for exercise, to meet their neighbors, to enjoy their communities or nature or the sunshine. Trails are being used for active recreation, gathering places, safe places for children to play, and for connections to neighboring communities. The Cynwyd Heritage Trail has all of these things and more!

Lower Merion Township, through a combination of luck, vision, perseverance and hard work, has created a very special place. The Cynwyd Trail is more than a trail. The unusually wide spaces along the railroad corridor let it act more as a linear park with a trail through it. It is a series of connected spaces. It is a place to walk the dog. It is a running track. It is a cycling course, an art studio, a nature preserve, a classroom. It is all of these things and more, in a 1.75-mile long park.

The Cynwyd Trail is a place for everyone. It is a place to meet friends and catch up. It is a place to get your exercise and then finish your workout with coffee and a snack. It's a place to enjoy the quiet, watch the birds and clear your mind. It's a place to bring the kids to let them run off some energy.

Different people, doing very different things, come together at the Cynwyd Trail. It is a vibrant, social space. The trail connects neighbors who were once divided by the tracks. It brings Bala Cynwyd to Rock Hill. And soon, it will connect Lower Merion to Philadelphia in Manayunk and Wynnewood.

The Cynwyd Trail is already all of these things to so many different people, and yet, it still has potential to become so much more. More trees, shrubs, and flowers can be planted to provide food and habitat for the animals, while making the trail sides even more beautiful. More gardens and meadows can be established to brighten the trail heads. More events and celebrations can bring more people to the trail. More interaction with neighboring residents, institutions and businesses can expand the Cynwyd Trail community. The Phase II Plan will help guide the Cynwyd Heritage Trail through an evolution from good to great, but it will take even more vision, hard work and perseverance from the community.

Who Will Use this Plan

The abilities of many will be needed to fully realize the vision of the Cynwyd Trail as a truly great place. The plan describes thirteen major projects and includes many, many more recommendations for improved stewardship, maintenance, volunteer engagement and fundraising. The scope and scale of the plan is beyond the means of any one entity, in terms of cost and capacity. The people who use the trail, who love the trail, will need to work together to make it a reality.

This plan follows the proven model of other great spaces (Highline, Rittenhouse Square, Central Park) where a municipal government partners with a community based nonprofit to develop and maintain public spaces. The dynamic between the pragmatism of a local government and the passion and enthusiasm of the local community results in high quality, sustainable places. This model allows the government to do what it does best while facilitating local participation and resources. The result is a space that reflects the distinctive unique character of the place where it is located. This model just doesn’t build a place within the community, it builds community by allowing people to jointly collaborate and share in the development of something special. This collaboration will come through better and more structured communications between the township and Friends of Cynwyd Heritage Trail (FOCHT).

The plan depends on collaboration and partnership. The Township and FOCHT will reach conclusions based on input from all of the parties involved. Together, they will endeavor to increase resources for the trail, choose when and which projects to undertake, and determine strategies for completing and maintaining each project as well as the trail as a whole.

The Friends of the Cynwyd Heritage Trail are key to implementing this plan. They are asked to do some heavy lifting in fundraising and volunteer engagement. Therefore, a core focus of the plan is to provide the Friends with the “tools” that they need to help the Township realize the vision. This model is new for both the Friends and the Township. This plan establishes a structure to develop the Friends group as a rewarding community experience and effective township agent. Tools include traditional shovels and rakes to help with the ground projects as well as organizational tools.
to identify projects, attract volunteers and engage the community in work projects and fundraising. This will result in a 21st century civic partnership.

Local and Regional Connections

Lower Merion Township has a Circulation Plan, which emphasizes the importance of trails and sidewalks to future development. The Township wants people to walk and ride bicycles. The region has a traffic problem, roads are expensive to maintain and cars pollute the air. When residents walk or ride bicycles, they take cars off the roads, keep the air cleaner and get exercise. These are obvious reasons to walk or ride bikes. However, in many communities, there just aren’t opportunities for walking or riding.

People may want to walk places, but they won’t if they don’t see a safe, pleasant and convenient way to do it. The Cynwyd Trail provides this opportunity. This important piece of the developing trail and sidewalk network, will give people an enjoyable way to move through this part of the Township, without ever getting into a car. As the network expands up Rock Hill Road and down to City Avenue, the Cynwyd Trail becomes even more important.

Bala Cynwyd is already a center of population, including many apartment buildings. Rock Hill Road is a target for developers will continue to undergo change. The City Avenue district is also expected to see redevelopment in the near future. These three areas of growing population can all be served by the Cynwyd Trail at its full buildout. The Phase II Plan will help the trail continue to be a safe, convenient and pleasant alternative to getting in the car for the residents of these places.

The trail will also connect people from beyond Lower Merion. Mention “the loop” to anyone who runs, walks, rollerblades or rides a bike in the Philadelphia area, and they know you are talking about Kelly Drive, the Falls Bridge, Martin Luther King Drive and Eakins Oval. This 8-mile route which goes up and down the Schuylkill River from the Art Museum to East Falls, is the site of countless charity walks, foot races and cycling events. Soon, the Cynwyd Trail will be part of another loop.

When the Manayunk and Penncoyd Bridges open, the Cynwyd Trail will be part of a second loop, this one connecting Lower Merion to Manayunk. At a manageable distance of approximately 2.25 miles, it too has the potential to be a staple route for runners, walkers and cyclists. But it can also provide greater connections to regional transit and other amenities. The crossings will make Manayunk’s businesses much more accessible to the residents of Lower Merion. Residents will also be able to walk or ride safely to the Wissahickon Transit Center, where they could catch a bus to other parts of the city. They could also cross the street and continue their walk along the Wissahickon Creek.

What is in the Phase II Plan

The Plan focuses on the Planning, Maintenance and Fundraising chapters. Additional chapters provide background and recommendations about other topics, including Volunteer Management, Safety Issues, Successful Plantings and Programming.

The narrative in each chapter includes detailed information about the trail, analysis, and the reasoning behind recommendations. The information in the chapters is organized into logical sub chapters. The Maintenance chapter divides the trail into seven segments based on physical characteristics. Each segment includes a bulleted list of existing conditions and maintenance issues, followed by detailed recommendations for addressing the issues. Maps and diagrams accompany this chapter.

“Design” (see chapter III) presents thirteen potential projects grouped in three categories. Keystone Projects are the most important. These include the Belmont Avenue Trailhead, the Barmouth Station Area and the Manayunk Bridge Area. These are projects which are highly visible, draw many visitors or can have a profound impact on the trail. Priority Projects are those of secondary importance, which may be relatively visible, reduce current maintenance or improve a deteriorating condition. Opportunity Projects are those which should be undertaken as the opportunity arises. These are projects which focus largely on aesthetics, but will likely not greatly affect the trail users’ experience.

“Fundraising Strategies” (see Chapter VII) describe how the Friends of the Cynwyd Heritage Trail can increase their already impressive fundraising through solicitation from current members as well as other friend-raising and fundraising methods. Recommendations range in complexity from simply suggesting more generous gifts from their members, to creating gift societies and organizing special events. The citizens of Lower Merion Township are able to
generously donate funds for the trail. The Plan illustrates opportunities to increase the generosity of gifts while giving back to the donors.

**An Implementable Plan**

In order to make the plan easier to implement, a series of charts and other tools have been included. Chapter 10 includes charts of all of the recommendations found in the report, organized into short term and long term/annual strategies by topic. A project status chart has been prepared for use by the Township and FOCHT, to plan for and track ongoing projects, assign responsibilities and keep up with ongoing maintenance. A master list of routine maintenance tasks has also been provided. This list is organized by season and will allow Parks and Recreation, Public Works, FOCHT and volunteers to better coordinate on what needs to be done, when and by whom in order to keep the trail in working order.

**A Usable Plan**

The Appendix includes sample documents, lists and fact sheets which can be used by volunteers or staff. Fact sheets depicting and describing twenty of the most common invasive species are included. These could be distributed to volunteers at work days or placed in kiosks, encouraging visitors to pull invasive species as they walk the trail. Lists of recommended native species are also included. A sample press release, distribution list and volunteer workplan are also included, which can be used for fundraising and volunteer management.

**A Framework for Decision-Making**

The plan serves as a guide for designing and maintaining the physical aspects of the trail. It also suggests ways to continue to build community around the trail. The Plan will serve as a reference for Township officials, staff and advisory boards; community organizations; the FOCHT; and other interested parties. It is a guide for future actions and decisions. Some recommendations can be implemented immediately. Others will require further discussion, public involvement, design and approval for the actions to be undertaken.

**Ensuring Success for the Plan**

Keep this Plan before key stakeholders. This plan should be out and used regularly in Township meetings. It should be present at FOCHT meetings. The Plan serves as a guide; it is not carved in stone. It is intended guide the Township in further development of the trail. The process of implementing the plan will be long. Situations and circumstances will change. The priorities set forth in this plan may change over time.

Lower Merion Township should move ahead with the plan, but be prepared to adjust and switch strategies as necessary. Flexibility, patience, and adaptability will be essential in developing and stewarding the trail to the Township's standards. With a tangible plan and a sound implementation process in place, Lower Merion Township is on track to making the Cynwyd Heritage Trail the best trail in the region.

**A Township Wide Model**

Communities across the region are under increasing pressure to provide more services at less cost. Grant funding is harder to acquire, as competition grows for fewer funds. Maintenance costs continue to rise amidst competing municipal needs. It is becoming increasingly difficult to expand park facilities, or even maintain existing facilities under typical budgets. This plan advocates a different approach, with the Township providing what it can, and the community supplementing with additional resources.

This is an approach that may be viable at other Township Parks as well. The Township can learn from the experience of using the Phase II Plan and then apply a similar approach to other parks, in collaboration with other friends organizations or community groups. Each park is different and each park will reflect the unique qualities of its respective community. This plan, and others modeled after it, will continue to provide a way for individuals to constructively engage in community affairs. It continues and updates the long, proud tradition of civic engagement in Lower Merion Township.
INTRODUCTION

The Cynwyd Heritage Trail Phase II Plan builds on the work completed previously by Lower Merion Township and its residents. Studio Bryan Hanes assisted the Township through a public process of information gathering, which lead to the development of three conceptual plans for the trail. The first concept, the Experiential Park, proposed using the trail to get people to the forests, streams and rock outcrops which exist along it. The second concept, the Fitness Park, proposed playing fields, a skate park and ice skating along the trail. The third concept, a Culture Park, proposed festival and performance spaces while also highlighting the history of the site. The best development of the Cynwyd Heritage Trail would include aspects from each concept. Lower Merion Township, the Friends of the Cynwyd Heritage Trail and others have already begun implementing features along the trail which carry out the goals of each plan.

The Phase II Plan uses the information gathered previously and combines it with knowledge gained by holding an additional public workshop and interviewing key persons within and outside Lower Merion Township. The greatest source of information has come from simply walking the trail. Natural Lands Trust’s (NLT) staff has studied the plant communities, hydrology and geology of the site. We’ve also observed how people use the trail and how they interact with each other, as well as the animals, trees, shrubs and water along the trail. The built environment, including completed projects and those still in progress, was also examined. The collection of this additional information alongside the Township’s experience with the trail since it has been installed, will inform Lower Merion Township as to how to take aspects of each plan from concept to reality.

As the trail has now been on the ground and in use for a few years, Lower Merion Township has been able to identify four areas in need of further study:

- Maintenance and Stewardship
- Design
- Volunteer Management
- Fundraising

In addition to these four initial subjects, three additional areas of need became apparent during development of the Phase II Plan. Chapters have also been included which address:

- Keys to a Successful Planting
- Safety Recommendations
- Programming

The Cynwyd Heritage Trail is a very complex place. While it is a Township park and the Township ultimately has control over what happens there, the need for cooperation is paramount. The Friends of the Cynwyd Heritage Trail are a robust friends group, with abilities not found amongst other citizen organizations. The trail itself holds value to residents of all sorts, including active recreation enthusiasts, artists, historians and pet lovers. While all of these groups want the best for the trail, at times their interests may conflict.

It is necessary that these groups have opportunities for open, ongoing dialogue. They must work together, not just to avoid conflict, but to find opportunities for synergies and cooperation. The Plan recommends establishing better and more structured communications between the township and Friends of Cynwyd Heritage Trail and others.

The Cynwyd Trail is approximately 1.75 miles long. “Maintenance” (see Chapter II) of so much trail side is no easy task. The plan divides the trail up into seven segments, which can be considered management units. Each segment is defined by characteristics, not length. The sections of the plan devoted to each trail segment offer a brief narrative describing the trail segment, followed by a bullet point list of maintenance issues. Finally, options for how to address each issue are described. In many cases, the Township will need to weigh the options against availability of volunteers, time or funding. All options are aimed at reducing maintenance needs over the long term, while also beautifying the trail.

In order to help manage maintenance tasks, the chapter also includes a master task list. This chart includes all of the maintenance tasks necessary to keep the trail in good working order and assigns each one a priority level. Each task is described briefly and
includes information about necessary frequency and parties responsible. Use of this chart will allow Lower Merion Township, and FOCHT to communicate about necessary tasks, find ways to cooperate and share some of the maintenance responsibilities.

The three concept plans prepared in Phase I propose amenities along the trail, designating them simply with points on the map. The Phase II plan takes ideas from each concept, along with some new ideas, and takes them one step further in the “Design” (see Chapter III) process. Amenities from the Experiential Concept which are recommended for implementation include additional plantings, rehabilitation of the Vine Creek area, an enhanced gathering space at the Barmouth area and improved access to the wetland garden in Bala Cynwyd Park.

While they weren’t included in the concept plan, the recommended additions of an exercise equipment cluster as well as a turnaround loop align with the Fitness Park concept. Recommendations from the Culture Park concept carried through to the Phase II Plan include providing numerous gathering spaces which can be used for performances, and the provision of art, in many forms, along the trail.

While the design recommendations included in this section would still be considered as conceptual, details are provided which can guide the Township forward towards their implementation. All areas recommended for further design include rough cost estimates. Many include conceptual renderings of what the sites could look like. Some of these areas, such as gardens, gathering areas or small trailheads, may be built with little further planning. Others, which include additional parking or extension of utilities, may require additional engineering or other studies.

Lower Merion Township and the Friends of the Cynwyd Heritage Trail already hold volunteer workdays, which are well attended. The plan explains how to continue and build upon these “Volunteer Management” (see Chapter VI) successes, by establishing a consistent coordination process, developing clear work plans and providing formal orientation for volunteers. FOCHT and other volunteers have already contributed greatly to the early success of the trail. Their efforts will be vital to ongoing success.

“Fundraising” (see Chapter VII) is a valuable skill which most municipalities and citizen groups lack. However, the citizens and businesses of Lower Merion Township have a great capacity for giving, and the Friends of the Cynwyd Heritage Trail have done a good job with initial fundraising. The plan provides recommendations for enhancing these efforts, by increasing funding requests, creating dedicated giving opportunities and providing special social and educational opportunities for the most cherished donors. The Cynwyd Heritage Trail already has a good base of funding built through the efforts of Lower Merion Township and the FOCHT, but additional fundraising is necessary for the trail to realize its fullest potential.

Many recommendations found in the Maintenance and Design chapters involve planting projects. Plantings provide great opportunities to get volunteers involved. Fundraising is often focused on tree plantings as well. As so much of the Phase II Plan involves planting in some way, it appeared necessary to include a brief chapter called “Keys to a Successful Planting” (see Chapter IV). This chapter includes brief descriptions of proper site preparation, planting techniques, plant size and spacing and ongoing maintenance. Plantings implemented correctly can have a profound impact on the trail. Those installed incorrectly may quickly die and can create maintenance headaches.

Attendees at the public workshop were asked, “Are there any places you feel unsafe on the trail?” Thankfully, there weren’t any responses indicating any major safety concerns. However, as with any park or trail, a few “Safety Recommendations” (see Chapter V) should be followed. The Plan outlines some simple measures for encouraging dog owners to handle their pets responsibly, in order to avoid dangerous conflicts with other trail users and wildlife. Bicycle and pedestrian safety are also addressed, as are hazard trees and the Township’s ongoing monitoring program.

The trail will attract its share of fitness enthusiasts, but it is also a Township Park, and therefore should serve the needs of other residents as well. Programming is a great way to appeal to other neighbors and residents from across the Township. The Plan includes a brief chapter proposing activities and programming related to the trail’s historic amenities, unique neighbors and varied natural resources. “Programming” (see Chapter VIII) and events not only provide recreation and education for residents, but they also provide the Township with chances to promote the trail, recruit volunteers and raise funds for the trails operation and ongoing development.

In addition to the eight narrative chapters, the “Appendix” (see Chapter XI) contains an abundance of
charts, fact sheets, specifications and details. A project management chart is included, which is intended to assist the Township and FOCHT in keeping projects on track. Invasive plant species fact sheets prepared by PA DCNR are also included. These can be used by staff, or printed and distributed at volunteer events. The itemized cost estimates for the thirteen major proposed projects are also included in the appendix. Additionally, a copy of NLT’s Land for Life: A Handbook on Caring for Natural Lands (2014) has been provided. It contains sections pertaining to special projects like meadows, as well as to everyday maintenance requirements, like pruning.

The Cynwyd Heritage Trail Phase II Plan brings the trail beyond the conceptual stage. It provides direction and tools which will guide Lower Merion Township and Friends of the Cynwyd Heritage Trail in their decision making. The Plan allows flexibility in design and maintenance depending on the availability of funds, volunteers and other resources. It provides tools for raising funds and recruiting volunteers. Most importantly, it gives joint ownership of the trail to Lower Merion Township, the Friends of the Cynwyd Heritage Trail and the residents of the Township. The Phase II Plan empowers them to move forward together with a consistent vision for what the trail can be.
II RECOMMENDED MAINTENANCE AND STEWARDSHIP STRATEGY

Introduction

The Cynwyd Heritage Trail stretches approximately 1.75 miles from end to end, inhabiting an abandoned railroad corridor. As such, it has inherited additional stewardship and maintenance issues, such as the prevalence of invasive plant species, dumped waste materials, and an abundance of railroad related posts and structures. The miles of trail wind their way through cuts in bedrock and wide open areas, between residential backyards, past a beautiful overlook and a busy community park, and into healthy, mature forest.

The many different landscapes through which the trail passes each require a slightly different approach to maintenance, stewardship and enhancement of the surrounding natural and naturalized features. The trail is broken down into seven segments, each with distinct characteristics. Summaries of each segment’s characteristics and issues, as well as strategies for maintenance and improvement are described below. Issues that affect the entire trail, such as the prevalence of invasive species and dog related issues are addressed below as well.

The narrative which follows includes brief descriptions of each issue and strategy. It also includes options for addressing some situations multiple ways. For a master list of the necessary, ongoing maintenance tasks, organized by season, please see the chart which accompanies this chapter.

Concept

GOAL

To provide a blueprint for continued beautification, maintenance and stewardship of the trail, in a sustainable manner that meets the needs of Lower Merion Township, the Friends of the Cynwyd Heritage Trail, the trail’s users and neighbors.

OVERALL STRATEGIES

1. Repurpose unused, remnant spaces, in order to create habitats and naturalized areas, reducing long term maintenance such as mowing.
2. Heavily plant unused spaces with low maintenance shrubs and grasses in order to beautify them, without greatly increasing long term maintenance requirements.
3. Define or redefine edges of places with shrub plantings, fencing and walls to delineate areas which may be maintained differently.

Segment 1: Cynwyd Station to Bala Cynwyd Park

For many visitors, this stretch provides the all important first impression of the trail. Visitors are greeted by the restored Cynwyd Station and the surrounding formal plantings. Beyond this area, the trail corridor is defined by rear yards of single family residential lots on both sides. The corridor feels relatively narrow here, constrained by fences, slopes and wild vegetation in many places. Swales run alongside each side of the trail as well. The Cynwyd Club tennis facility provides a break in the residential development pattern and a more wide open feel to the trail corridor. It also marks the beginning of the soft surface trail, which runs parallel to the macadam surface for much of the trail’s length.
SUMMARY OF MAINTENANCE ISSUES

- Numerous private trail entrances from rear yards;
- Wild, unkempt vegetation which appears to be unmanaged;
- Berms and swales which are difficult to maintain;
- Overhead catenary wires prohibit most tree planting.

RECOMMENDED MAINTENANCE STRATEGY

- The areas between rear yards and the trail provide opportunities for involvement from the neighbors, while reducing maintenance work for the Township. Neighbors should be encouraged to adopt these areas and plant them as their own. Planting templates have been provided in the appendix of this document to inform neighbors of recommended planting species, spacing and locations for the areas between the trail and rear yards.

- Sloped areas should be planted heavily with flowering shrubs (as specified in the attached plant list) to provide colorful flowers, berries, fall color or other interest along the trail, while suppressing weeds and requiring only annual maintenance at maturity. This strategy has already been carried out with some success at various locations on the trail.

- Many private entrances exist, connecting backyards to the trail. This is a positive sign that the neighbors want to use the trail. These entrances also provide the neighbors with a means of quickly accessing the trail, which can help them to be eyes on the trail. However, poorly designed entrances can negatively impact the swales. Neighbors should be encouraged to share entrances where possible. Where backyard entrances do exist, they should be held to Township building code standards to ensure safety. Neighbors should be encouraged to communicate with the Township if they wish to create an entrance. All parties must also recognize that the entrances cross Township property, and therefore the Township will have final say over design and location.
• It is important to maintain a sharp, clean edge along the length of the trail where wild vegetation abuts it. In this segment, large areas of wild vegetation exist. In many cases, these areas are just too overgrown, steeply sloped and large for Township staff or volunteers to effectively clear. In these areas, the trailside should be mowed to a width of 3–6 feet, as slopes and equipment allow. Where the swales exist within this 3–6 feet wide area, the grass between the trail and swale should be mowed, but the vegetation within the swales should be left to grow.

Segment 2: Bala Cynwyd Park to Barmouth Station Area

Two great recreation spaces come together where the Cynwyd Heritage Trail meets the entrance of Bala Cynwyd Park. Families playing in the park spill out onto the trail on scooters, roller skates and bikes. Cyclists and runners using the trail stop in the park to use the restrooms and fill their water bottles. From Bala Cynwyd Park to Barmouth Station, the trail begins to feel a little more secluded, as the trail is framed by steeply cut cliffs. The neighboring homes rest atop the bedrock outcrops with little interaction with the trail. The hard and soft surface trails follow the railroad cut below, beneath the Belmont Avenue overpass, surrounded by bedrock walls, shrouded in invasive vines, grasses, trees and shrubs. The more formal garden plantings at Barmouth Station and the wetland and entrance plantings at Bala Cynwyd Park act as visual anchors, helping to guide visitors farther each way along the trail.

SUMMARY OF MAINTENANCE ISSUES

• Invasive species cover much of the rock outcroppings;
• Graffiti at the Belmont underpass;
• Stormwater from Belmont Avenue causes erosion onto the trail.

RECOMMENDED MAINTENANCE STRATEGY

• Invasive species cover much of the rock outcrops. However, the presence of invasive species doesn’t appear to affect the trail experience for most users. Additionally, as no part of the trail features pristine ecosystems, the presence of the invasive species does not present an immediate threat to other resources. Therefore, removal of invasive species may not be a high priority in this area.
• Invasive woody plants should be removed carefully, so as not to damage the rock outcrops. Small trees and shrubs should be cut, leaving small stumps and roots intact. The stumps should then be sprayed with a stump killing herbicide.
• Vines and herbaceous materials can be pulled by hand. Where hand pulling may damage the rocks, volunteers should be trained to cut large stems and leave the roots intact.
• New plantings should be coordinated to follow invasive species removal. When large patches of invasive species are removed, but replanting
doesn’t follow it, the invasive species will grow back. This essentially undoes the removal work. These rocky areas can be replanted with vigorous native vine and fruiting bramble species such as Virginia creeper, raspberry and blackberry. These species which will root and spread aggressively, thereby helping to reduce erosion. The berry producing species will also provide food for birds, small mammals and people.

- When replanting on the rocky areas, the addition of clean planting soil to some of the crevices may be needed to encourage establishment of new plantings. While some vigorous native plants, such as Virginia creeper, may not need much soil, other more ornamental species, such as little bluestem, may benefit from additional soil.

- Graffiti is currently addressed by a single volunteer, empowered with a can of paint and a brush. He does a good job of painting over graffiti on a timely basis. The FOCHT should also be given free rein to paint over graffiti as they see it. Graffiti is a problem that will likely never be completely eliminated. A reactive, paint over response will always be needed. However, the best way to deter graffiti is to eliminate the blank walls which act as canvases. Township staff has already taken this approach by covering the large retaining wall below the trail along I-76. Similarly, the Belmont Avenue underpass could be covered with a mural or other treatments which would discourage graffiti by making it less visible. This idea is explored further in chapter 3 of this report.

Segment 3: Barmouth Station Area to Connelly Spur South Entrance

The area north of Barmouth Station already provides variety to the trail. The first segments of the trail move users along, forward, within the narrow corridor. But here, suddenly there are choices. The soft surface trail veers off from the paved surface, into the woods. For cold days, visitors can stay out on the asphalt, in the sun. When shade is needed, they can head towards Vine Creek and the patches of woodlands.

The invasive trees and mowed turf grasses look the same as the rest of the trail. But the landscape here is different in that it is not bounded by steep, sharp rock cuts. Man made, small and gently sloped hills give
the trail some feeling of enclosure. This area, with its twisting trails and gentle slopes evoke a sense of movement. The trails weave between the hills, hiding what’s ahead, and giving this area a sense of mystery.

SUMMARY OF MAINTENANCE ISSUES

- Abundance of unused spaces are a drain on maintenance staff and budgets;
- Abundance of swales, basins and slopes, which are particularly difficult to maintain;
- Vine Creek is in a state of degradation;
- Invasive and weed trees such as ailanthus and paulonia are prevalent;
- Debris piles have naturalized and support weed and invasive trees.

RECOMMENDED MAINTENANCE STRATEGY

- Establish a meadow in place of the large, open mowed grass area. A meadow will provide numerous advantages over the existing turf grass. A mix of warm and cool season grasses and wildflowers will provide beauty and added interest for trail users. Meadow grasses will emphasize the openness of the area and the beauty of movement, as the grasses sway in the breeze.
- Meadows will also provide an additional habitat for birds and animals. Most of the trail is bordered by trees and shrubs. Meadow may provide opportunities to benefit additional species, such as ground nesting birds, raptors or small mammals. Tall grasses may provide long term habitat or stop over areas during migration for birds which will only nest on the ground. Raptors such as native hawks and owls may also prefer to hunt in meadows. Meadows also provide excellent habitat and food sources for important pollinators, including native bees and butterflies.
- Meadow plantings can also improve the conditions of the swales and basins. The grasses will help reduce erosion and encourage infiltration. Additionally, the meadow grasses will effectively hide these wet areas. Wet and dry meadow plants will intermingle at the edges of the stormwater management structures.
- Maintain a mowed edge along the trail, keeping the meadow back 3–6 feet from the edge of the trail.
- The trail offers opportunities for group activities and other programming. As such, gathering areas should be established. Segment 3 holds the potential for establishment of gathering areas of various sizes, to serve many different purposes. Gathering areas should be planted with a low mow turf grass, or be mowed on a regular basis. Gathering areas should be established as follows:
  - One large gathering area on the flat area along the trail. This area would be surrounded by meadow on three sides and could be used for group picnics or similar gatherings.
  - One mid-sized gathering area for birding or viewing events at the top of the hill. Many birders already use this area to watch the birds soaring over the Schuylkill River.
  - The slope up to the top of the hill should also be considered a gathering area. The slope could naturally lend itself to seating. Small performances or movies could be held at the bottom.
  - Where the Connelly Spur meets the Cynwyd Trail, small gathering areas should be established. These should be places where trail users can simply step off the trail to get their bearings or wait for their companions.
- Weed trees, including Ailanthus and Paulonia are prevalent in this area. As these trees don’t negatively affect the trail experience for most users, their removal may not be a top priority. However, should the wooded areas here be stewarded for improved habitat, these trees should be cut and their stumps should be removed or ground up. The area should then be replanted with native (or non-invasive) tree species. This trail segment offers one of the few opportunities for tree planting.
- Debris piles are prevalent in this area. In many cases, the invasive trees grow from the debris piles. These areas should be approached with some level of caution. While the required environmental studies were carried out in the early stages of trail development, it’s unclear what exactly is within
the debris piles. In many cases, cinder blocks and other construction material is visible. If a major replanting or removal project is undertaken, removal of the debris piles should be included.

- The wide open area of Segment 3 provides great opportunities, but also brings heavy maintenance requirements. The current mowing regime includes mowing of many areas which have no identified use. These unusable remnant spaces should be eliminated through heavy tree and shrub plantings, implemented and maintained by the FOCHT. These plantings should be coordinated by the Township and FOCHT.

- In some cases, it is possible to eliminate unusable remnant spaces by redefining the edge of the natural areas with fencing, shrub rows or other means, allowing the remnant space behind them to be reclaimed by nature. Where wild or unkempt vegetation abuts these areas, continued maintenance of plantings may be unsustainable. In these cases, it may be best to beautify and maintain the edge, but let nature take its course beyond the edge.

- Provide educational or informational signage to demonstrate the importance of meadow, wet area or other naturalized plantings. The trail will feature many areas of naturalized plantings which may not appeal to everyone. However, by posting educational or informational signs, the public can learn why these plantings are so important. Interpretive signs should be designed to match other interpretive signs along the trail. Simpler, temporary signs may also be used to inform the trail users of projects in progress, such as habitat restoration or meadow establishment.

Segment 4: Connelly Spur South Entrance to Connelly Spur North Entrance

As the Connelly Spur is developed, it will impact the existing Cynwyd Heritage Trail corridor, as new intersections are created. The two intersections with the Connelly Spur will be natural resting places, as trail users decide which path to take or need a moment to reorient themselves. Visitors coming up from the Connelly Spur may need a place to catch their breath, after climbing steep hillside below.

Between the intersections with the Connelly Spur, the Cynwyd Trail’s paved and soft surface paths rejoin each other. They run above the Connelly site, providing some views down into the woodlands, with a long row of split rail fence keeping visitors safe from steep drop below. Vine Creek also flows below the trail, down into the Connelly site, before draining into the Schuylkill River. As the trail leaves this wide open area, it runs through another rock cut. The bedrock again rising above the trail, strangled in vines and invasive species, with sharp rock outcrops peeking through the vegetation.

SUMMARY OF MAINTENANCE ISSUES

- Abundance of unused spaces are a drain on maintenance staff and budgets;
- Split rail fence will require annual maintenance;
- Split rail fence hinders mowing and can act as a trellis for vines;
- Rock outcroppings are overgrown with weed trees and vines.

RECOMMENDED MAINTENANCE STRATEGY

- Eliminate unusable remnant spaces by redefining the edge of the natural areas with fencing, shrub rows or other means, allowing the remnant space behind them to be reclaimed by nature. Where wild or unkempt vegetation abuts these areas, continued maintenance of plantings may be unsustainable. In these cases, it may be best to beautify and maintain the edge, but let nature take its course beyond the edge. Stone walls or shrub rows could be used in these areas to redefine edges.
• Similar to Segment 3, Segment 4 also has heavy maintenance requirements due to regular mowing of many areas which have no identified use. These unusable remnant spaces should be eliminated through heavy tree and shrub plantings, implemented and maintained by the FOCHT. These plantings should be coordinated by the Township and FOCHT.

• Provide educational or informational signage to demonstrate the importance of wet area or other naturalized plantings. The trail will feature many areas of naturalized plantings which may not appeal to everyone. However, by posting educational or informational signs, the public can learn why these plantings are so important. Interpretive signs should be designed to match

other interpretive signs along the trail. Simpler, temporary signs may also be used to inform the trail users of projects in progress, such as habitat restoration or meadow establishment.

• Invasive species cover much of the rock outcrops. However, the presence of invasive species doesn’t appear to affect the trail experience for most users. Additionally, as no part of the trail features pristine ecosystems, the presence of the invasive species does not present an immediate threat to other resources. Therefore, removal of invasive species may not be a high priority in this area.

• Invasive woody plants should be removed carefully, so as not to damage the rock outcrops. Small trees and shrubs should be cut, leaving small stumps and roots intact. The stumps should then be sprayed with a stump killing herbicide. Vines and herbaceous materials can be pulled by hand. Where hand pulling may damage the rocks, volunteers should be trained to cut large stems and leave the roots intact.

• New plantings should be coordinated to follow invasive species removal. When large patches of invasive species are removed, but replanting doesn’t follow it, the invasive species will grow back. This essentially undoes the removal work. These rocky areas can be replanted with vigorous native vine and fruiting bramble species such as Virginia creeper, raspberry, and blackberry. These species which will root and spread aggressively, thereby helping to reduce erosion. The berry producing species will also provide food for birds, small mammals and people.

• When replanting on the rocky areas, the addition of clean planting soil to some of the crevices may be needed to encourage establishment of new plantings. While some vigorous native plants, such as Virginia creeper, may not need much soil, other more ornamental species, such as little bluestem, may benefit from additional soil.
Segment 5: Connelly Spur North
Entrance to Manayunk Bridge

Like any trail, the Cynwyd Heritage Trail is all about movement. Whether its recreational runners and walkers going end to end, cyclists using the trail as a segment of the circuit, or children spilling out of Bala Cynwyd Park on scooters, the trail is alive with constant motion. But the stretch of trail between the Connelly site and the Manayunk Bridge is different. This segment invites users to stop and enjoy the emerging view of Manayunk’s many church steeples rising above the skyline and the river below. With the continuing development of Venice Island, this area will become even more alluring during events.

While the views to Manayunk are interesting, I-76 rests between the trail and those views, a corridor of concrete, billboards and traffic, spewing exhaust and noise. A split rail fence separates the trail from a steep drop below, but does little to separate the trail visually from the highway. Undefined grass areas await further design and programming, while the hillsides above erode and drop soil and rocks down into the open spaces.

The same topography which creates the views outward from the trail also provides one of the few opportunities for views of the trail from the surrounding landscape. While the trail itself is difficult to see, drivers on I-76 and users of the Schuylkill River Trail in Manayunk have clear views to the large wall which supports the Cynwyd Trail above. This wall is currently covered in graffiti, but obscured by unmanaged vegetation and soil piles.

SUMMARY OF MAINTENANCE ISSUES

- Split rail fence will require annual maintenance;
- Split rail fence hinders mowing and can act as a trellis for vines;
- Turf areas lack distinct edges;
- Steep cut hillside above sitting rocks is difficult to maintain and will lead to erosion;
- The steep slopes leading down from Westminster Cemetery are eroding and dumping debris onto the trail side;
- The small basin lacks a defined edge, which makes the boundary of maintenance appear arbitrary.
RECOMMENDED MAINTENANCE STRATEGY
The existing split rail fence at the top of the slope above I-76 will require annual maintenance throughout its life. Posts and rails will naturally rot over time and may be further damaged by vines or other vegetation. The fence could be replaced with a stone wall, which would be much more expensive to build, but should require less annual maintenance. A stone wall would also block some noise from I-76, as well as obscuring the view to the highway below.

- Plantings such as low growing shrubs (compact inkberry) or grasses (little bluestem) should be planted in front of the fence if it is to remain. This would also help block the view to the highway. These plantings would need ongoing maintenance as they would not be able to naturalize.
- Eliminate some unusable remnant spaces by redefining the edge of the natural areas with tree and shrub plantings, allowing the remnant space to eventually be reclaimed by nature.
- This area features lawn areas, which are incorporated in the design strategy described in Chapter IV. These lawn areas should be replanted with low growing turf grass. However, this installation may depend greatly on the availability of water and should only be undertaken if water can be made available.
- Small stormwater management features exist in this area. They are unobtrusive, but lack a defined edge, which can make them appear messy or unmanaged. The basins in this area could be edged with low stone walls, spaced to allow small animals as well as stormwater to pass through them. Walls, fences or loose stone rings would all require additional weed whacking. This additional maintenance may make a defined edge less desirable. In this case, the areas surrounding the basins could be further naturalized with meadow grass plantings. The Township should also work with Westminster Cemetery to address stormwater running onto the trail property, possibly through the creation of rain gardens on the cemetery property.
- The stone seating area is a great amenity which will be used more frequently once the Manayunk Bridge opens. The seating area may be used by trail users who need a moment to orient themselves after coming over the bridge. It may also be used for view fireworks from across the river, or listening in on a concert at Venice Island. However, it appears that one level of seating could be eliminated. The top row could be replanted with grasses or shrubs to provide an edge with the natural areas above. The remaining rows should be reseeded with low mow turf grass.
- This segment provides trailside areas which are not directly beneath the overhead wires. Some areas could be planted with flowering trees to provide shade and interest. Species may include dogwoods, serviceberries, redbuds or other native or non-invasive species. A combination of flowering trees and shrubs may be used to naturalize some areas, reducing mowing over the long term.
- This area is described further in Chapter IV.

Segment 6: Manayunk Bridge to Belmont Woodland Edge
The segment of the trail between the Belmont Woodland and the Manayunk Bridge can be considered a transitional zone. At one end, the wide open Manayunk overlook, at the other end, the Belmont woodland. The area in between is relatively undefined, with a low rock outcrop jutting up on the uphill side, and a flat grassy area on the downhill side. The grass area is a blank slate, which permits unwanted views to the underside of the Manayunk Bridge as well as down to the Norfolk Southern railroad tracks. Planting flowering trees and shrubs in this area can create a transition between the mature forest and the sunny areas, as well as provide an edge for maintenance and some definition to the downhill side of the trail corridor.

SUMMARY OF MAINTENANCE ISSUES
- The trail corridor lacks a defined edge on downhill side, leading to messy look at edge of mowed areas;
- Remnant lawn area is an unnecessary drain on maintenance staff and budgets;
- An abundance of railroad and PECO structures hinder efficient mowing;
- The rock outcrops are covered with vines and invasive species.
RECOMMENDED MAINTENANCE STRATEGY

• The open grass area between the Manayunk Bridge area and the woodlands is a continually mowed, yet unused area. This is an area that can either be planted, or simply mowed less. To mow less of this area would permit grasses (and most likely invasive species) to take over most of the existing turf grass. A strip of grass 3–6 feet wide should be mowed along the trail side to maintain a crisp edge.

• A more intensive approach to addressing this area could include installation of a combination of walls, large stones, berms and flowering tree and shrub plantings. This stretch could be maintained as a formal planting area, which would require a great deal of ongoing maintenance, or be permitted to naturalize over time, reducing maintenance in the long run.

• Similar to the other trail segments, invasive species cover much of the rock outcrops. However, the presence of invasive species doesn’t appear to affect the trail experience for most users. Additionally, as no part of the trail features pristine ecosystems, the presence of the invasive species does not present an immediate threat to other resources. Therefore, removal of invasive species may not be a high priority in this area.

• Invasive woody plants should be removed carefully, so as not to damage the rock outcrops. Small trees and shrubs should be cut, leaving small stumps and roots intact. The stumps should then be sprayed with a stump killing herbicide. Vines and herbaceous materials can be pulled by hand. Where hand pulling may damage the rocks, volunteers should be trained to cut large stems and leave the roots intact.

• New plantings should be coordinated to follow invasive species removal. When large patches of invasive species are removed, but replanting doesn’t follow it, the invasive species will grow back. This essentially undoes the removal work. These rocky areas can be replanted with vigorous native vine and fruiting bramble species such as Virginia creeper, raspberry, and blackberry. These species which will root and spread aggressively, thereby helping to reduce erosion. The berry producing species will also provide food for birds, small mammals and people.
• When replanting on the rocky areas, the addition of clean planting soil to some of the crevices may be needed to encourage establishment of new plantings. While some vigorous native plants, such as Virginia creeper, may not need much soil, other more ornamental species, such as little bluestem, may benefit from additional soil.

Segment 7: Belmont Woodland
Edge to Belmont Trailhead
At the Belmont Avenue end, the trail feels like a different place. As the trail winds around and cuts into the hillside, mature beeches, oaks and maples shade the trail from the slopes above and younger trees buffer Belmont Avenue, below. This segment is shaded, secluded and quiet. One could mistake it for a woodland path.

SUMMARY OF MAINTENANCE ISSUES
• Bare soil exists on the berms, which will eventually be overrun by invasive plant species;
• Leaves and debris build up quickly and collect against the fence;
• Invasive tree species make up a significant portion of the canopy north of the trail.

RECOMMENDED MAINTENANCE STRATEGY
• The berms along the trail sides have not yet been overgrown with vegetation. This is likely due to the heavy shade cast by the surrounding mature canopy trees. The shade has provided a reprieve from colonization by invasive species. However, it is only a matter of time before shade tolerant invasive species, such as ailanthus or garlic mustard, take over the bare soil. Additionally, the bare soil is not a particularly attractive trailside. These areas should be planted with shade tolerant native (or non-invasive) herbaceous species, such as ferns.

The berms along this section of trail are bare and should be planted with shade tolerant native species before invasive species get established.

 segments, removal of these trees should not be a high priority, but could be included in a larger rehabilitation, planting or development project. Should these invasive trees be removed, the area should be replanted with low maintenance, understory trees and shrubs such as dogwoods, serviceberries, redbuds and spicebush.

• Due to the presence of the mature forest, debris such as branches and leaves build up in this area at greater rates than on the rest of the trail. They tend to gather along the split rail fence along the curve in the trail. When these leaves get wet, they can be extremely slippery and
dangerous for runners and cyclists. Leaf and debris removal, particularly along the fence, should be incorporated into spring and fall workdays and other regularly scheduled maintenance events. Pickup of bagged or piled debris should be coordinated with public works or park staff.

Maintenance Issues for All Segments

TRAILSIDE GARDEN AREAS

Neighbors whose properties abut the trail can have a special relationship with the trail and its users. The trail can be a social space, a place to chat with other neighbors, like a backyard sidewalk. It can be quick and easy access to a nice place to walk or run. And it can be a place to show off their backyard gardens. But the trail can also mean some diminished privacy and some unwanted interactions with other people and their dogs. The neighbors are vital to the success of the trail, as they can act as eyes on the trail, helping to deter vandalism, littering or other disturbances.

These neighbors have the opportunity to address the issues above through the treatment of their backyards. Some have elected to erect fences to preserve their privacy. Some have constructed entrances and steps to provide them with private trail entrances. Still others have chosen to do nothing.

The areas between privately owned rear lot lines and the edge of the trail surface are in some ways a “neutral zone.” Lower Merion Township owns this area as it falls within the CHT parcel. However, many neighbors have expanded their gardens into this area. This arrangement can be a win-win situation for the township and the neighbors. Where neighbors decide to “adopt” these areas, they can enjoy an expanded garden. This is less area for the Township to maintain, saving time and money. However, some guidelines for planting and maintenance of these areas are also necessary.

DELINEATION

No formal survey has been conducted during the life of the Cynwyd Heritage Trail project. In the absence of detailed site boundary information, it suits the Township to assume responsibility for the swales and steep slopes along the sides of the trail corridor.

PLANTING AREAS

The areas between rear yards and the trail typically contain an upper flat area and a steep slope which terminates at a swale. Residents and the township should collaborate on planting the upper flat areas with flowering trees and perennials, while the slopes should be planted with low maintenance shrubs. Residents should not be permitted to plant, cut or remove plants within the swales.

Upper Flat Areas

The upper flat areas, which can be viewed as extensions of the backyards, should be planted with flowering trees and/or perennials. One or two flowering trees coupled with low to medium height perennials will preserve the views from the backyards down to the trail. The flat areas should also be relatively easy to maintain. Flowering trees should only be planted where no overhead power lines exist. This may change from property to property.

Steep Slopes

The steep slopes should be planted heavily with flowering shrubs. The shrubs will provide habitat and food for birds and other animals, while their flowers and fall leaves will add some color to the trail in multiple seasons. The shrubs should be planted closely to each other, with only approximately 2.5–3 feet of separation and permitted to grow together as they mature, pruned only to eliminate any dead wood. As they form solid masses, they should suppress the weeds beneath them and require little regular maintenance. This is especially important on the steep slopes, where maintenance will be more difficult.
ACCESS
Many neighbors have created private entrances to the trail which may affect the steep slopes, cause erosion and lead to issues within the swales. As these access ways are located on property leased and maintained by the Township, they should be constructed to Township ordinance standards and should not interfere with stormwater management. Homeowners shall consult with the Parks and Recreation Department prior to constructing entrances.

Recommended Plants for Adjoiners to CHT

FLOWERING TREES
Downy serviceberry (Amelanchier arborea)
Eastern redbud (Cercis canadensis)
Flowering dogwood (Cornus florida)
Green hawthorne (Crataegus viridis)
Musclewood (Carpinus caroliniana)
Shadblow serviceberry (Amelanchier canadensis)
Sourwood (Oxydendrum arboreum)
Wild plum (Prunus americanus)

SHRUBS
Arrowwood viburnum (Viburnum dentatum)
Bayberry (Myrica pensylvanica)
Black chokeberry (Aronia melanocarpa)
Elderberry (Sambucus canadensis)
Fragrant sumac (Rhus aromatic)
Highbush blueberry (Vaccinium corymbosum)
Inkberry holly (Illex glabra)
New Jersey tea (Ceanothus americanus)
Oakleaf hydrangea (Hydrangea quercifolia)
Red chokeberry (Aronia arbutifolia)
Scarlet elder (Sambucus racemosa)
Spicebush (Lindera benzoin)
Witch alder (Fothergilla gardenii)

PERENNIALS
Black-eyed susan (Rudbeckia hirta)
Blue flag (Iris versicolor)
Golden alexanders (Zizia aurea)
Long bracted wild indigo (Baptisia bracteata)
Mountain mint (Pycnanthemum virginianum)
Purple coneflower (Echinacea purpurea)
Rose verbena (Glandularia canadensis)
Square stemmed monkey flower (Mimulus ringens)
Sundrops (Oenothera perennis)
Turtlehead (Chelone glabra)

GRASSES
Hairawn muhly grass (Muhlenbergia capillaries)
Prairie dropseed (Sporobolus heterolepis)
Switchgrass (Panicum virgatum)
Swales

ISSUES

The swales alongside much of the trail present a challenge, in that they should be aesthetically pleasing, but must also function to convey water away from the trail. For this reason, no woody plants can be planted in the swales, as they slow the flow of stormwater and occupy too much space within the volume of the swales. Conversely, with only turf grass in the swales, erosion and sedimentation becomes an issue due to fast moving water.

RECOMMENDATIONS

- Provide educational signage which explains the role of the swales as well as the work done by plantings to slow the flow of water, encourage groundwater recharge, and reduce erosion and sedimentation of area streams.
- Identify swale sections which are eroding and plant large drifts (10–20 feet in length) with plugs of wet tolerant spreading perennials such as iris, sundrops, turtlehead, and monkey flower. Plugs should be planted closely, 6" on center. This treatment may also be appropriate in high visibility areas, adjacent to other planting projects.
- The planted drifts will require hand weeding and should be taken on as a planting project, with planned ongoing maintenance.
- The remainder should be maintained as a strip of tall grasses, to be trimmed twice annually to a height of 8–12". Trimming or mowing should take place once in the spring, prior to April 1st and again in late summer, after mid August.
- The tall grass swales should be identified with signage, explaining their role in stormwater management and bird and animal habitat.
Invasive Species

Like many disturbed sites in suburbanized areas, the Cynwyd Trail is home to numerous plants which are considered invasive species in Pennsylvania. These plants provide little in the way of food for our native animal and insect species. Some of these species are particularly aggressive and can form monocultures, pushing out less competitive species. These plants should be removed and replaced with native (or at least non-invasive) species as opportunity permits.

Invasive plant removal can take place on many different scales. Individual trail users can be empowered to simply pull and discard saplings of easily recognizable species such as ailanthus. In other cases, where bamboo or knotweed has taken over larger areas, a full day of volunteer work may need to be dedicated to its eradication. Additional measures such as the application of herbicide or use of large mechanical equipment may be necessary as well. In these cases, it is extremely important that the area be replanted soon after removal of the invasive species. Otherwise, the invasives will likely return.

Over 20 different invasive species can be found along the Cynwyd Heritage Trail. Total eradication of all of these invasive plants is highly unlikely. Removal of invasive species should be coupled with implementation of new projects, as well as on an ongoing basis. The appendix contains fact sheets produced by PA DCNR which profile twenty of the most prolific invasive species in Southeastern PA, all of which can be found on the trail. These fact sheets can be printed and distributed to volunteers on work days or posted on information boards along the trail to help visitors identify the invasive plants.

The five invasive species most prominently found along the trail include:

1. Japanese knotweed (Fallopia japonica)
2. Bamboo (Phyllostachys sp.)
3. Japanese angelica tree (Aralia elata)
4. Tree of heaven (Ailanthus altissima)
5. Mimosa (Albizia julibrissin durazz)

Many of the other invasive species found along the trail, such as butterfly bush, barberry, burning bush, and English ivy, are commonly found in gardens and landscapes across the region. Using these easily recognizable plants as examples may make it easier to convey the message that non-native invasive plants harm our native landscapes.

Please see the fact sheets in the appendix for further details regarding invasive species, including information about proper removal.

Conclusion

The Cynwyd Trail is essentially a nearly two-mile long park, requiring all the mowing, weed whacking and routine maintenance of any typical park. The stewardship and maintenance plan aims to lessen the amount of required maintenance by giving some areas back to nature, creating some new low maintenance areas and moving some edges. The Park and Recreation Department is managing the maintenance of the trail well, but by following the recommendations of the plan, their workload can be lessened over time.
Introduction

The Cynwyd Heritage Trail is a great resource for runners, cyclists, walkers and families, as it provides a safe place to run, ride, walk and simply enjoy the outdoors. It is also dotted with interpretive signs, appealing to the local history buffs. The vegetation, wildlife and diverse bird populations draw nature enthusiasts. But the trail still has the potential to be much more.

There are many opportunities for the trail to support additional features such as plantings, gathering areas and exercise clusters. Certain portions of the trail can be improved to better live up to their importance as gateways and connectors. Other trailside spaces currently tread water, completely undeveloped, waiting for a better use. Still other areas have begun to be developed, but need finishing touches to bring them to their full potential. This chapter explores the land along the trail which can be transformed merely from leftover spaces to beautiful places.

Concept

GOAL

To provide a blueprint for continued beautification, creation of places, and provision of amenities in a sustainable manner that meets the needs of Lower Merion Township, the Friends of the Cynwyd Heritage Trail, the trail’s users and neighbors.

OVERALL STRATEGIES

1. Repurpose unused, remnant spaces, and improve existing spaces in order to create gathering places, themed gardens, recreation areas and other appropriate trail side uses.

2. Create an integrated series of places along the trail, by incorporating similar building and plant materials into new projects and those already in progress.

3. Provide opportunities for alternative forms of programming, which may attract new visitors to the Cynwyd Heritage Trail.

Project Classification

Thirteen different design projects are described in this chapter. While they are all worthwhile, some are more important than others. The projects which are most important will be referred to as “Keystone Projects” (see below). These are projects which can have a profound impact on the trail. The effects of these projects may be direct, as in the case of beautification of a highly visible area, or more indirect, such as provisions which will lead to more efficient maintenance or volunteer efforts.

Projects of high importance, but secondary to the Keystone Projects, are referred to as “Priority Projects” (see below). These are projects of relatively high visibility, or are important for other reasons, such as reducing the current maintenance levels or improving a deteriorating condition.

The remaining projects are referred to as “Opportunity Projects” (see below). These are worthwhile projects which largely focus on aesthetics. These projects should be undertaken as opportunities arise such as availability of funding, volunteers, or professional services which would apply directly to the project. While the Keystone and Priority projects should be considered for implementation first, the Township and FOCHT may discover instances where it is appropriate to undertake implementation of Opportunity Projects prior to completion of all of the Keystone and Priority Projects.

The narrative sections which follow include a total estimated cost for each described project. Detailed cost estimates are included in the appendix of this report.

Infrastructure

Access to water and electricity would greatly benefit the 13 projects described in the report. Planting projects, including low mow turf installation, previously installed along the trail may have failed due to lack of access to water. Access to electricity would expand the range of uses for the proposed gathering spaces. It could also allow for easier maintenance, as electric powered equipment could be used. As the Cynwyd Trail is surrounded by suburban development, each proposed project should be able to access services.
Cost Allocations

Further development of the trail will require financial partnership between Lower Merion Township and the Friends of the Cynwyd Heritage Trail. Grant funding may be utilized to help offset some costs, likely no more than 50%, as match is typically required. The Township should expect to fund capital improvements, infrastructure and additional trail segments, using grant funding as it is available. Costs for development of the Keystone, Priority and Opportunity Projects described in this chapter should be shared between the Township and the Friends, at rates described in the accompanying infographic. The Township should continue to fund general maintenance in order to keep the trail safe and operational, but the Friends will plan to maintain their existing and future projects. The total cost of all Keystone, Priority, and Opportunity Projects, plus a redesign in Segment 6 and striping the trail, is approximately $930,000.00.

Keystone Projects

BARMOUTH STATION TRAILHEAD

The Barmouth Station Trailhead parking area was identified at the public meeting as the most frequently used access to the trail. The driveway to the parking lot provides a nice entrance, shaded by the tall trees on the hillside above. Curves in the driveway hide the clear view of the trail which unfolds against the rows of black-eyed susans and grasses planted by the FOCHT at the edge of the parking lot.

This area could be a victim of the trail’s success. As the trail becomes more and more popular, undergoes further development and is the site for more events, demand for parking will grow and the small lot will become crowded, with cars strewn about the edges of the woodlands. Aside from being a vehicular entrance, pedestrians can access the trail here from East Levering Mill Road, as well as from West Laurel Hill Cemetery,
which has provided an access easement, welcoming trail users onto their grounds. The Barmouth Station Trailhead is a hub of activity and may require further development in order to avoid being loved to death.

This area is considered a Keystone Project, as it can provide a home to the Friends of the Cynwyd Heritage Trail and other volunteers. It can become a hub for volunteer activities. It can be a place where small meetings can be held, materials can be kept and tools can be stored. It can be the heart of volunteer activity on the Cynwyd Heritage Trail. Neighboring properties also provide opportunities for further expansion through lease, acquisition, or other agreements.

Additonal parking may be needed to accommodate trail users.

A cargo container could be converted into an office and storage space for the Friends and Township.

The area in front of West Laurel Hill Cemetery could be improved to better serve trail users.

Materials such as mulch can be stored near Barmouth to make it easy for volunteers to use.

Summary of Existing Conditions

- Major intersection: Barmouth Station parking and driveway, West Laurel Hill Cemetery entrance both connect to the trail here;
- Wider space than much of the trail corridor;
- Underutilized lawn space in front of cemetery;
- Parking area for approximately 15 cars;
- Beautiful plantings already installed;
- FOCHT equipment trailer tucked into woods at the edge of the driveway;
- Soft and paved surface trail;
- Minimal improvements on entrance driveway.
Recommended Design Strategy

Phase I (Driveway Side of Trail)

• Establish the Barmouth Station area as a headquarters for volunteers, including FOCHT. This area can be used as a place to store tools, hold meetings, prepare the food and drinks for events and store materials such as mulch. This location provides easy vehicular access, access to water, parking and close proximity to the trail.

Improvements could include:

º Replacement of the existing storage container with a custom prefabricated unit including features such as a bathroom, small office, a deck, a roofline, windows and doors and connections to water and electricity, similar to modern prefabricated housing;

º Extension of electricity, water and sewer access down from Levering Mill Road to serve a semi-permanent building or trailer. This would permit the establishment of bathrooms and a kitchen for volunteers.

º Provision of additional parking off of driveway either through additional pull off spaces or an additional, fully engineered terrace of spaces above the existing driveway. These spaces can serve the volunteers as well as the public.

º Provision of storage areas for materials such as mulch and compost. Enabling the volunteers to have easy access to materials, on-site, will allow them to carry out small maintenance tasks (such as mulching or composting) without additional assistance from the Parks Department or Public Works.

º Replacing the existing split rail fence with a stone wall to match the character of the cemetery wall and further screen the parking area.

• Beautify and improve the existing driveway to meet the standards of other park entrances. The driveway currently functions well enough for vehicles, but doesn’t serve pedestrians or cyclists particularly well. The driveway can be beautified and made safer for trail users by:

º Providing entrance plantings and park signage along the driveway. These amenities should alert visitors that they are no longer on East Levering Mill Road, but that they have just entered one of Lower Merion Township’s premiere parks. Native or non-invasive understory species, such as viburnums, spicebush, redbuds and dogwoods should be planted along the driveway.

º Managing the existing vegetation. The existing woodlands above the driveway would need further care to maintain a healthy forest as an entry feature for the park. This may include removal of vines and invasive species. Additionally, other recommended improvements (such as additional parking) may necessitate tree removal and additional management.

º Extend the sidewalk along the driveway. The trail is a great amenity for runners and walkers, but the driveway leading down to the trail is not particularly pedestrian friendly. A sidewalk exists along Levering Mill Road above the driveway, but ends at an adjacent property. This sidewalk should be extended down the driveway. This may require additional engineering studies to due to the existing slopes in the area.

º Extend a stone wall along the sidewalk to match those nearby. Where the sidewalk exists on a neighboring property, it is abutted by a low stone wall. This wall could be extended along the sidewalk to provide a nice entry feature. The wall could be built with some voids near the ground to allow small animals to pass beneath it.

º Mark the driveway with sharrows. The trail is well loved by cyclists, but the driveway doesn’t make special provisions for their safety. The most cost effective way to make sure that motorists share the road is to paint “sharrows” on the pavement (pictured below).

• Explore opportunities for acquisition, lease or other agreements to allow the Township to expand the footprint of this area.

Rough Cost: $160,000.00
Phase II (West Laurel Hill Side of Trail)

- Raise the profile of the grass area. This lawn is currently underused, possibly because it doesn’t stand out and isn’t particularly inviting. The grass currently looks like a remnant area, rather than a gathering space. This area has the potential to be used for activities such as picnicking, sunbathing or reading. Some minor improvements can upgrade this space to make it more appealing. Recommendations include:
  - Build a low sitting wall on the edge of the grass area and raise the grade of the lawn behind it, creating an elevated lawn. This low wall will better define the grass area as a designed and created place, rather than a remnant. This will lead people to use the space more.
  - The low sitting wall should incorporate the existing ruins, to create a semi-circular notch in the wall. Above the semi-circle, a trellis, sail, or similar structure could be erected. This would provide shade, as well an overhead plane to better define this space as a small sitting area.
  - Use fill which may be available from other areas of the trail, where it was previously dumped to create berms. Unscreened fill should be topped with a layer of clean topsoil adequate to support turfgrass.
  - Extend water to the lawn area and install a sprinkler system to keep the lawn watered. Install a hose bib nearby as well to allow for hose hook-up or bucket filling.

Rough Cost: $40,000.00
(See Appendix for detailed estimate)

BELMONT AVENUE TRAILHEAD

Trailheads provide the first impression of the trail and are the most visible areas. A well designed and managed trail head may be what entices visitors onto the trail. Therefore, trailheads are important to all trail projects. Revitalization of the Belmont Trailhead, particularly the proposed garden area, is a relatively simple project which can be largely carried out by volunteers. This project may be considered a low hanging fruit.

The Cynwyd Trail has four major entrances: the Cynwyd Station, the Barmouth Station Trailhead, Bala Cynwyd Park and Belmont Avenue. Of these entrances, only Belmont Avenue lacks landscaping and other amenities. With a new parking area planned at the CVS site and an expected increase in use, the Belmont Avenue trail head should be improved to the standards set at the other trail entrances.

Unlike the other trail entrances, graced with open spaces, the Belmont Avenue entrance empties directly onto the sidewalk. The area surrounding the Belmont entrance is also undergoing redevelopment with the vacant lots across the street to house a CVS and a condominium complex. Such development may spawn redevelopment of the older small businesses such as the gas station, dry cleaner and auto body shops. The combined Lower Merion redevelopment and Manayunk access from the Green Lane Bridge warrant a well functioning and welcoming entrance at the Belmont Trailhead.
Summary of Existing Conditions

- Trail connects to sidewalk;
- Unmaintained plants between trail and sidewalk;
- Two kiosk style trailhead signs—one wooden and one new metal—exist in the area;
- One CHT numbered marker sign sits along the trail;
- The area between the trail and the sidewalk is supported by a wooden retaining wall which is rotting and failing;
- The gas station wall meets the wooden retaining wall;
- Split rail fence stands above the gas station wall;
- Yellow traffic style bollards keep vehicular traffic off the trail;
- Belmont Avenue, a very busy street, abuts the trailhead; and,
- A traffic signal pole and control box infringe on the sidewalk.
RECOMMENDED DESIGN STRATEGY

- Extend water into garden area from adjacent gas station property or main in Belmont Avenue. Install sprinkler system in garden and hose bib nearby. This will permit easier maintenance of trailhead plantings.

- The existing wooden retaining wall should be replaced with large boulders or a stacked stone wall. These materials should require less maintenance over time, will better match the materials used locally and will make for a nicer entrance feature.

- The existing grass area between the sidewalk and trail should be replanted as a woodland garden. This garden should be more naturalized than other plantings along the trail as it should gesture to the surrounding woodlands. Species should include rhododendrons, ferns, mayapples, mountain laurels, and other woodland species.

- Flowering understory trees could be planted on the uphill side of the trail to add another layer of color and texture to the trailhead garden. Colorful spring flowers and fall foliage would help identify the trail entrance.

- The tall retaining wall behind the gas station is owned by the Township and presents opportunities for beautification. The wall could be refaced with stone to match materials found along the trail or be painted with a mural or other messaging which calls out the location of the trail.

- The Belmont Avenue trailhead functions both as an intersection and as a turnaround point. Many trail users will enter here, but many others will approach this trailhead from the trail, reach Belmont Avenue and turn around to proceed back towards Barmouth. Stopping to turnaround can be inconvenient for runners and cyclists. When the trail is busy, it can also be dangerous. Up the trail, above the proposed trail head garden, a loop could be provided so that visitors don’t need to stop in place to turn around.

- This trailhead may act as a natural resting or gathering place. Amenities such as benches, maps, kiosks, and signs should be provided. As this area is close to CVS, Wawa and Lee’s Hoagie House, it may also be a good place to provide tables at which trail users can sit and enjoy a snack or drink.

Rough Cost: $25,000.00
(See Appendix for detailed estimate)

MANAYUNK BRIDGE TRAILHEAD

For trail users coming over the river from Manayunk, the area at the foot of the bridge will be their first impression of not only the Cynwyd Heritage Trail, but of Lower Merion Township as well. This area is important as a trail intersection, a connection to the Circuit and the region, but also as a gateway, a welcoming space and a place that lets visitors know that they’ve arrived in Lower Merion Township.

Summary of Existing Conditions

- Rock seating rows;
- Underutilized lawn spaces;
- Views to Manayunk;
- Split rail fence above steep dropoff;
- Existing interpretive signs;
- Small basins; and,
- Views through fence to I-76.

Recommended Design Strategy

- Use stone walls similar in character to cemetery walls as defining gateway feature. These will contrast sharply with the industrial character of the proposed Manayunk Bridge trail segment, as well as with the character of other trails in Philadelphia. The use of stone will help to announce that visitors have arrived in Lower Merion.
  - Replace the split rail fence with a stone wall to block some views and sound from I-76;
  - Use a curvilinear wall to frame the west side of the entrance in conjunction with pillars or other features; and,
  - Plant grasses such as little bluestem along the walls to add beauty as well as to gesture to the meadow plantings at Barmouth Station.

- Provide plantings at the entrance to enhance the gateway.
• Raise the lawn with a stone retaining wall. Similar to Barmouth Station, the grass area here appears to be an undesigned remnant area. A better defined edge and understated design features could vastly improve this space and make it more inviting. A low wall will provide seating as well as formalize and define the space. Visitors entering the trail from Philadelphia will likely stop here to orient themselves to the Cynwyd Trail, catch their breath, or enjoy the views to Manayunk. It is important to provide a space which draws them off the trail, so as not to create congestion. Placement of a water fountain, kiosk, maps and other information within the grass area can help accomplish this.

• Replace turf with a low grow variety. If a retaining wall is constructed, fill and topsoil will be needed to raise the lawn behind.

• Water will need to be provided at the site for use by trail users and to maintain plantings. Water should be extended from the Westminster Cemetery buildings or from Belmont Avenue. A sprinkler system should be installed along with hose bibs and soaker hoses.

• Use walls, trees and shrubs to block some view of steel pillar bridge supports. This concept is described in greater detail in Chapter 3, Segment 6 of this report.

• Provide some traffic style signs or other visual cues such as pavement markings to encourage all users to slow down and be alert in this area as two major trail segments merge. All way yield signs may be best to encourage trail users to slow down and be aware of others.

• Extend electricity from the Westminster Cemetery buildings or from Belmont Avenue. Electricity provides opportunities for trail lighting or security lighting. It will also allow for enhanced events, which may require electricity.

Rough Cost: $100,000.00
(See Appendix for detailed estimate)
Priority Projects

BALA CYNWYD PARK ENTRANCE AREA

Bala Cynwyd Park and the Cynwyd Heritage Trail complement each other with the park providing services such as parking, restrooms and water to trail users; and the trail another amenity available to park visitors. Kids who come to the park to play at the playground can get more exercise by using their scooters on the trail. Parents who bring their kids along on a run or ride on the trail can give them a break from their strollers at the playground. Visitors to the park frequently spill out onto the trail and vice versa. This special connection between the two places functions nicely as it is, but can be made safer and more beautiful with a few tweaks.

Summary of Existing Conditions

- Much of the park is screened and not very visible from the trail;
- A paved trail leaves the park, crosses the soft surface trail and connects to the asphalt trail, creating a T-intersection;
- Backyards and fences line the trail on the opposite side of the park;
- The wetland garden is nearby, but not quite adjacent to the entrance;
- The existing park entrance is not celebrated.

Recommended Design Strategy

- The intersection between the park and the trail should be better marked and celebrated. This is a special area, where two great township amenities meet. The entrance could be enhanced with stamped asphalt, paint or other graphics to indicate the park entrance. Some bright and playful graphics would also alert CHT users that children may be present, so they should slow down and be alert. They would also alert Bala Cynwyd Park visitors that they are entering the trail and fast moving cycles, runners and dogs may be present. Graphics would also add a sense of whimsy and playfulness to a place dedicated to play!
- This area acts as an entrance to two connected parks. It should be beautified with plantings. Low growing perennials or shrubs should be used where
the trail intersects the park path, so as not to block sightlines at the intersection. Plantings should be provided along the fences on the opposite side of the trail as well—flowering or fruiting shrubs such as oakleaf hydrangea and highbush blueberry may be appropriate. Flowering perennials such as irises, should be planted in the swale on the opposite side in order to further beautify the area and contribute to stormwater infiltration.

- Bala Cynwyd Park features a naturalized garden along the stream. A less formal footpath could provide access from the CHT through the garden. This area provides many educational opportunities around stormwater management, the water cycle, the importance of wetlands and special wetland flora and fauna species.

- Provide sprinklers and soaker hoses to keep new plantings watered. The plantings on the park side can be watered by sprinklers which will also water the lawn. A water line should be extended beneath the trail to feed a hose bib with soaker hoses attached to water the proposed shrubs.

**Rough Cost: $12,500.00**
(See Appendix for detailed estimate)

**CONNELLY SPUR ENTRANCES**

Where the Connelly Spur meets the Cynwyd Heritage Trail, two very different experiences will intersect. The Connelly Spur will traverse steep slopes and rise up from the Schuylkill River, bringing visitors along the waterfront, beneath a highway and through riparian and hillside forests before joining the Cynwyd Trail. The continuous canopy and short sightlines on the Connelly Spur will be in stark contrast to the linear nature of the Cynwyd Trail, with its long views, and sunny, open areas. Trail users passing from one trail to the other will know that they are entering a different space, minimizing the need for major gateways, but necessitating wayfinding signage.

**Summary of Existing Conditions at the Southern Intersection Area**

- Adjacent to proposed Barmouth North meadow;
- Adjacent to West Laurel Hill Cemetery;
- Adjacent to hard and soft surface trail intersection;
- Existing interpretive sign related to historic resources nearby;
- Long stretch of split rail fence above the Connelly Tract terminates here;
- Earthen path diverges from Cynwyd Trail and forms current incarnation of the Connelly Spur.
Summary of Existing Conditions at the Northern Intersection Area

- The split rail fence above the steep slope at the Manayunk overlook, terminates nearby;
- A berm exists which may support the Connelly Spur as it approaches the Cynwyd Trail;
- A shallow swale exists along the Cynwyd Trail;
- The Cynwyd Trail curves in the area where the Connelly Spur will intersect.

Recommended Design Strategy for Both Entrances

- Understated gateways should be provided at each intersection. These may include stone pillars or wing walls to match the existing and proposed stone walls along the trail. If walls are used, they should be oriented to guide trail users towards the Connelly Spur.
- Woodland plant species should be used to landscape the gateways. Small clusters of three to five shrubs and small trees on either side of the Connelly Spur would be adequate. Shade tolerant species such as rhododendrons, mountain laurels and dogwoods would be appropriate for use at the southern entrance. Sun loving species such as redbuds, blueberries, chokeberries and arrowwood viburnum would be appropriate for use at the northern entrance.
- Information such as maps or wayfinding signs should be placed at these intersections. The Cynwyd Trail and Connelly Spur are very different in character. Visitors crossing from one to the other may be disoriented and need additional information.

Rough Cost: $6,000.00
(See Appendix for detailed estimate)
OVERLOOK AREA

The restored Cynwyd Station, overlook and interpretive signs celebrate the rich history of the Cynwyd Heritage Trail, and anchor the southern end of the trail. The first phase included interpretive sign installation and clearing of the area. The space appears unfinished, particularly the bare ground and berms, just waiting to be overgrown with grasses and invasive species. A few simple, yet effective additions would stabilize and complete the space.

Summary of Existing Conditions

- Three existing interpretive signs highlighting historic resources;
- The area overlooks I-76, some distant trees and some of Manayunk;
- The ground slopes down steeply from the edge of the overlook;
- A low berm exists at the edge;
- The berm is covered with low plants including vines;
- A few logs rest near the edge of the low berm;
- A CHT numbered marker sign exists in the middle of the overlook area;
- The ground has been cleared and the surface is bare soil with some scattered rocks;
- Large berms emanate from the edges, running along the trail sides; and,
- The overlook is difficult to see from the trail, hidden from approaching trail users.

Recommended Design Strategy

- Resurface the area with stone fines and a gravel base course to help define and finish the ground surface. This will also help keep down invasive species.
- Define the edge of the area with stone wall and remove the low berm, or plant low growing flowering shrubs between the low berm and the signs.
- Plant additional flowering trees, shrubs and ferns around the edge to further frame the space and outcompete invasive species.
- Manage vegetation on downhill slope twice annually with line trimmer. The existing vegetation on the slope grows up to a heights which block the views out.
- Lower the grade of the existing berms to provide better lines of sight in and out of the space, improve safety and visibility for visitors leaving and entering the trail or the overlook; and provide better integration of the overlook space with the trail.
- Remove the CHT numbered marker and relocate it to the edge of the area if necessary.

Rough Cost: $15,000.00
(See Appendix for detailed estimate)
Opportunity Projects

THE CYNWYD CLUB SEATING AREA

A safety requirement, a required turnaround for fire trucks, has been parlayed into an expansive, wide open space along the otherwise, narrow trail corridor. The turnaround, one of the very few formal spaces on the trail, presents an interesting contrast which should be embraced as a formal gathering area. Augmenting the existing benches, already provided by FOCHT, with more formal plantings, would distinguish the area as a gathering place to watch tennis at the trailside Cynwyd Club, or as a meeting spot along the trail.

Summary of Existing Conditions

- Circular area of soft surface trail, bisected by asphalt trail;
- Views into Cynwyd Club tennis courts;
- Flowering trees previously planted are being engulfed in overgrowth;
- Four benches on edge of circle facing courts;
- Lightly managed vegetation on either side of circle.
- Swales on either side of circle.

Recommended Design Strategy

- Partner with Cynwyd Club to install a large message board on the side of the building, which could be as simple as a chalkboard wall, used to share trail related information with the community;
- Plant all swales in the area with flowering perennials such as irises to beautify the area and contribute to stormwater infiltration.
- On the west of the trail, FOCHT has installed benches, which are a great start to establishing a seating area. The area behind the benches is mostly wild vegetation, with some trees planted. This area also could be improved through establishment of a defined edge. Where dense shrubs can be planted to shade out weeds, maintenance can be reduced over the long term.
  - A semi-formal hedge can be established by planting a single or double row of low growing evergreen shrubs such as inkberry holly “Compacta”.
  - The evergreen hedge could be backed with taller, flowering shrubs such as oakleaf hydrangea to provide additional interest and color.
° The flowering shrubs will also provide a transition between the semi-formal hedge and the more natural vegetation behind them, with the flowering shrubs eventually forming a shrub buffer.

• Extend a water line from the Cynwyd Station or from the Cynwyd Club. Install a hose bib with soaker hoses to keep plantings watered.

• On Cynwyd Club Side, the mowed turf grass permits views into the courts. This is one of the few places where other activity is visible from the trail. This area may be attractive for parents of the tennis players or other spectators. A strip of grass should be maintained between the courts and the top of the berm, but low growing, thicket forming shrubs can be planted beneath the existing flowering trees, to help keep weeds down, prevent erosion and still preserve views into the courts. Species such as common juniper “Blueberry Delight” may be appropriate.

Rough Cost: $30,000.00
(See Appendix for detailed estimate)

BALA CYNWYD PARK EXERCISE CLUSTER
Bala Cynwyd Park and the Cynwyd Heritage Trail provide visitors with opportunities for passive and active recreation through running, walking, cycling, and team
and individual sports such as tennis and softball. The space above the trail and adjacent to the playground blurs the boundary line between the park and the trail. This space can serve both users while filling a void in the park system. This location is ideal for the establishment of an outdoor fitness cluster.

A collection of outdoor fitness equipment would serve both the trail users and park visitors. Fitness buffs looking for cross training opportunities can combine running, walking or cycling on the trail, with strength training at the exercise cluster. Those participating in team sports in the park can use the exercise cluster equipment, such as stationary cycles or elliptical machines, to warm up or stay loose prior to or during games.

More importantly, an exercise cluster here can provide health and wellness opportunities to residents who either can’t afford a gym membership or who don’t have time to go to a gym. An exercise cluster in the park allows parents to exercise while their children attend baseball or softball practice. It allows parents of infants or toddlers to exercise while their children sleep in their strollers or play on the playground nearby and within sight. By keeping children close by while their parents are exercising, it can help to instill the values of a healthy lifestyle at a young age.

Outdoor exercise clusters also provide opportunities to seniors, or other residents, who may be intimidated by typical gyms. Outdoor clusters are typically a more casual environment, aimed at a more social experience. Neighbors can meet here and exercise together in the fresh air and comfortable surroundings of their neighborhood park, free of charge.

**Summary of Existing Conditions**

- Unused space between Bala Cynwyd Park and Cynwyd Heritage Trail;
- Often overgrown, but cleared as volunteers are available;
- Area is gently sloped, rising above the trail;
- Chain link fence separates this area from the park;
- Adjacent to the playground area and near the existing bathrooms;
- Existing trees between playground and exercise cluster area provide some shade;

**Recommended Design Strategy**

- Selectively remove some of the trees and the chain link fence to better connect the space to the adjacent playground. Proximity and connectivity to the playground is very important to placement of the exercise cluster. It is imperative for exercise cluster users to be able to see their kids playing on the playground.
- The water line which serves the nearby bathrooms should be extended to the exercise cluster, in order to provide an additional water fountain there.
- Some site work will be necessary to install the exercise cluster. An area of approximately 20 x 50 feet should be graded to a 2–3% slope.
- The flooring for the cluster area should consist of a resilient rubber surface underlain by a poured concrete slab.
- Five pieces of equipment are considered a good starter set. Packages of five pieces are available. Additional machines can be added. The 20 x 50 foot area accommodates five pieces comfortably.
- A low retaining wall can be installed on the uphill side of the pad to provide a resting area as well to facilitate the necessary site grading.
- An overhead shade canopy or trellis structure could be installed to provide some shade. While the structure shouldn’t make the cluster feel completely sheltered, some shade may help increase usage in the summer. Planted windbreaks may be considered to help extend use through the fall.

**Rough Cost:** $44,000.00
(See Appendix for detailed estimate)

**BARMOUTH STATION NORTH**

The area north of Barmouth Station offers a different experience than that found on the rest of the trail. The initial narrow corridor diverges with the soft surface trail entering the shady woods and Vine Creek, the asphalt surface remains exposed, offering sun on a cold day. While the invasive trees and mowed turf grasses look the same as the rest of the trail, the landscape lacks the steep, sharp rock cuts prevalent in other sections of the trail. Man-made, small, and gently sloped hills give the trail some feeling of enclosure. This area of trail, with its twisting trails and gentle slopes conveys a sense of movement and mystery.
Summary of Existing Conditions

- Slopes, hills, and swales: these man-made landforms give a comfortable feel to this open area;
- Weed trees such as ailanthus and paulonia have overtaken berms made from cut soil and debris;
- The hard and soft surface trails diverge, twisting through the landscape;
- Vine Creek borders the area;
- Some large, but unusable spaces;
- Some small and underused spaces.

Recommended Design Strategy

- Establish a meadow in place of the large, open mowed grass area. A meadow will provide numerous advantages over the existing turf grass. A mix of warm and cool season grasses and wildflowers will provide beauty and added interest for trail users. Meadow grasses will emphasize the openness of the area and the beauty of movement, as the grasses sway in the breeze.
- Meadows will also provide an additional habitat for birds and animals. Most of the trail is bordered by trees and shrubs. Meadow may provide opportunities to benefit additional species, such as ground nesting birds, raptors or small mammals. Tall grasses may provide long term habitat or
stop over areas during migration for birds which will only nest on the ground. Raptors such as native hawks and owls may also prefer to hunt in meadows. Meadows also provide excellent habitat and food sources for important pollinators, including native bees and butterflies.

• Meadow plantings can also improve the conditions of the swales and basins. The grasses will help reduce erosion and encourage infiltration. Additionally, the meadow grasses will effectively hide these wet areas. Wet and dry meadow plants will intermingle at the edges of the stormwater management structures.

• Maintain a mowed edge along the trail, keeping the meadow back 3–6 feet from the edge of the trail.

• The trail offers opportunities for group activities and other programming. As such, gathering areas should be established. Segment 3 holds the potential for establishment of gathering areas of various sizes, to serve many different purposes. Gathering areas should be planted with a low mow turf grass, or be mowed on a regular basis.

Gathering areas should be established as follows:

  ° One large gathering area on the flat area along the trail. This area would be surrounded by meadow on three sides and could be used for group picnics or similar gatherings.

  ° One mid-sized gathering area for birding or viewing events at the top of the hill. Many birders already use this area to watch the birds soaring over the Schuylkill River.

  ° The slope up to the top of the hill should also be considered a gathering area. The slope could naturally lend itself to seating. Small performances or movies could be held at the bottom.

  ° Where the Connelly Spur meets the Cynwyd Trail, small gathering areas should be established. These should be places where trail users can simply step off the trail to get their bearings or wait for their companions.

• Weed trees, including Ailanthus and Paulonia are prevalent in this area. As these trees don’t negatively affect the trail experience for most users, their removal may not be a top priority. However, should the wooded areas here be stewarded for improved habitat, these trees should be cut and their stumps should be removed or ground up. The area should then be replanted with native (or non-invasive) tree species. This trail segment offers one of the few opportunities for tree planting.

• Debris piles are prevalent in this area. In many cases, the invasive trees grow from the debris piles. These areas should be approached with some level of caution. While the required environmental studies were carried out in the early stages of trail development, it’s unclear what exactly is within the debris piles. In many cases, cinder blocks and other construction material is visible. If a major replanting or removal project is undertaken, removal of the debris piles should be included.

• The wide open area of Segment 3 provides great opportunities, but also brings heavy maintenance requirements. The current mowing regime includes mowing of many areas which have no identified use. These unusable remnant spaces should be eliminated through heavy tree and shrub plantings, implemented and maintained by the FOCHT. These plantings should be coordinated by the Township and FOCHT.

In some cases, it is possible to eliminate unusable remnant spaces by redefining the edge of the natural areas with fencing, shrub rows or other means, allowing the remnant space behind them to be reclaimed by nature. Where wild or unkempt vegetation abuts these areas, continued maintenance of plantings may be unsustainable. In these cases, it may be best to beautify and maintain the edge, but let nature take its course beyond the edge.

• Provide educational or informational signage to demonstrate the importance of meadow, wet area or other naturalized plantings. The trail will feature many areas of naturalized plantings which may not appeal to everyone. However, by posting educational or informational signs, the public can learn why these plantings are so important. Interpretive signs should be designed to match
other interpretive signs along the trail. Simpler, temporary signs may also be used to inform the trail users of projects in progress, such as habitat restoration or meadow establishment.

**Rough Cost: $25,000.00**
(See Appendix for detailed estimate)

**VINE CREEK IMPROVEMENTS**

Vine Creek, once integral to mills and industry, is a shell of its past self, channelized, eroded, and hidden behind walls of knotweed. Trail users who choose to stay on the paved path may never realize the creek is there. In some places it is hidden by vegetation, in others it is well below grade and finally it is piped. Restoring stream channels is a popular intervention, but it is one that is extremely expensive and very disruptive to the surroundings. In many cases, floodplain and channel restorations are ultimately unsuccessful. Vine Creek should be treated with a light touch. Rather than a major intervention, focus on making a slightly improved Vine Creek a wonderful trailside attraction.

**Summary of Existing Conditions**

- Stream is well below grade near Barmouth Station, making it difficult to access;
- Channel is eroded in some areas;
- Banks are overrun by knotweed and other invasive species in some areas;
• Access is limited by conditions of the banks as well as vegetation;
• Stream is well shaded and flows regularly.

**Recommended Design Strategy**

• Phase I—Enhance the surrounding features:
  o Restore and/or stabilize the bridge, as it is an interesting architectural component. The bridge could act as a small gathering space or simply provide a place to watch the flowing water. A joint restoration project, in partnership with Westminster Cemetery, may also be a catalyst for expanding access into the cemetery, similar to the arrangement at West Laurel Hill.
  o Keep the bridge and nearby cemetery building free of vines which will hasten their demise. This is work which can be done by volunteers with little training. Work should be coordinated with Westminster Cemetery when it affects buildings or other structures which they own.
  o Beautify and draw attention to the bridge by planting ornamental trees and flowering shrubs at either side of its entrance. Some brightly colored flowers and fall foliage can draw people's attention from the trail, to the bridge. It can also demonstrate that the bridge is now a place that is cared for and used, not simply a relic from a past use.
  o Work with Westminster Cemetery to replace the gate with pedestrian friendly bollards. The gate is uninviting and could be replaced with bollards which permit pedestrian entry, but still keep vehicles out. Access should be coordinated with Westminster Cemetery.

• Phase II—Early Action Riparian Buffer Zone Projects:
  o Some bare areas exist near Vine Creek. These can be planted with trees and shrubs to establish an initial riparian buffer. These areas require less removal of invasive species and may require little more than any typical planting project.
  o The grass area immediately south of the bridge encompasses approximately 4,500 square feet of lawn. This area can be easily converted to riparian buffer through the planting of 45 shade trees, 10 feet on center. A shrub layer consisting of approximately 100 shrubs can be planted beneath the trees once they’ve matured to the point that they form a continuous canopy.
  o The grass area between split rail fence and the hill can be converted to a riparian buffer by relocating the fence closer to the trail (or removing it) and then planting approximately 27 trees between the fence and the creek, 10 feet on center. A shrub layer consisting of approximately 50 shrubs can be planted beneath the trees once they’ve matured to the point that they form a continuous canopy.

• Additional Phases—Extended Riparian Buffer Zone:
  o Determine phased project areas based on availability of funds, volunteers and other resources. The Township and FOCHT should consider these factors and determine a project schedule.
  o Label the entire area between the soft surface trail and the creek as a riparian buffer area, intended to improve the health of the stream and better manage stormwater runoff. A riparian buffer here should catch most of the stormwater flowing from the trail and the open area before it flows into Vine Creek.
  o Install signage explaining the importance of riparian buffers prior to undertaking major re-vegetation projects. This signage may explain the role of stormwater management on the trail, or take a broader approach, explaining the effects of stormwater on our local streams and aquifers.
  o Clear existing invasive species by hand, smothering or through application of water safe herbicide. Knotweed is the most prolific invasive species in this area. It is also one of the most vigorous growers. Removal of the knotweed and other invasive species...
should be followed with new tree and shrub plantings.

- Plant trees along the banks to stabilize the soil and shade out grasses and invasive species which will cause the stream to narrow its channel. In many areas, the creek is already channelized and incised. Major stream reconstruction projects to improve bank conditions are extremely expensive and often produce mixed results. The most cost effective measure for reducing bank erosion is simply to plant trees.

- After trees are established and form a continuous canopy, shrubs should be planted beneath them. A combination of trees and shrubs should shade out most invasive species and other weeds. Additionally, the abundance of tree and shrub roots will help keep the soil from compacting, thereby encouraging greater groundwater infiltration and reducing sheet flow into the stream.

- Use riparian species of trees and shrubs to stabilize the eroding banks. The use of riparian species is very important here, as particular leaves provide food sources for insects within the stream, which in turn provide food for fish and other aquatic animals.

- Trees may include: sycamore, river birch, red and silver maple
- Shrubs may include: rhododendron, elderberry, and inkberry
- Permit views and access to the stream through strategic placement of access trails and a few large, flat stones to act as standing areas.
- Stones should be placed in areas where erosion is NOT occurring, as stone obstacles can cause braiding of streams.
- Stream access should follow earthen trails which meander down to the stream side. Trails perpendicular to the stream channel should be avoided, as they will erode over time.

**PLEASE NOTE:** Any earthmoving within the channel, including placement of large stones, may require a permit from PA DEP, the Montgomery County Conservation District or other organizations.

**Rough Cost: $175,000.00**
(See Appendix for detailed estimate). This cost covers the establishment of riparian buffer from the Barmouth parking area to the point where Vine Creek passes under the trail. Costs for individual phases must be determined during subsequent planning phases.

### Art

On the Cynwyd Heritage Trail, recreation, nature and history come together. The addition of art to the trail would add yet another layer of interest. The trail, with its many views and vistas, is already a destination for painters. There are many different approaches as to how to integrate art into the trail corridor, but three which seem immediately implementable are: the trail as art, the trail as a sculpture garden and the trail as a location for temporary exhibits and performances.

**THE TRAIL AS ART**

The trail itself is already a work of art. The result of planning and design with an eye towards creating spaces, views and vistas, while using curves and topography to create a gentle, yet interesting landscape. The trail corridor could be further enhanced through the installation of permanent art which highlights the characteristics of the trail. The exact nature of the exhibits would be determined by artists, the Township and FOCHT but some examples of art in parks and streetscapes nearby could serve as inspiration.

- Washington Avenue Green is a small waterfront park in South Philadelphia, along the Delaware River, near the intersection of Washington and Delaware Avenues. Here, environmental artist Stacy Levy interpreted the interplay of land and water at the site. She then expressed this relationship through artistic installations including glass inlays in the asphalt trail representing a historic stream channel as well as plantings shaped to represent the region’s typical dendritic pattern.
• The Race Street Connector, in Philadelphia, at Race Street and Delaware Avenue, addresses a busy, vehicular dominated underpass. Architects James Corner Field Operations, along with Greenhouse Media, added artistic elements to brighten a dark underpass where Race Street crosses below I-95. While the artistic elements depend on hard, industrial materials, along with modern technology, they still interpret nature and history. Steel screening lines the walkway, blocking out views to the underside of the underpass. On the screening, oversized lettering directs visitors to the river, while also showing historic flood levels. Additionally, on the side of the overpass, an LED screen interprets the flow of the river and depicts electronic waves based on feedback from waterside cameras. This treatment of the underpass takes a similar approach to that used on Anderson Avenue in Ardmore, where colorful lighting and artistic signage improve what would otherwise be a dark and uninviting place.

THE TRAIL AS ART GALLERY

Many of the trailside spaces could accommodate sculptures, adding further interest to the trail and attracting a new audience. Art installation should be approached cautiously as it would require insurance and waivers, and time from the Township staff and solicitor. Transportation and maintenance of sculpture would require pieces to be located at easily accessible locations, such as the trail heads. Sculptures would need to be placed at highly visible locations in order to deter vandalism as well.

The trail also offers opportunities for creation of murals, or other wall based art. The Belmont Avenue underpass is currently a blank canvas, favored by graffiti artists. The large wall which backs the gas station on Belmont Avenue could be converted to a mural or an artistically designed sign announcing the trail. The large retaining wall below the trail, near the Manayunk Bridge is also a graffiti target. The problem has been addressed by building up soil below the wall, but this huge wall could also provide an opportunity for an impressively large art project.
TEMPORARY EXHIBITS

The trail may be well suited to temporary sculpture exhibits, which can be installed for a week or weekend at a time. An art festival could be planned around the exhibition, complete with vendors, artists, lectures and classes. The art and architecture of West Laurel Hill and Westminster Cemeteries could be a focus. So could art interwoven with the history of the site, featuring themes such as railroad, industrial or Welsh settlers.

The trail could also be used to showcase temporary pieces such as ice sculptures in winter. Chalk artists could be invited to create art on the trail surface. Environmental artists could be invited to use natural materials to create sculptural pieces, intended to be left to break down under the distress of time and the elements.

Conclusion

As it exists right now, the Cynwyd Trail is a popular and successful amenity. Walkers, runners, cyclists, and dog walkers use it as both a destination trail and as a segment in the Circuit. But the Cynwyd Trail has an opportunity to be more. The many trail side spaces offer opportunities to provide more amenities, improve habitat and environmental conditions and to beautify the trail corridor. Through partnership between Lower Merion Township, the Friends of the Cynwyd Heritage Trail and others, implementation of the Keystone, Priority and Opportunity Projects can transform the Cynwyd Heritage Trail into the premier trail in the region.
Introduction

Plantings can play a major role in the future of the Cynwyd Heritage Trail. They can beautify the trail with showy, bold splashes of color from flowers in the spring and summer as well as provide an undertone of reds and yellows in the fall. Plantings can also hide unkempt areas, and reduce the amount of mowing required over the length of the trail. Volunteers, neighbors, township staff and other residents can work together and build community during a planting.

Site preparation, plant selection, plant size and spacing, proper planting techniques and ongoing maintenance all play a role in whether any planting succeeds. On the Cynwyd Trail, as in any public space, it is important that each of these factors be addressed. Some of the plantings are intended to carry out functions such as screening or naturalization, making their survival important to the trail. Additionally, unsuccessful plantings in a public park can disappoint the public and make the park appear unmanaged.

Coordination

Planting projects are not simply one day processes. Planning and site preparation must take place beforehand. Coordination of volunteers and staff are important during the installation. Additional maintenance must be carried out over the following months or even years. The Township and FOCHT need to coordinate all of these tasks when planning a new planting. Additionally, if it appears that there is not enough time, willpower or capacity to carry out a given project, then it should be reconsidered and either tabled or planned in phases.

Site Preparation

Where turf grass or invasive species are established, they must be removed prior to planting. Failure to remove these plants can result in weed competition which may overwhelm the new plantings. Where trees are being planted, high grasses or weeds beneath can provide habitat for voles, which can decimate tree roots.

Existing vegetation should be removed in one of the following ways:

- Application of herbicide such as roundup or other glyphosate products (by a licensed and qualified applicator)
- Mechanically through the use of a sod cutter, brush hog or other equipment
- Application of black plastic, tarps, newspaper or other covers which will block sun and moisture from reaching the ground. Should this method be used, the covers should be applied for two to three weeks, removed for a week to allow remaining seeds to sprout, and then reapplied to smother newly sprouted and remaining plants. This process should be repeated as necessary.

Plant Selection

The included copy of NLT’s Land for Life: A Handbook for Caring for Natural Lands (2014) contains a recommended plant list. The plants within the list are all native to the eastern United States and should thrive in this area with little ongoing maintenance after the first growing season. However, there are many microclimates along the trail, with varied sun and shade patterns as well as soil conditions and other factors. Each planting location must be carefully considered when choosing the appropriate species. Additionally, as some plantings are intended to provide screening or naturalization, the intended function of each plant must also be considered.

Size and Spacing

In most planting projects, the rule of thumb is the smaller the material, the better, as it will be allowed to grow into its space. However, on the Cynwyd Trail, it is recommended that larger plants be installed wherever possible, and plant spacing be reduced as well. The combination of larger plants and reduced spacing will encourage the plantings to grow together more quickly, thereby shading out the ground layer, reducing the need for hand weeding and mulching.
**RECOMMENDED MINIMUM SIZES**

- Shade trees: 3" caliper, 10–14' height, 8–10' spread, spaced 8' on center
- Evergreen trees: 8' height, 4' spread, spaced 6–8' on center
- Flowering trees: 8' height, 4' spread, spaced 6–8' on center
- Shrubs: 36" height, 24" spread, spaced 2.5–3' on center

**Proper Planting**

Details regarding planting methods for ball and burlapped and bare root material have been included in the appendix of this report. It appears that most of the trees already planted on site by volunteers have been planted properly. Where trees have died, it may have been the result of improper maintenance.

**Ongoing Maintenance**

- Pruning—details and descriptions for proper pruning have been provided in the Appendix. The rule of thumb for prioritized pruning is as follows:
  1. Worst first—this includes dead or broken branches.
  2. Crossing—branches which are crossing each other and may cause improper growth or contribute to pest or disease problems.
  3. For looks—pruning to provide shape or balance to a plant.

- Weeding and mulching—mulch should be applied to a depth of 2–3" immediately after planting. Plantings should be visually assessed on a monthly basis for the first year after planting. Weeding and mulching should be done according to need. After the first year, mulching should no longer be necessary. Weeding should be continued as needed, but should be lessened as the plants mature and shade the weeds out.

- Watering—planting native species in the spring and fall should minimize the need for watering, but it will still be necessary for new plantings. The soil beneath the mulch should be kept moist to the touch. New plantings may require watering on a weekly basis, but this will be affected by weather conditions such as temperature and precipitation. When planning a new planting, the source and means for transporting water to the planting should be considered and planned as well.

**Conclusion**

Many aspects of the stewardship, maintenance and design of the Cynwyd Heritage Trail depend on new plantings. Whether invasive species are removed in favor of newly planted, beneficial natives or purely ornamental plants are used to beautify a trailhead, plantings will have a major impact on the look, feel and functionality of the trail. It is important that these plantings be successful, to further beautify the trail, provide additional habitat or build community through the planting events. Following the guidelines provided, every new planting can be a successful planting!
SAFETY RECOMMENDATIONS

Introduction

The Cynwyd Heritage Trail is unlike any other park in Lower Merion Township. But it is still a park, and like the other parks in the Township system, visitor safety is of utmost importance. The public workshop revealed very few safety concerns amongst the participants. Like the rest of the parks, hazard trees and dogs bring some concerns. But the trail, with so much movement, and interaction between users, has its own set of safety concerns which are addressed below.

Trail Etiquette and Awareness

One of the great signs of the success of the Cynwyd Trail is the diversity of users who have been drawn to it. Cyclists, runners, families, dog walkers and nature lovers all intermingle. The trail serves many different user groups. However, this is also a cause of friction and potential safety issues. Runners can quickly and quietly sneak up on others. Cyclists pass at high speeds. Children unexpectedly dart across the trail. Dog walkers allow leashes to span the width of the trail and walkers sometimes walk three to four abreast, blocking the width of the trail.

The peace, quiet, comfort and beauty of the trail is one reason users are less aware of their surroundings as they should be. While walking the trail, it is easy to get lost in your thoughts, entranced by the birds and animals or engrossed in conversation. A few simple and gestural cues could help people be more aware of other users.

A centerline stripe would remind trail users that there may be traffic coming from the other direction. It’s a simple step that will remind people to share the trail. It can also be used by parents as a tool for keeping children safely on the right side of the trail. “Don’t cross the line,” is a more effective command than, “Stay to the right.” (Please see the cost estimates provided for striping in the Appendix.)

Runners and cyclists commonly use the phrase, “On your left,” to alert those ahead that they’ll be passing on the left. However, walkers don’t always understand and at times hear it and instinctually move to the left, into the way of the passing runner. Clarification could be provided through simple kiosk signage.

Additionally, adults need to be reminded to share the trail and yield appropriately. Cyclists should yield to all other users. Dog walkers should control their dogs and yield to walkers. Walkers should be reminded to
share the trail and walk at a maximum of two abreast. "Share the Trail" signs can be placed at entrances and at intervals along the trail, as well as being integrated into trailheads or kiosks.

**Dog-Related Protocols**

Dog walkers are one of the most prolific user groups on the trail. Well trained and controlled dogs are welcomed to enjoy the fresh air and open expanses of the trail. However, when dogs aren’t properly supervised, conflicts can arise. Like most other activities at parks and trails, it’s important to explain why rules are applied to dogs, rather than simply stating the rules. When rules are explained in the context of safety, they are more readily followed. Encouragement of positive behaviors is more effective than discouraging negative behaviors. This can be done through educational materials, such as NLT’s “Nature’s Best Friend” brochure (see Appendix), as well through the provision of physical amenities on the trail, such as loaner leashes and waste bags.

Dog waste was cited by the public as a relatively minor problem on the trail. Many dog walkers are resistant to picking up after their dogs. They may not understand the importance of cleaning up. Dog waste can leach bacteria into the water table, as well as increase nitrogen levels in soil, affecting native plants. Dog waste can also harbor parasites, which can be especially dangerous to children playing on the trail. It is also of course, a nuisance to other trail users as well. While it will be difficult to change the minds of some dog walkers, the Township should encourage clean up by providing clean up bags at trail heads and at any areas which are consistently littered with dog waste.

Leashes are one of the simplest and most important tools in avoiding conflicts between dogs and other dogs and people. Yet many dog walkers don’t use them. These dog owners will often say that their dogs are well trained, stay by their sides and answer to commands. However, there are still many reasons to require dogs to be leashed on the trail:

- **Tick safety**—ticks are abundant in meadows and woods throughout the region. If a dog wanders off the trail, it could be exposed to ticks which may carry Lyme disease. No matter how well behaved a pet, excitement can get the better of them.
- **Other people**—other visitors may not want to get to know the dogs, regardless of how well behaved or friendly they may be. The trail is here for everyone to enjoy. Some visitors may not feel welcome if they are concerned about being approached by an off-leash dog.
- **Other dogs**—while a dog being walked off leash may be well behaved and friendly, other dogs on the trail may not be. A friendly, off-leash dog may approach another dog with the best of intentions, but if the other dog is not friendly, a dangerous conflict may occur.
- **Other animals**—though it may seem harmless to let dogs run free and play in the woods, fields and wetlands alongside the trail, the animals which live in these areas may view it differently. An unleashed dog can disturb feeding, mating, nesting and rearing of young for many wildlife species. Additionally, potentially dangerous animals also may live along the trail. No dog owner wants to experience a conflict with a fox, raccoon or other large mammal.

The Township should consider posting signage reminding dog walkers to use leashes. Loaner leashes can also be provided along the trail. Placing loaner leashes 30 to 50 feet up the trail from the trailhead can be effective in reinforcing the message. Staggered signage will repeat the message and the provision of loaner leashes will show that the Township is serious about keeping visiting dogs on leashes.

To further accommodate dog walkers, trail signage can direct them to resources for off leash areas such as Township dog parks or websites such as:

- www.ecoanimal.com/dogfun
- www.phillyfido.net
- http://activedogs.meetup.com
- www.thedogpark.com
- www.dogfriendly.com

**Hazard Tree Monitoring Program**

All landowners should make a reasonable effort to prevent trees within their property from causing injury or property damage. This is best accomplished through a regular program of monitoring areas of high use such as the Cynwyd Heritage Trail and its surroundings. Lower Merion Township has a hazard tree monitoring program in place. The Cynwyd Heritage Trail should be incorporated into the program. The length of the trail north of the Manayunk Bridge features many
large, mature trees, many of which lean over the trail. The area of Vine Creek also contains large trees, some of which may be felled by streambank erosion in the future. These areas should be focal points for monitoring on the Cynwyd Trail, at least once each year and after major storm events.

Once a hazard tree is identified the Township should make a reasonable effort to address the hazard as soon as possible. The first course of action is to make sure that the tree is within your property boundary. If the tree is within the boundaries of the Cynwyd Heritage Trail property, or other township owned lands, the Township should engage a qualified contractor to eliminate the hazard through pruning or felling the tree.

For trees along a common boundary, if any part of the base is within Township property you are jointly responsible for the tree; a tree with its base entirely within your property is your sole responsibility.

Often, when a landowner initiates a hazard tree program, a large number of trees are identified as hazards. This reflects the maturing of the forests in our region and the fact that few landowners are aware of their responsibility and as a result have not addressed hazard trees in the past. The Township will need to work with an arborist to prioritize actions in addressing hazard trees, removing the most hazardous trees first.

Regular monitoring followed by reasonable action will not only prevent potential injury or damage, it will help to significantly reduce the Township’s liability if a tree does cause injury or damage. Although the Township may be responsible for any injury or damage regardless of the actions taken, showing that you have made a reasonable effort to identify and address hazard trees may help preclude any charge of negligence.

The final key to an effective hazard tree program is documentation. All activities related to the program should be cataloged, including monitoring (when, where, and by whom) and actions taken and by whom. This will be the proof that the Township made a reasonable effort to identify and address hazard trees in the unfortunate occurrence of injury or damage.

**Conclusion**

The public workshop revealed very few concerns about safety on the trail. But like any park, there will be isolated incidents. The three most likely culprits, interactions between user groups, dogs and hazard trees, can all be addressed and their effects can be minimized. The Cynwyd Heritage Trail is a safe place and can continue to be with some thoughtful planning, messaging, engagement and maintenance.
VI

VOLUNTEER MANAGEMENT

Introduction
The Friends of the Cynwyd Heritage Trail and Lower Merion Township have a wonderful history of engaging volunteers to beautify and care for the trail. A few enhancements to the management of the volunteer effort will ensure that this successful program is put to best use in implementing The Cynwyd Heritage Trail Phase II Plan. Through enhanced cooperation and communication, and tweaks to the volunteer recruitment, acknowledgement, and orientation process, it is possible to ensure that volunteer efforts are focused on carrying out a single, shared vision for the CHT.

Concept
Enhance volunteer efforts on the trail by a) establishing a process for coordinating the deployment and management of volunteers, b) developing clear, agreed-upon work plans for volunteer activities, c) building on already effective recruitment efforts, and, d) providing a formal orientation for volunteers so that they have the knowledge and skills needed to work both independently and in groups.

Action Steps

OVERSIGHT AND WORK PLANNING
While volunteers are being used well at present, the program could benefit from greater coordination among the Friends and the Township. This will be particularly important if the volunteers are to be relied upon as a resource for implementing the Phase II Plan.

On an annual or bi-annual basis, the Township and FOCHT could jointly prepare a written volunteer work plan detailing the specific projects to be undertaken, the number and schedule of work days needed, opportunities for day-to-day maintenance, and the resources required (funds, tools, support from parks staff, etc.) to accomplish the planned projects (see “Sample Volunteer Work Plan” in Appendix).

Finally, the Township and FOCHT could work together to oversee recruitment, recognition, and, orientation of volunteers.

RECRUITMENT
The Cynwyd Heritage Trail already enjoys an exemplary level of volunteer support. Clearly, the current volunteer recruitment strategies are yielding positive results. A small number of enhancements to the recruitment process could expand the number of people participating and make recruitment easier for the Friends and the Township. (NOTE: Natural Lands Trust is available to assist with these activities under the scope of our current contract.)

1. Offer online volunteer registration—volunteers seeking opportunities often turn first to the internet. The FOCHT website is well-designed and already contains a calendar of upcoming volunteer activities and descriptions of general volunteer opportunities. However, in our experience, volunteers expect to be able to sign up for specific activities online. Providing an online form through which interested volunteers can register, will make it easier for them to act on their interest in the moment. It will also help with planning for volunteer work days since you will
have some indication in advance of the number of people likely to participate. Finally, it will make it easier to capture volunteer information so that it can be added to the Friends’ database for use in future communications and, when appropriate, fundraising.

2. Create reusable signs to announce upcoming volunteer days along the trail—real estate-style lawn signs are an effective way to promote upcoming events to trail users. Relatively inexpensive signs could be created to promote volunteer activities and designed in such a way that the date of the event could be easily changed. The signs could then be placed along the trail in the weeks before each scheduled volunteer activity.

3. Hold a public “Trail Day” event—a celebration event on the trail could serve several purposes: recruiting volunteers, highlighting work that has already been done on the trail, announcing plans for future work, connecting with current users and neighbors, and soliciting support for the FOCHT. This could be done once in the coming year and be promoted as a kick-off to Phase II of the trail’s development. If successful, it could be repeated annually.

4. Post work days and other opportunities on volunteer-focused web sites—there are a number of web sites that are popular among people seeking service opportunities. Posting work days and other volunteer activities on these sites will help to reach new participants. We have found that VolunteerMatch and Meetup have been particularly effective. A list of recommended online resources is included in the Appendix.

5. Send simple press releases in advance of major volunteer events—if you are not already, it would be helpful to send simple press releases in advance of major volunteer events (see “Sample Press Release” and “Distribution List” in the Appendix).

6. Gather volunteer contact information and provide occasional email updates—if it is not already being done, it would be useful to gather volunteer contact information – particularly email addresses (see “Fundraising” for related recommendations). This will help to facilitate communication with current volunteers and enhance retention. The group could consider sending email notices of upcoming volunteer activities and sending occasional emails with information about other events and developments related to the trail. Emails about specific volunteer opportunities could include a message encouraging the recipient to share the information with friends.

RECOGNITION
Recognizing volunteers is essential to maintaining their commitment and enthusiasm. The simplest way to recognize CHT volunteers would be to hold an annual volunteer celebration event. All volunteers would be invited and thanked for their participation. This would also be an opportunity to update them on the overall impact of their work and to highlight volunteers who have done exceptional work during the year.

TRAINING A CORE GROUP OF VOLUNTEERS
Volunteers are capable of doing tremendous work. Often, though, their work is hindered by a lack of knowledge or sense of empowerment. Training can help to ensure that volunteers are able to perform at the highest level. Based upon interviews with staff and the FOCHT, it appears that training could improve volunteer work on the trail by helping to fill two important roles:

Trail Stewards
The volunteers would work independently and be tasked with ongoing maintenance tasks such as trash pick-up, trail monitoring, weeding, invasive plant removal, etc. This could be an attractive role for trail users because many of the tasks can be completed while walking the trail.

Work Day “Regulars”
Having a core group of trained volunteers can make work days easier to manage and improve the experience for new volunteers. The “work day regulars” can guide other participants and some may, in time, grow into volunteer leaders capable of directing a work day on their own. Members of FOCHT, leaders of organizational partners such as Lower Merion High School, and other long-term volunteers are ideal candidates for this role.
To begin building this base of trained volunteers, the Township and FOCHT could offer a volunteer orientation session designed to provide an introduction to topics such as:

- Current plans for the CHT, including projects that will be undertaken by volunteers;
- A description of the ways in which volunteers can participate;
- Training on some of the basic skills the volunteers will need to effectively fulfill the volunteer roles. This might include invasive plant identification and removal, tree and shrub planting and care, weeding instruction, and guidance on how to communicate with trail users. (If equipment such as weed whackers and leaf blowers will be used by volunteers, it may be necessary to hold a separate, smaller training session to address access to and appropriate use of those tools.)

The orientation session might include a mix of classroom instruction and outdoor, hands-on demonstration. (NOTE: The scope of work for Natural Lands Trust’s current contract includes organizing and leading a four-hour volunteer training session.)

A recruitment campaign would need to be undertaken in advance of the orientation session. In addition to using the usual recruitment efforts, it would be appropriate to reach out directly to specific past volunteers to encourage them to participate. It may be particularly helpful to invite the contacts at Lower Merion High School and the officer(s) responsible for the community service program.

Ideally, volunteers who participate in the orientation will have the opportunity to immediately act upon their knowledge and enthusiasm at a work day and/or by being assigned specific ongoing maintenance tasks.
VII FUNDRAISING STRATEGIES

Introduction
In conjunction with *The Cynwyd Heritage Trail Phase II Plan*, staff from Natural Lands Trust’s Development Department convened with representatives from Lower Merion Township as well as Friends of the Cynwyd Heritage Trail (FOCHT) to gain an appreciation for the trail’s most important funding needs and opportunities. Both parties are enthusiastic advocates for the Cynwyd Heritage Trail and its potential! We are impressed by FOCHT’s fundraising record and capacity and believe that, through formalized communication between the public and private partners, opportunities to attract and build financial support for the Cynwyd Heritage Trail are great.

Fundraising Goal
The overarching Phase II fundraising goal is to build a broad base of support—from individuals, businesses, corporations, and foundations that care about or can be inspired to care about the Cynwyd Heritage Trail—to advance trail development and ongoing trail stewardship projects.

Fundraising Objectives
To achieve the overarching fundraising goal, annual objectives should emphasize (1) Friends of the Cynwyd Heritage Trail membership-building, income from which will be essential to ongoing trail maintenance and stewardship; (2) annual campaigns for specific projects to attract additive gifts and new support from individuals, corporations, and foundations; and (3) event-based friend-raising and fundraising to generate interest in the trail, attract support, and celebrate existing engagement and commitment.

Annual Fundraising Priorities

PARTNERSHIP
The Phase II Plan provides a fundraising blueprint for the Cynwyd Heritage Trail. We recommend that the Township and FOCHT assume joint responsibility for confirming fundraising objectives on an annual basis. The group’s decisions should be informed by (a) the Township’s budget realities; (b) the Friends of the Cynwyd Heritage Trail’s perceived fundraising capacities; (c) other potential sources of revenue or leverage; and (d) the likelihood of a project’s fundraising success. Fundraising goals should be articulated prior to each calendar year and then revisited again at the annual mid-point; the second formal check-in is designed to assess progress (including necessary adjustments) and consider draft opportunities for the subsequent year.

FRIENDS OF THE CYNWYD HERITAGE TRAIL
The Friends of the Cynwyd Heritage Trail was formed as a non-profit organization in the Fall of 2008 to “support the design, construction, maintenance, and community involvement in the Trail.” The group has a primary goal of “securing financial support to sustain and enhance the park and its natural, educational, and recreational resources,” as well as an objective to “promote and coordinate volunteer time, talent, and fundraising to provide for permanent improvements and amenities along the Trail.” Over the last five years FOCHT has been incrementally increasing the funds it raises for trail initiatives. As the Manayunk Bridge project launches, the trail will attract even more attention; FOCHT is well positioned to convert trail users and enthusiasts to donors and is the ideal entity to assume primary leadership for implementing the Cynwyd Heritage Trail Phase II annual fundraising priorities.
Key Fundraising Plan Elements

FUNDRAISING LEADERSHIP: THE FRIENDS OF THE CYNWYD HERITAGE TRAIL (FOCHT)

In an effort to bring more financial resources to the trail, the FOCHT Board of Directors should organize itself as a non-profit Development Committee/Department with the goal of developing and implementing strategies for cultivating and engaging Cynwyd Heritage Trail donors and funding prospects. We recommend that FOCHT assign board leadership and ownership to each of the following fundraising sectors:

- Membership Renewal program
- Membership Acquisition program
- Individual Leadership Gift Society
- Corporate Membership program
- Event sponsorships
- Event management

It would be helpful to utilize standing board agendas to incorporate monthly fundraising sector report-outs (unless there is no activity or business to report). The brief status updates will enable the Board of Directors to (a) monitor and evaluate fundraising progress; (b) ensure that all efforts have the budget and “personnel” required to be successful; (c) identify shared synergies and efficiencies within functions; and (d) assess aspects of the development process in need of additional volunteer leadership.

As the Board of Directors considers its succession and/or expansion plans, recruitment should focus on individuals with capacities in key fundraising areas and from broader constituencies; both will impact the level and shape of the FOCHT membership program and increase overall contributions.

FUNDRAISING CASE FOR SUPPORT

Annual fundraising should focus on two key case-making areas:

- General unrestricted trail support—these revenues will come primarily via FOCHT membership, which should help augment township revenues allocated to ongoing trail stewardship and management. The unrestricted nature of the membership support will give FOCHT the flexibility it needs to allocate its money where it can have the greatest impact (stewardship efforts, volunteer works days, communications and awareness-building, etc.)
- Project-specific fundraising—the Township and FOCHT should select one project per year (some projects might span multiple years) to attract more attention and revenue to the trail—primarily through new support, additive giving from current FOCHT members, and isolated grant fundraising. We recommend that the first project be high profile and high-impact in nature; include a manageable budget (and achievable fundraising goal); and emphasize a community or communities where trail affiliation is already strong and likely to yield a high return on the outreach and solicitation investment.

FRIENDS OF THE CYNWYD HERITAGE TRAIL MEMBERSHIP PROGRAM

It will be essential to grow the FOCHT membership program to build unrestricted trail revenue and attract meaningful support to higher profile trail projects. A broader membership base will (a) provide FOCHT with the resources necessary to undertake and expand events, work days, marketing, and communications—all critical to trail literacy and enthusiasm; (b) support ongoing trail maintenance and stewardship projects that contribute to visitor/user satisfaction and appreciation; and (c) provide a pipeline of prospects primed for specific project funding requests when the time comes.

It will be essential to grow the FOCHT membership program to build unrestricted trail revenue and attract meaningful support.
Membership Renewal
The existing FOCHT membership renewal program includes well-placed spring and fall appeals and has achieved a relatively high $80 average gift from its 300-plus household base. This leads us to believe that the community has additional financial capacity and that members would be amenable to requests for additional support. To increase revenue from the current base of supporters, we recommend that all spring and fall membership appeals begin to incorporate a request for upgraded support (e.g., “If you are able, please consider increasing your membership gift from $35 to $75 this year. Your additional support will have an even greater impact on trail projects, such as …”). Membership solicitation and renewal appeals should also include a matching gift option; encouraging current and new members to ask their employers (where applicable) for a matching gift which can elevate annual revenues in fairly quick fashion.

Project specific fundraising with members should occur outside the renewal cycle with the goal of securing additive gifts. It will be essential that the solicitation message make clear the importance of maintaining annual membership dues—critical to the daily trail experience—so that donors do not use restricted project gifts to replace their annual unrestricted membership.

FOCHT is already an excellent communicator. Increased emails—detailing project progress and success, reporting on upcoming events, and recognizing and celebrating donors—will help with donor retention and upgrade efforts. Posting the Annual Report prominently on the website is an easy way to recognize current donors and provide a sense of organizational context and capacity for prospective donors.

Membership Acquisition
To grow the membership program, FOCHT must grow its mailing list and donor prospect pool. (This list-building exercise will also benefit project specific fundraising down the road.) Driving new and prospective trail users to the website will introduce them to the work of the FOCHT and expose them to membership information. We recommend the following to raise awareness of FOCHT and its fundraising goals:

- Distribute FOCHT trail brochures to all Lower Merion Township libraries; monitor and maintain inventory;
- Equip all trail events with sign-up sheets for general mailings and membership information;
- Add email and mailing list sign-ups to the website. New constituents who sign-up online should be solicited for membership by mail in either the spring or the fall;
- Provide electronic access through a mobile-friendly webpage accessible via a QR code on trail signage. This would be a simple and easy way for those using the trail to register to receive more information (including a membership appeal), and especially attractive to trail users who wish to receive updates as project-specific fundraising evolves.

Leadership Society
FOCHT membership levels currently end at $500. Based on the demographics of Lower Merion Township, we suspect there are many households within FOCHT’s current membership that would be amenable to a request for a $1,000 gift. While the Board of Directors could probably evaluate FOCHT’s $250-plus donor list and make informed anecdotal choices regarding solicitation priorities, Natural Lands Trust would be happy to conduct a very basic demographic data analysis of current donors and highlight those households with a likely capacity for higher level gifts.

To recognize and celebrate higher level giving, we suggest that FOCHT form a leadership society.
To recognize and celebrate higher level giving, we suggest that FOCHT form a leadership society for donors who make an annual gift of $500 or more. Leadership donors should be featured in the FOCHT Annual Report for their exemplary commitment and invited to an exclusive society event once a year. Based on Natural Lands Trust’s experience, we recommend that leadership society events incorporate a learning element into a predominantly social structure (a trail project update, general trail topic, notable speaker, etc.). FOCHT should not hesitate to charge society members a ticket fee to cover their out-of-pocket event expenses. (These donors will want to know that the membership gifts that gave them access to the exclusive opportunity have been applied to the trail, not to their event.)

Corporate Fundraising

Cynwyd Heritage Trail and FOCHT are uniquely situated to capitalize on support from the City Avenue business and corporate corridor. FOCHT has already attracted support from local businesses in the form of sponsorship for its 5K Trail Trot and in-kind donations for volunteer work days. We believe there is significant opportunity to expand general fundraising from the corporations and businesses that both serve and employ people from communities surrounding the trail. In designing its corporate fundraising initiatives, FOCHT will want to focus on the needs of the businesses, to include the benefits they will receive in exchange for their support. FOCHT’s experience thus far suggests that trail signage, website recognition, event visibility, and volunteer days provide attractive returns on corporate investment.

ANNUAL CORPORATE MEMBERSHIP

In addition to event sponsorships, FOCHT should consider a corporate membership program to solicit annual gifts of $1,000 to $5,000 from select prospects. We recommend that, as they begin to build their solicitation list, FOCHT focus on past sponsors of the 5K Trail Trot and earmark prospects with additional capacity for annual membership. Board members should be encouraged to consider their own corporate relationships. As a benefit of corporate membership, FOCHT should consider offering fixed recognition on the website, at trail events, and in the Annual Report for the term of the support.

EVENT SPONSORSHIPS

Rather than launch any new fundraising events, we suggest that FOCHT build upon its previous success with 5K Trail Trot sponsorship fundraising. Expanding sponsorship opportunities to include $1,000, $2,500 and $5,000 levels and targeting business and corporations with capacity—before they finalize their budgets for the Trail Trot event year—should increase sponsorship revenue. We recommend that FOCHT dispense with the $100 sponsorship level and leave smaller, local businesses with $250 and $500 sponsorship opportunities.

Grant Fundraising

We believe that grant fundraising could help generate additional revenues for Cynwyd Heritage Trail projects. However, given the time intensive and technical nature of grant writing and reporting, it is an exercise best left in the hands of Lower Merion Township’s staff. Attached is a list of possible grant funding sources—including grant programs, technical assistance opportunities, and contact information—for the Township’s review and consideration. We also have attached a list of independent foundations, whose family-driven grantmaking decisions tend to emphasize Main Line non-profit organizations. We recommend that FOCHT consider soliciting these independent foundations for leadership society membership, leveraging FOCHT board connections with foundation trustees whenever possible.
Events

Events on the Cynwyd Heritage Trail provide meaningful opportunities to engage new trail users, grow relationships with current supporters, and raise awareness for improvement projects and fundraising initiatives. Events fall into two categories, both of equal importance to long-term fundraising.

REVENUE-GENERATING EVENTS

FOCHT has already developed a successful fundraising event in the annual 5K Trail Trot, now in its fourth year. As noted in the previous Corporate Sponsorship section, rather than undertake any new fundraising events, we recommend that FOCHT build upon the Trail Trot’s success, emphasizing corporate and business sponsorship fundraising—at the $1,000, $2,500, and $5,000 levels—to generate more revenue, which would be available for either a specific project or ongoing stewardship.

Additionally, it is our understanding that in the future the trail might have the potential to serve as a host-venue for private and non-profit events, ranging from parties to workshops, charity bike rides and runs, and other recreational activities. We recommend that revenue generated from trail permit and/or use fees be directed to a Cynwyd Trail Fund for either special projects or ongoing stewardship.

FRIEND AND AWARENESS-RAISING EVENTS

Trail work days and partner events provide excellent opportunities to capture names and build a general mailing and membership solicitation lists. Whenever possible, FOCHT should have a presence at volunteer work days, public events, and programs—connecting with people on the trail, promoting upcoming Cynwyd Heritage Trail projects, and sharing funding and membership opportunities.

We understand that FOCHT is interested in revisiting a fall festival event to raise awareness and make friends. For added visibility, the Township and FOCHT should consider a celebration on a nationally recognized day, such as National Trails Day (June 6th in 2015) or National Public Lands Day (September 26th in 2015).

Conclusion

The Township and FOCHT have already begun successfully fundraising for the Cynwyd Heritage Trail. FOCHT membership is robust, and dues and other donations have built a solid base on which additional funds can be raised. Even greater opportunities for giving exist within Lower Merion and the surrounding community. With cooperation from the Township, FOCHT, local businesses and citizens, the goals, objectives and priorities set forth in this chapter can be attained, solidifying fundraising well into the future of the Cynwyd Heritage Trail.
POTENTIAL PROGRAMMING

Introduction

The trail will attract its share of walkers, runners, cyclists and other fitness enthusiasts. But the trail is also a Township Park, and therefore should serve the needs of other residents as well. Programming is a great way to draw in neighbors and residents from across the Township who may not usually use this great amenity. Fitness based activities such as running races are an obvious match, but the trail holds great potential for non-fitness related activities, especially considering its historic amenities, unique neighbors and varied natural resources. A list of some potential programs is included below. It should not be considered a full list, but rather a starting point for brainstorming and discussion.

Bike Rodeo

Cycling is one of the primary uses on the trail. It is also one of the most potentially dangerous uses. Engaging children around bicycles when they are young is a good way to help keep them safe. At a bike rodeo, children can be taught the rules of the road, in order to encourage them to follow these rules as they grow up. They will also learn to be more aware of their surroundings when they are on the trail, potentially reducing the risk of a dangerous interaction with a faster moving cycle. The event should be educational as well as fun. Activities such as bicycle skills course riding, proper helmet fitting, hand signal instruction, and bicycle tune-up stations are popular.

Qualified professionals should be invited to participate in the event. Lower Merion’s Bicycle Mounted Police may be asked to explain traffic laws. This informal and fun setting can also provide an opportunity for children to meet the police officers, get to know them and understand that they are there to help the community. Local bike shops could be asked to participate in instructional sessions as well as sponsor the event as a whole or to provide equipment or gift cards for raffles or competition prizes. Local elite cyclists could be invited simply to interact with kids, while promoting the sport or local races.

Dog-Focused Events

Many local organizations, including Natural Lands Trust and the Philadelphia Water Department, hold events specifically geared towards dog owners. The Cynwyd Trail is a popular destination for dog walkers. This group should be engaged and encouraged to take part in trail events. They spend a lot of time on the trail and can be great ambassadors for the trail or watchful eyes. If they are engaged and made to feel welcomed they may grow to love the trail as more than just a place to walk their dogs.

Natural Lands Trust recently held its first dog-focused event, Tails n Trails. The primary event was a series of group dog walks. The walks were social and informal in nature. But the event was aimed at educating dog owners about why it is important to keep their dogs on leashes, to pick up waste and to keep their dogs a safe distance from other trail users. NLT-branded green leashes were given away to participants, another way to strengthen the message that leashes are important. To add another dog related component, local shelters were invited to bring rescue dogs to the event, in hopes of finding them homes. NLT has also prepared literature about how dogs affect plants and other animals. The “Nature’s Best Friend” brochure is a positive way to

Bike rodeos are fun events which can teach children the rules of the trail and connect them to police officers and other community members at a young age.
inform people about how dogs should and shouldn’t be permitted to behave at our preserves. The brochure is included in the appendix for reference.

PWD has held spokesdog competitions, in order to find dogs and owners that could help them convey their message. The role of the chosen spokesdogs is to attend public events and spread the word about the importance of picking up waste and the role it can play in groundwater health. The FOCHT and Lower Merion Township could very likely adapt these models to help spread the message of the importance of proper dog behavior on the trail.

The Capra Festival

Goats (*Capra* sp.) can provide many benefits to people. They can provide us with meat, and milk, which can be processed into cheese. They eat many plants which are locally invasive. Their manure can be used as fertilizer or compost in agriculture. They are also commonly domesticated and have demeanors which make them ideal for petting zoos and other interactions with humans. Baby goats, kids, seem to have boundless energy and are a great source of entertainment for human children and adults alike.

West Laurel Hill Cemetery is already using goats to help them manage invasive plant species. This effort could become the focal point of a weekend or daylong event touting the ways goats can help us. West Laurel Hill’s rented goats could be used to teach about invasive plant species and the importance of controlling them. They can also demonstrate that not all landscaping tools need to be fueled by gasoline. Goat farmers from PA and NJ could be invited to sell goat milk, cheese and meat. Other farmers could also be invited to take part, increasing the variety within a small farmers’ market.

Aside from the working goats, others could be brought simply to interact with people. A petting zoo could be featured. Younger goats could be brought along in their own pen, allowing visitors to watch them bound about, jumping and running with each other. North Coventry Township, in Chester County, features goat races at its annual Coventry Woods Festival. The event is always one of the highlights of the festival.

Garden Competition and Plant Sale

Neighbors who live directly adjacent to the trail are important stakeholders. They can contribute to the beauty of the trail and also be a helping hand in maintaining the trail sides. Where backyards meet the trail sides, the lines are blurred between the public and private spaces. Neighbors who enjoy gardening may embrace the challenge of landscaping the area between their property and the trail. To further encourage them, and engage them, a garden competition, or simply a garden tour, could be established.

A garden tour could serve as a way to engage trail users with the trail neighbors. It’s important for trail users to understand that real people live there and their actions on the trail impact these neighbors. A garden tour, where neighbors could invite people into their gardens would be a great way to create some connections. The garden tour could be coupled with a plant sale and educational sessions about native plants, pollinators or other home and garden themed topics.

Nature and Bird Walks

Local birders have already discovered the Cynwyd Trail as a nice location for birding. Groups ascend the big hill near the Manayunk overlook and watch the raptors soaring above the Schuylkill River. Proposed meadows could also add the potential for ground nesting birds to call the trail home in the future. Other natural areas along the trail, including Vine Creek and the mature woodlands, offer other opportunities to engage children and adults with nature. Local birders and naturalists could be enlisted to lead bird walks, tree identification sessions or other nature based programs. The local colleges and universities which offer courses in horticulture, plant biology, or landscape architecture,
could be invited to use the trail as an outdoor classroom. Alternatively, informal gatherings could be established using websites such as www.meetup.com.

**Couch to 5K Program**
The Friends of the Cynwyd Heritage Trail organize an annual 5K called the Trail Trot, to raise funds for the organization. FOCHT could expand on the race by also organizing a Couch to 5K or similar training group, with scheduled group runs on the trail. This could encourage more people to take part in the 5K, and raise awareness of the FOCHT and the trail itself. Local running stores could be asked to participate, providing expert advice for new runners, or to lead weekly group runs.

**History and Culture Walks**
The Lower Merion Historical Commission has demonstrated the importance of historical features along the trail through installation of interpretive signs and restoration projects. Walks and other events can be focused on the local history and culture. Topics may include the cemeteries and their residents, industry, railroads, Welsh heritage, and others. Local experts could be tapped to lead the walks or give similar walks as part of a larger event. Should a larger event be planned, vendors could also be invited to sell wares such as vintage books and maps, and antique furniture. Actors could be invited to play historic citizens in short slice of life scenes as well.

**Art Festival**
An art festival could help build support for growing art and culture along the trail. It is not unusual to see individuals or groups on the trail painting, drawing or taking photographs. Artists could be engaged further through a festival including classes and demonstrations. Classes could be held at different locations along the trail. Temporary exhibits, or environmental exhibits meant to break down over time, could also be placed along the trail. Vendors could be lined up along portions of the trail, or stationed within Bala Cynwyd Park. Talks or other educational programming focused on art or art history could also be included.

**Winter Festival**
Winters in the Philadelphia region can be harsh, featuring sub freezing temperatures for weeks at a time, as well as multiple blizzards each year. While these may not sound like the ideal conditions for an outdoor event, a winter festival may be a great way to get people out of their houses and amongst other people at a time when many of us tend to hibernate. A winter festival may be difficult to plan, as many activities may require snow. If organizers can maintain some flexibility and patience, a winter festival may be able to be held with little notice.

Some activities may require snow, such as snow shoeing, cross country skiing and snow man building. A local outfitter may offer lessons and rental or loaner snow shoes or skis. Races or simpler group outings could be scheduled. If the temperatures plummet and remain cold, ice sculptures and ice block buildings like igloos, could be erected. Bonfires and hot chocolate tend to excite people regardless of the temperature! Astronomy, winter tree identification sessions or other nature based programs could also be included and would not depend on snowfall or low temperature.

**Halloween Festivities**
As one Township staff person said it, “The trail should own Halloween.” West Laurel Hill Cemetery is already heavily involved with FOCHT, allowing them to use their building as a meeting place and providing headstone like mile markers for the trail. As the trail also passes by Westminster Cemetery, it seems a natural...
setting for Halloween activities for residents. A parade of costumed children could wind through the cemeteries and end at a party at West Laurel Hill's main building. Volunteers could tell ghost stories. Ghost hunters could be invited to participate as well. A haunted house or haunted cemetery or trail walk could be created. Expert face painters or costume artists could also be on hand to offer makeup and costume help. In an era when many families pay to go to commercial haunted houses or other Halloween events, there seems to be a great opportunity for fundraising for the trail around Halloween activities.

Conclusion

The Cynwyd Heritage Trail is a great amenity in and of itself, but its surroundings and the site's history offer many great opportunities for programming too. Any trail in the region can attract cyclists and runners, but with a little creativity, Lower Merion Township, FOCHT and others can bring many other township residents to the Cynwyd Trail through programming. Festivals, classes, and seasonal and holiday celebrations can draw different parts of the Township's population. By making the trail a valuable space to more of the township residents, it will become an even more successful place.
IX  IMPLEMENTATION STRATEGIES

This Chapter presents short term (within three years) and long term/annual (one to ten years) implementation strategies, organized by the main chapters of the report: “Stewardship,” “Design,” “Volunteer Management,” and “Fundraising.” Additionally, the two most important recommendations have been elevated and described below.

IMMEDIATE ACTION STEPS (TO BEGIN WITHIN SIX MONTHS AFTER PLAN COMPLETION)

1. Establish better and more structured communications between the Township and Friends of Cynwyd Heritage Trail. The Township and FOCHT should prepare and review plans for Cynwyd Heritage Trail projects, review requests from neighbors, propose and coordinate events and generally disseminate information amongst the stakeholders in order to foster cooperation and provide a forum for vetting ideas.

2. The plan has identified three Keystone Projects: the Belmont Avenue Trailhead, the Manayunk Bridge Area and the Barmouth Area Trailhead (two phases). The Township and FOCHT should review these projects and decide which to undertake first. The chosen project should be considered a pilot project, bringing together the aspects of volunteer management, fundraising, stewardship and design described in this plan. The Belmont Trailhead projects appears to be the most manageable and could be viewed as low hanging fruit, a chance to achieve an early, and visible, success.
**Implementation Strategies for Stewardship and Maintenance**

**GOAL:** Steward and maintain the Trail

**OBJECTIVES:** To beautify, maintain and steward the trail, in a sustainable manner that meets the needs of Lower Merion Township, the Friends of the Cynwyd Heritage Trail, the trail’s users and neighbors.

<table>
<thead>
<tr>
<th>SHORT TERM STRATEGIES (within 3 years):</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Through formal communication, encourage neighbors to &quot;adopt&quot; the areas between their yards and the trail, with guidance from the Plan regarding planting materials.</td>
<td>P&amp;R/FOCHT</td>
<td>BC Neighborhood</td>
<td></td>
</tr>
<tr>
<td><strong>2.</strong> Through formal communication, encourage neighbors to share trail entrance paths and bring their entrances up to Township building code standards.</td>
<td>P&amp;R/FOCHT, P&amp;R, Building and Planning</td>
<td>FOCHT</td>
<td></td>
</tr>
<tr>
<td><strong>3.</strong> Remove visible debris such as construction materials, junk, gathered waste or leaves.</td>
<td>P&amp;R/FOCHT, Public Works (PW) Volunteers</td>
<td>Volunteers</td>
<td></td>
</tr>
<tr>
<td><strong>4.</strong> Remove lowest 4&quot; of mesh from split rail fence to make mowing and weed whacking easier.</td>
<td>P&amp;R, PW Volunteers, FOCHT</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5.</strong> Plant shade tolerant plants such as ferns and mayapples, on bare soil within woodlands, before invasive species colonize.</td>
<td>FOCHT, P&amp;R Volunteers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BOC—Board of Commissioners
P&R—Parks and Recreation Department
FOCHT—Friends of the Cynwyd Heritage Trail
PW—Public Works
WLH—West Laurel Hill Cemetery
WC—Westminster Cemetery
PC—Planning Commission
HC—Historical Commission
EAC—Environmental Advisory Committee
### LONG TERM/ANNUAL STRATEGIES (1 – 10 years):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STRATEGY</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Allow the forests to reclaim some areas by moving the edges closer to the trail through plantings, construction or relocation of fences and walls (see &quot;Plan&quot; for further detail).</td>
<td>P&amp;R</td>
<td>FOCHT</td>
<td>EAC, volunteers</td>
</tr>
<tr>
<td>2.</td>
<td>Plant steeply unused areas with dense tree and shrub plantings to provide interest and reduce long term maintenance.</td>
<td>P&amp;R</td>
<td>FOCHT</td>
<td>EAC, volunteers, TreeVitalize</td>
</tr>
<tr>
<td>3.</td>
<td>Maintain a mowed edge along the trail of 3–6' in width, not including plantings within swales.</td>
<td>P&amp;R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Remove invasive species from trail sides in conjunction with planting or construction projects (see &quot;Plan&quot; for further details re: methods, species, etc.).</td>
<td>P&amp;R/FOCHT</td>
<td></td>
<td>Volunteers, EAC</td>
</tr>
<tr>
<td>5.</td>
<td>Empower additional volunteers to paint over graffiti as necessary. Choose one color to be used.</td>
<td>P&amp;R/FOCHT</td>
<td></td>
<td>Local businesses sponsor (to provide paint, brushes, etc.)</td>
</tr>
<tr>
<td>6.</td>
<td>Establish areas of meadow to reduce the amount of necessary mowing, improve habitat and biodiversity.</td>
<td>P&amp;R</td>
<td>FOCHT</td>
<td>EAC, DCNR for grant funding</td>
</tr>
<tr>
<td>7.</td>
<td>Establish low mow turf areas for gathering to reduce amount of necessary mowing.</td>
<td>P&amp;R</td>
<td>FOCHT (for messaging)</td>
<td>EAC, DCNR (for grant funding), local or regional contractor for demonstration project</td>
</tr>
<tr>
<td>8.</td>
<td>Accompany plantings with temporary and permanent signage explaining the project.</td>
<td>P&amp;R</td>
<td>FOCHT</td>
<td>EAC</td>
</tr>
<tr>
<td>9.</td>
<td>Reduce maintenance of stone seating near Manayunk Bridge by allowing turf to naturalize or through planting of shrubs.</td>
<td>P&amp;R</td>
<td>FOCHT</td>
<td>Volunteers</td>
</tr>
<tr>
<td>10.</td>
<td>Assess swales annually, identify erosion issues and plant problem areas with perennial plugs or seed. Remaining areas should be allowed to grow tall, mowed twice annually.</td>
<td>P&amp;R</td>
<td>FOCHT, PW</td>
<td>Volunteers</td>
</tr>
</tbody>
</table>
Implementation Strategies for Design

**GOAL:** Design the Places and Spaces along the Trail

**OBJECTIVES:**
Create an integrated series of places along the trail, by incorporating similar building and plant materials into new projects and those already in progress.

<table>
<thead>
<tr>
<th>KEYSTONE PROJECTS (highest importance):</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ITEM</strong></td>
<td><strong>STRATEGY</strong></td>
<td><strong>Barmouth Area Trailhead: Phase I</strong></td>
<td><strong>P&amp;R/FOCHT</strong></td>
</tr>
<tr>
<td>Estimated Cost: $160,000.00</td>
<td></td>
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</tr>
<tr>
<td>1.</td>
<td>• Establish as HQ for trail activities:</td>
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<tr>
<td></td>
<td>◦ Extend water and sewer</td>
<td></td>
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<tr>
<td></td>
<td>◦ Replace existing trailer with custom prefab unit</td>
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<tr>
<td></td>
<td>◦ Provide additional parking</td>
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<tr>
<td></td>
<td>◦ Create material storage areas</td>
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<tr>
<td></td>
<td>• Improve entrance driveway:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>◦ Provide entrance plantings</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>◦ Manage existing vegetation</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>◦ Extend sidewalk</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>◦ Extend stone wall</td>
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<td></td>
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<tr>
<td></td>
<td>◦ Mark driveway with sharrows</td>
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<td></td>
<td>• Explore expansion through acquisition, lease, other agreement</td>
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<td></td>
<td><strong>Estimated Cost: $40,000.00</strong></td>
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<td>2.</td>
<td>• Improve lawn for gathering:</td>
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<tr>
<td></td>
<td>◦ Raise profile of lawn</td>
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<td></td>
<td>◦ Build low sitting/retaining wall</td>
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<tr>
<td></td>
<td>◦ Incorporate ruins</td>
<td></td>
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<tr>
<td></td>
<td>◦ Add trellis or sail</td>
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<tr>
<td></td>
<td><strong>Estimated Cost: $25,000.00</strong></td>
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<tr>
<td>3.</td>
<td>• Extend water supply from neighboring property</td>
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<tr>
<td></td>
<td>• Replace wooden wall with stone or boulders</td>
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<tr>
<td></td>
<td>• Install woodland garden</td>
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<tr>
<td></td>
<td>• Beautify gas station retaining wall</td>
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<td></td>
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<tr>
<td></td>
<td>• Provide turnaround loop on trail</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Install signs, benches, maps, information, etc.</td>
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</tr>
</tbody>
</table>
### Manayunk Bridge Area

**Estimated Cost:** **$100,000.00**

- Create gateway:
  - Install stone walls, pillars and features
  - Plant grasses and shrubs
  - Raise the lawn with a stone retaining wall
  - Install low grow turf
  - Plant trees and shrubs to screen bridge supports
  - Provide signage or striping to alert users of intersection and traffic patterns
  - Install sprinklers, and soaker hoses

<table>
<thead>
<tr>
<th>Lead Party</th>
<th>Assistance</th>
<th>Potential Partners/Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>P&amp;R/FOCHT</td>
<td>PW</td>
<td>Volunteers, Westminster Cemetery (WC), Manayunk Development Corporation, City of Philadelphia</td>
</tr>
</tbody>
</table>

### PRIORITY PROJECTS (secondary importance):

<table>
<thead>
<tr>
<th>Item</th>
<th>Strategy</th>
<th>Lead Party</th>
<th>Assistance</th>
<th>Potential Partners/Funding</th>
</tr>
</thead>
</table>
| 1.      | Bala Cynwyd Park Entrance | Estimated Cost: **$12,500.00**  
  - Mark and celebrate entrance with graphics on asphalt  
  - Install plantings on each side of intersection  
  - Provide footpath through the naturalized garden | P&R/FOCHT | PW | Volunteers |
| 2.      | Connelly Spur Entrances | Estimated Cost: **$6,000.00**  
  - Construct gateways using stone walls, pillars, etc.  
  - Provide small clusters of plantings  
  - Install wayfinding signage and maps | P&R/FOCHT | PW | Volunteers |
| 3.      | Overlook Area | Estimated Cost: **$15,000.00**  
  - Resurface ground plain with crushed stone or permazyme  
  - Create edge of overlook with plantings and/or low wall  
  - Plant flowering trees to frame the space  
  - Manage vegetation on downhill slope  
  - Lower grade of adjacent berms to improve sight lines in and out of space  
  - Remove/relocate the numbered CHT sign | P&R/FOCHT | HC | Norfolk Southern |
# OPPORTUNITY PROJECTS (Tertiary Importance):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PROJECT</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/ FUNDING</th>
</tr>
</thead>
</table>
| 1.   | Cynwyd Club Seating Area  
      Estimated Cost: $30,000.00  
      • Partner with Cynwyd Club to use large wall as bulletin board or similar information space  
      • Plant the swales with wet tolerant perennials  
      • Frame the seating area with a hedge or rows of naturalizing shrubs  
      • Plant creeping shrubs on berm nearest tennis courts  
      • Extend water line from Cynwyd Club | P&R/FOCHT | PW | Volunteers, The Cynwyd Club |
| 2.   | Bala Cynwyd Park Exercise Cluster  
      Estimated Cost: $44,000.00  
      • Remove some trees  
      • Remove chain link fence  
      • Extend water line from bathrooms to exercise area for water fountain  
      • Grade site for pad installation  
      • Install resilient rubber pad  
      • Install five piece starter set of equipment  
      • Install retaining wall for seating and grade management  
      • Install overhead canopy or trellis for summer shade | P&R | PW, FOCHT, consultants (landscape architect, engineer, recreation planner) | DCNR (for funding) |
| 3.   | Barmouth Station North  
      Estimated Cost: $25,000.00  
      • Establish areas of meadow to reduce the amount of necessary mowing, improve habitat and biodiversity  
      • Maintain mowed edge 3–6' from edge of trail  
      • Provide programming in the nearby gathering areas  
      • Remove weed trees  
      • Remove debris piles  
      • Plant trees and shrubs in unused areas  
      • Provide temporary and permanent signage describing the project and process | P&R | FOCHT, consultants (meadow design) | DCNR (for funding) |
### Vine Creek Improvements
**Estimated Cost: $175,000**
- **Phase I:**
  - Restore/stabilize bridge
  - Maintain and steward bridge and nearby vegetation
  - Plant ornamental trees to frame the bridge
  - Replace gate with pedestrian friendly bollards
- **Phase II:**
  - Plant riparian buffer trees in bare areas
    - South of bridge, between creek and trail
    - Below hill, between split rail fence and creek
- **Additional phases:**
  - Extended riparian buffer areas:
    - Identify length of stream as riparian buffer area
    - Install explanatory signage prior to site work
    - Clear invasive species
    - Replant with trees
    - Follow with shrub planting once trees have formed a continuous canopy
    - Provide views and stream access points
    - Use large, flat stones to provide stream access where erosion is NOT occurring
    - Provide meandering, earthen paths to lead to stream bank

### Art on the Trail
- **The Trail as art:**
  - Installation of permanent pieces, including but not limited:
    - Screening
    - Signage
    - Lighting
- **The Trail as gallery:**
  - Provision of permanent murals or other treatments on:
    - The Belmont Avenue Underpass
    - The Montgomery Avenue Underpass
    - The gas station wall
  - Temporary exhibits
Implementation Strategies for Issues of Safety

GOAL: Provide a safe experience for all users

OBJECTIVES: Clarify the hierarchy of trail users while encouraging safe practices amongst all user groups.

<table>
<thead>
<tr>
<th>SHORT TERM STRATEGIES (within 3 years):</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ITEM</strong></td>
<td><strong>STRATEGY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Provide a centerline on the length of the trail (or only on curves) to avoid collisions.</td>
<td>P&amp;R/FOCHT</td>
<td>PW</td>
</tr>
<tr>
<td>2.</td>
<td>Provide multi-use trail hierarchy signs, which indicate when each user group should yield. These can be placed at kiosks.</td>
<td>P&amp;R/FOCHT</td>
<td>PW</td>
</tr>
<tr>
<td>3.</td>
<td>Promote dog-related protocols by: • Explaining reasoning behind rules in context of safety • Encouraging positive behaviors • Providing amenities such as leashes</td>
<td>P&amp;R/FOCHT</td>
<td>PW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LONG TERM/ANNUAL STRATEGIES (1–10 years):</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ITEM</strong></td>
<td><strong>STRATEGY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Expand the Township’s hazard tree monitoring program to cover the length of the trail, with an emphasis on the woodlands at the northern end of the trail and along Vine Creek.</td>
<td>P&amp;R, twp arborist</td>
<td>PW</td>
</tr>
</tbody>
</table>
Implementation Strategies for Volunteer Management

**GOAL:** Ensure that volunteer efforts are focused on carrying out a single, shared vision for the Cynwyd Heritage Trail.

**OBJECTIVES:** Establish a process for coordinating volunteers, develop clear work plans, build on effective recruitment efforts and provide a formal orientation for volunteers.

### SHORT TERM STRATEGIES (within 3 years):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STRATEGY</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Institutionalize oversight and work planning for volunteers.</td>
<td>P&amp;R/FOCHT</td>
<td></td>
<td>Volunteers</td>
</tr>
<tr>
<td>2.</td>
<td>Offer online volunteer registration on the FOCHT or other websites.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteer/consultant to prepare forms and web interface</td>
</tr>
<tr>
<td>3.</td>
<td>Post work days and other opportunities on volunteer focused websites.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteers</td>
</tr>
<tr>
<td>4.</td>
<td>Gather volunteer contact information and provide occasional email updates.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteers</td>
</tr>
<tr>
<td>5.</td>
<td>Hold an annual volunteer celebration to recognize the achievements of volunteers.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>WLH, other potential host locations, local business sponsors</td>
</tr>
</tbody>
</table>

### LONG TERM/ANNUAL STRATEGIES (1–10 years):

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STRATEGY</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hold a public Trail Day event to celebrate the work of volunteers, recruit additional volunteers and connect with neighbors.</td>
<td>P&amp;R/FOCHT</td>
<td></td>
<td>Volunteers</td>
</tr>
<tr>
<td>2.</td>
<td>Offer online volunteer registration and information collection.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteer/consultant to prepare forms and web interface</td>
</tr>
<tr>
<td>3.</td>
<td>Create reusable signs to announce upcoming volunteer days along the trail.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteers</td>
</tr>
<tr>
<td>4.</td>
<td>Send simple press releases in advance of major volunteer events.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteers</td>
</tr>
<tr>
<td>5.</td>
<td>Offer volunteer orientation sessions to develop trail stewards and work day regulars.</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>Volunteers</td>
</tr>
</tbody>
</table>
Implementation Strategies for Fundraising

**GOAL:** Build a broad base of support to advance trail development and ongoing trail stewardship projects.

**OBJECTIVES:** To build membership based income of the FOCHT, hold annual campaigns to fund specific projects and increase event based friend-raising and fundraising to generate interest and attract support.

<table>
<thead>
<tr>
<th>SHORT TERM STRATEGIES (within 3 years):</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/ FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ITEM</strong></td>
<td><strong>STRATEGY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Confirm FOCHT as the primary fundraising organization for the CHT.</td>
<td>BOC, FOCHT, P&amp;R</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Institutionalize confirmation of fundraising goals and strategies twice annually.</td>
<td>FOCHT, P&amp;R</td>
<td>Twp staff (budget info)</td>
</tr>
<tr>
<td>3.</td>
<td>FOCHT assign board leadership around seven fundraising sectors: • Membership renewal • Membership acquisition • Individual Leadership Gift Society • Corporate membership • Event sponsorship • Event management</td>
<td>FOCHT</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>FOCHT fundraising to focus on two key case making areas: • General unrestricted trail support • Project specific fundraising</td>
<td>FOCHT, P&amp;R</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Adjust membership appeals to: • Request upgraded support • Include matching gift options</td>
<td>FOCHT Board</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Increase frequency of emails reporting on fundraising progress and donor appreciation and celebration.</td>
<td>FOCHT</td>
<td>FOCHT members</td>
</tr>
</tbody>
</table>
7. Increase corporate fundraising through:
   • Creation of an annual corporate membership, soliciting gifts of $1,000 to $5,000
   • Event sponsorships for the 5K Trail Trot:
     ◦ Provide opportunities for $1,000, $2,500 and $5,000 sponsorships
     ◦ Eliminate the $100 sponsorship level and replace it with $250 and $500

8. Increase FOCHT’s presence and visibility at work days, public events and programs, in order to capture names, build membership and solicitation lists

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STRATEGY</th>
<th>LEAD PARTY</th>
<th>ASSISTANCE</th>
<th>POTENTIAL PARTNERS/FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>At succession or expansion, FOCHT to consider board members with capacity for fundraising.</td>
<td>FOCHT Board</td>
<td></td>
<td>FOCHT members</td>
</tr>
<tr>
<td>2.</td>
<td>FOCHT Board to report out on fundraising at meetings in order to:</td>
<td>FOCHT Board</td>
<td></td>
<td>FOCHT members</td>
</tr>
<tr>
<td></td>
<td>• Monitor and evaluate funds</td>
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<tr>
<td></td>
<td>• Ensure that budgets and personnel are adequate</td>
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<td></td>
<td>• Identify synergies</td>
<td></td>
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<tr>
<td></td>
<td>• Identify areas with additional needs</td>
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<tr>
<td>3.</td>
<td>FOCHT to grow membership by:</td>
<td>FOCHT</td>
<td>P&amp;R</td>
<td>FOCHT members</td>
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<tr>
<td></td>
<td>• Distributing brochures to local libraries, monitor and maintain inventory</td>
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<td></td>
<td>• Equip trial events with sign-up sheets for general mailings and membership information</td>
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<td></td>
<td>• Add email and mailing list sign-ups to the website and solicit new members by mail</td>
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<td></td>
<td>• Provide electronic access to a mobile friendly website through QR codes on trail signage</td>
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<tr>
<td></td>
<td>Action Description</td>
<td>Responsible Parties</td>
<td>Participants</td>
<td></td>
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<tr>
<td>---</td>
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</tr>
<tr>
<td>4.</td>
<td>FOCHT to form a Leadership Society for donors who make an annual gift of $500 or more and to celebrate with an exclusive event each year.</td>
<td>FOCHT Board</td>
<td>FOCHT members</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Pursue grant funding for trail projects from government agencies and foundations.</td>
<td>P&amp;R, Twp Staff, FOCHT</td>
<td>BOC</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Solicit local foundations for leadership society memberships ($500 or more).</td>
<td>FOCHT</td>
<td>FOCHT members</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Generate revenue through trail permit fees for events hosted on the trail and direct that revenue back to trail initiatives.</td>
<td>P&amp;R, Twp Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Hold a fall festival event or a similar celebration on a nationally recognized day, such as National Trails Day (June 6th in 2015) or National Public Lands Day (September 26th in 2015).</td>
<td>P&amp;R, FOCHT</td>
<td>FOCHT members, volunteers</td>
<td></td>
</tr>
</tbody>
</table>
THE CYNWYD HERITAGE TRAIL PHASE II PLAN
Lower Merion Township, Montgomery County

Aerial Plan
CYNWYD HERITAGE TRAIL
SEGMENT 1

Natural Lands Trust
1031 Palmers Mill Road, Media, PA 19063
610-353-5587 ~ www.natlands.org
THE CYNWYD HERITAGE TRAIL PHASE II PLAN  
Lower Merion Township, Montgomery County

Bala Cynwyd Park
Exercise Cluster

Bala Cynwyd Park Entrance

Colored Asphalt

Planting Area

Monitor Trail for Bamboo Damage

Add to Park

Mow 4’-6’ off Trail
Cynwyd Club Seating Area

Plant Heavily with Shrubs

Aerial Photography

SEGMENT 2

Colored Asphalt

Exercise Cluster

Bala Cynwyd Park Entrance

Mow 4’-6’ off Trail

Add to Park

Planting Area

Monitor Trail for Bamboo Damage
CYNWYD HERITAGE TRAIL
Lower Merion Township, Montgomery County, PA

Aerial Photography

SEGMENT 2

- Extend Sidewalk
to Parking
- Consider Lease/Acquisition
- Additional Parking
- Camouflage Trailer
- Gathering Area
- Remove Invasive Species
- Replant with Native Grasses, Vines, and Fruiting Brambles
- Mural in Underpass
- Barmouth Trailhead and West Laurel Hill Entrance Area
Photography

CYNWYD HERITAGE TRAIL
SEGMENT 3
Lower Merion Township, Montgomery County, PA
Manayunk Bridge Area

Remove Invasive Species
Replant with Native Grasses, Vines, and Fruiting Brambles

Aerial Photography
CYNWD HERITAGE TRAIL PHASE II PLAN
Lower Merion Township, Montgomery County, PA

SEGMENT 4

Bird Watching Area
Low Mow Area
Small Gathering Areas

Connelly Trail Head
Meadow

Move Fence/Wall to Trail Edge with Shrubs Behind

Barmouth North
Manayunk Bridge Area

Compiled By: MEB and HLT 06/23/14

Natural Lands Trust
1031 Palmers Mill Road, Media, PA 19063
610-353-5587 ~ www.natlands.org
CYNWYD BRIDGE AREA

Planting Virginia Creeper

Stone Wall

Raised Gathering Area

Plant Trees and Shrubs

Shrub Garden

Remove Invasive Species

Replant with Native Grasses, Vines, and Fruiting Brambles

Aerial Plan

Manayunk Bridge Area

Stone Wall

Manayunk Bridge Entrance

Stone Wall and Plantings

CYNWYD HERITAGE TRAIL PHASE II PLAN
Lower Merion Township, Montgomery County

Natural Lands Trust
1031 Palmers Mill Road, Media, PA 19063
610-353-5587 ~ www.natlands.org

Compiled By: MEB and HLT 06/23/14
Remove Invasive Species
Replant with Native Grasses,
Vines, and Fruiting Brambles

Barmouth North

Shrub Garden

Plant Trees and Shrubs

Manayunk Bridge Entrance

Manayunk Bridge Area

Stone Wall and Plantings

Raised Gathering Area
Historic Lookout Area

Plant Ferns in Bare Soil

Aerial Photography

CYNWYD HERITAGE TRAIL
Lower Merion Township, Montgomery County, PA

SEGMENT 7
Belmont Trailhead

Provide Turn Around Loop
Remove Weed Trees,
Replace with Flowering Trees

Reclaim Gas Station Wall

Rockhill Trailhead Garden

Plant Ferns in Bare Soil
Provide Turn Around Loop
Remove Weed Trees,
Replace with Flowering Trees

Historic Lookout Area

Belmont Trailhead

Reclaim Gas Station Wall

Rockhill Trailhead Garden
## Cynwyd Heritage Trail: Status of Projects

<table>
<thead>
<tr>
<th>#</th>
<th>Project Name</th>
<th>Seg. #</th>
<th>Project Manager</th>
<th>Installation Date</th>
<th>Installer</th>
<th>Follow-up Inspection:</th>
<th>Description of Project</th>
<th>Ongoing Maintenance Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barmouth Ph. I</td>
<td>3</td>
<td>P&amp;R</td>
<td></td>
<td>P&amp;R, FOCHT, &amp; Contractors</td>
<td>Site Description: Existing parking, plantings, wooded area, storage container</td>
<td>Assess prefab structure, decks and storage areas (annually)</td>
<td>FOCHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Site Prep: Engineered design of additional parking, container site, utilities and sidewalk</td>
<td>Weeding by hand (Monthly)</td>
<td>FOCHT</td>
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<td>Site Prep: Clearing of trees</td>
<td>Weeding by spot spraying</td>
<td>FOCHT</td>
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<td>Site Prep: Grading for sidewalks, parking, pad</td>
<td>Watering (As needed)</td>
<td>FOCHT</td>
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<td>Installation: Stone wall</td>
<td>Maintenance of Fence/Wall</td>
<td>FOCHT</td>
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<td>Installation: Planting of entry driveway trees and shrubs</td>
<td>Replacement of dead plant mat'1. (Seasonally)</td>
<td>FOCHT, P&amp;R</td>
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<td>Installation: Extend water &amp; sewer</td>
<td>Reapplication of mulch (Seasonally, first two years)</td>
<td>FOCHT, P&amp;R</td>
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<td>Installation: Materials storage area</td>
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<td>Installation: Sharrows on driveway</td>
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<td>Additional: Siting of enhanced container/office</td>
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<td>2</td>
<td>Barmouth Ph. II</td>
<td>3</td>
<td>P&amp;R</td>
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<td>P&amp;R, FOCHT, &amp; Contractors</td>
<td>Site Description: At grade lawn, remnants of stone structure, bike racks, stone seating, planted trees</td>
<td>Assess low mow turf (Seasonally)</td>
<td>P&amp;R</td>
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<td>Site Prep: Dig and store existing trees</td>
<td>Assess trellis structure</td>
<td>P&amp;R</td>
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<td>Site Prep: Remove bike racks, stones and store onsite</td>
<td>Assess trellis plantings- prune or train as needed</td>
<td>FOCHT</td>
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<td>Installation: Build stone retaining wall</td>
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<td>Installation: Fill behind wall</td>
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<td>Installation: Topsoil over fill</td>
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<td>Installation: Low mow turf grass seed</td>
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<td>Installation: Construction of trellis</td>
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<td>Installation: Replanting of trees</td>
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<td>Installation: Planting of vines on trellis</td>
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<td>Project Manager</td>
<td>Installation Date</td>
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<td>3</td>
<td>Belmont Trailhead</td>
<td>P&amp;R &amp; FOCHT</td>
<td>FOCHT, PW, P&amp;R, Contractor</td>
<td>Site Description: Planting bed at Belmont Trailhead</td>
<td>Weeding by hand</td>
<td>FOCHT</td>
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<td>Site Prep: Removal of garbage in bed</td>
<td>Weeding by spot spraying</td>
<td>Public Works/ P&amp;R</td>
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<td>Site Prep: Removal of concrete and wooden walls</td>
<td>Watering as needed</td>
<td>Public Works/ P&amp;R</td>
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<td>Site Prep: Application of Pre-Emergent Herbicide</td>
<td>Maintenance of stones and wall</td>
<td>Contractor</td>
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<td>Site Prep: Re-application of Pre-Emergent Herbicide</td>
<td>Reapplication of mulch</td>
<td>FOCHT w/ PW</td>
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<td>Installation: Placement of edging boulders</td>
<td>Replacement of dead plant mat’l.</td>
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<td>Installation: Refacing concrete wall</td>
<td>Assess site furniture for safety (Annually)</td>
<td>P&amp;R</td>
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<td>Installation: Planting of shrubs, ferns &amp; herbaceous</td>
<td>Assess site furniture for graffiti, vandalism, minor issues (Seasonally)</td>
<td>FOCHT</td>
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<td>Additional: Sidewalk widening by Public Works</td>
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<td>Shrub Species: Rhododendron, Mtn. Laurel</td>
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<td></td>
<td>Herb Species: Ferns, Mayapple, Trilliums</td>
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<td>Finish Work: Mulch &amp; Water</td>
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<td>4</td>
<td>Manayunk Bridge Area</td>
<td>P&amp;R &amp; FOCHT</td>
<td>P&amp;R, FOCHT, Contractor</td>
<td>Site Description: At grade lawns</td>
<td>Weeding by hand</td>
<td>FOCHT</td>
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<td>Site Description: Views to Manayunk</td>
<td>Weeding by spot spraying</td>
<td>P&amp;R</td>
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<td>Site Description: Trail connection to bridge/SRT</td>
<td>Watering as needed</td>
<td>FOCHT/ P&amp;R</td>
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<td>Site Description: Existing split rail fence</td>
<td>Maintenance of stones and wall</td>
<td>P&amp;R</td>
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<td>Site Prep: Remove fence prior to wall building</td>
<td>Reapplication of mulch (Seasonally)</td>
<td>FOCHT</td>
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<td>Site Prep: Herbicide or cut out proposed beds</td>
<td>Replacement of dead plant mat’l. (Seasonally)</td>
<td>FOCHT</td>
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<td></td>
<td>Installation: Plantings at trail intersection and along wall/fence</td>
<td>Assess site furniture for safety (Annually)</td>
<td>P&amp;R</td>
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<td></td>
<td>Installation: Construct retaining wall to raise lawn</td>
<td>Assess site furniture for graffiti, vandalism, minor issues (Seasonally)</td>
<td>FOCHT</td>
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<td></td>
<td></td>
<td>Installation: Fill and topsoil behind wall</td>
<td>Reseed lawn as necessary</td>
<td>P&amp;R</td>
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<td>Installation: Low mow grass seed on raised lawn</td>
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<td>Plant Species: Shrubs (Inkberry) &amp; Grasses (Little Bluestem)</td>
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<td>Finish Work: Installation of kiosk &amp; wayfinding signs</td>
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## Ongoing Maintenance Responsibilities

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<th>Task</th>
<th>Responsible Party</th>
<th>Date Complete</th>
<th>Description of Project</th>
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<tbody>
<tr>
<td>Site Prep: Herbicide and/or cut out proposed beds</td>
<td>FOCHT</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Prep: Park entrance plant bed</td>
<td>P&amp;R</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Prep: Park path intersects with trail</td>
<td>FOCHT</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Prep: Park path intersects with trail</td>
<td>P&amp;R</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Description: Park entrance plant bed</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Description: Park path intersects with trail</td>
<td>FOCHT</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Installation: Perimeter on park side of trail</td>
<td>P&amp;R</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Description: Park entrance plant bed</td>
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<td>Site Description: Park path intersects with trail</td>
<td>P&amp;R</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Description: Park path intersects with trail</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<td>Site Description: Park entrance plant bed</td>
<td>P&amp;R</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<td>Site Description: Park path intersects with trail</td>
<td>FOCHT</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<tr>
<td>Site Description: Park entrance plant bed</td>
<td>P&amp;R</td>
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<td>Site Prep: Clear and grade path to wetlands</td>
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<th>Instrument</th>
<th>Installation Date</th>
<th>Follow-up Inspection</th>
<th>Installer</th>
<th>Responsible Party</th>
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<td>1</td>
<td>Bala Cynwyd Park</td>
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<td>P&amp;R &amp; FOCHT</td>
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<td>P&amp;R &amp; FOCHT</td>
<td>Contractor</td>
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<td>Entrance</td>
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<td>P&amp;R &amp; FOCHT</td>
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<td>5</td>
<td>Connelly Spur</td>
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<td>6</td>
<td>Entrance</td>
<td>1</td>
<td>P&amp;R &amp; FOCHT</td>
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<td>6</td>
<td>P&amp;R &amp; FOCHT</td>
<td>Contractor</td>
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</table>

### Site Descriptions

- **Site Description:** Park path intersects with trail
- **Site Description:** Park entrance plant bed
- **Site Description:** Park path intersects with trail
- **Site Description:** Park entrance plant bed
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- **Site Description:** Park entrance plant bed

### Installation

- **Installation:** Perimeter on park side of trail
- **Installation:** Perimeter on park side of trail
- **Installation:** Perimeter on park side of trail
- **Installation:** Perimeter on park side of trail
- **Installation:** Perimeter on park side of trail

### Maintenance

- **Maintenance:** Watering as needed
- **Maintenance:** Watering as needed
- **Maintenance:** Watering as needed
- **Maintenance:** Watering as needed
- **Maintenance:** Watering as needed

### Signage

- **Signage:** Assessment of signage for graffiti, wear (Seasonally)
- **Signage:** Assessment of signage for graffiti, wear (Seasonally)
- **Signage:** Assessment of signage for graffiti, wear (Seasonally)
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<th>Installation Date</th>
<th>Installer</th>
<th>Follow-up Inspection:</th>
<th>Description of Project</th>
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<tr>
<td>7</td>
<td>Overlook Area</td>
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<td>P&amp;R, FOCHT</td>
<td>FOCHT, P&amp;R, HC, Contractor</td>
<td></td>
<td>Site Description: Existing cleared area</td>
<td>Weeding by hand FOCHT</td>
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<td></td>
<td>Site Description: Three existing interpretive signs</td>
<td>Weeding by spot spraying P&amp;R</td>
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<td>Site Description: CHT marker sign in middle of open area</td>
<td>Watering as needed FOCHT/ P&amp;R</td>
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<td>Site Description: Lack of forward edge between signs and slope</td>
<td>Reapplication of mulch (Seasonally first two years) FOCHT</td>
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<td>Site Prep: Removal and storage of signs</td>
<td>Replacement of dead plant mat'. (Seasonally) FOCHT</td>
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<td>Site Prep: Clearing of weed trees</td>
<td>Assessment of signage for graffiti, wear (Seasonally) FOCHT</td>
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<td>Site Prep: Lowering of berms on either side, feathered down to grade</td>
<td>Management of down slope vegetation (Twice annually) P&amp;R</td>
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<td></td>
<td>Installation: Shrub hedge and/or low stone wall</td>
<td>Pruning flowering trees (Annually) FOCHT</td>
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<td>Installation: Entry plantings- flowering trees and shrubs</td>
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<td>Installation: Ground surface- asphalt or crushed stone with fines, graded for sheet flow</td>
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<td>Installation: Reinstall interpretive signs</td>
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<td>8</td>
<td>Cynwyd Club</td>
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<td>P&amp;R, FOCHT</td>
<td>P&amp;R, FOCHT</td>
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<td>Site Description: Emergency turnaround</td>
<td>Maintenance of soft surface trail P&amp;R</td>
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<td>Seating Area</td>
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<td>Site Description: Benches</td>
<td>Weeding by hand FOCHT</td>
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<td>Site Description: Planted trees overwhelmed by unmanaged vegetation</td>
<td>Weeding by spot spraying P&amp;R</td>
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<td>Site Description: Circle made up of soft surface trail material</td>
<td>Watering as needed FOCHT/ P&amp;R</td>
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<td>Site Description: Swales along trail</td>
<td>Reapplication of mulch (Seasonally first two years) FOCHT</td>
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<td>Site Prep: Herbicide, smother or otherwise prepare planting beds</td>
<td>Replacement of dead plant mat'. (Seasonally) FOCHT</td>
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<td>Installation: Plant perennials in swales</td>
<td>Pruning flowering trees (Annually) FOCHT</td>
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<td>Installation: Plant shrub masses around semi-circle</td>
<td>Assessment of benches for wear and vandalism (Monthly) FOCHT</td>
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<td>Installation: Plant low growing, thicket forming shrubs on club side</td>
<td>Assessment of benches for safety issues (Annually) P&amp;R</td>
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<td>Project Name</td>
<td>Seg. #</td>
<td>Project Manager</td>
<td>Installation Date</td>
<td>Installer</td>
<td>Follow-up Inspection:</td>
<td>Description of Project</td>
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<tr>
<td>9</td>
<td>Bala Cynwyd Park</td>
<td>1</td>
<td>P&amp;R</td>
<td>P&amp;R, Contractors</td>
<td></td>
<td></td>
<td>Site Description: Hill area between BC Park and trail</td>
</tr>
<tr>
<td></td>
<td>Exercise Cluster</td>
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<td>Note: Greenfield Equipment website states that no ongoing lubrication or maintenance is required.</td>
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<td></td>
<td>Site Description: Adjacent to, but fenced off from playgrounds</td>
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<td></td>
<td>Site Prep: Clear and grub area</td>
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<td></td>
<td></td>
<td>Site Prep: Extend water from bathrooms</td>
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<tr>
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<td></td>
<td></td>
<td>Site Prep: Grade area for access</td>
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<td></td>
<td></td>
<td>Site Prep: Remove chain link fence</td>
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<tr>
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<td></td>
<td></td>
<td>Site Prep: Remove weed trees along fence</td>
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<td></td>
<td>Installation: Retaining wall if necessary for grading provides seating as well</td>
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<td></td>
<td></td>
<td>Installation: Lay foundation, concrete slab &amp; resilient playground surface</td>
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<td></td>
<td></td>
<td></td>
<td>Installation: Install outdoor gym equipment</td>
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<td></td>
<td></td>
<td>Installation: Overhead canopy or other shade if necessary</td>
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</tr>
<tr>
<td>10</td>
<td>Barmouth North</td>
<td>3</td>
<td>P&amp;R</td>
<td>P&amp;R, FOCHT</td>
<td></td>
<td></td>
<td>Site Description: 2 ac. open area, turf grass</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Site Description: Slopes, berms, swales</td>
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<td></td>
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<td>Site Description: Soft and hard surface trails</td>
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<td></td>
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<td>Site Description: Underused spaces</td>
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<td></td>
<td>Site Prep: Prepare areas for wet and dry meadows through herbicide application</td>
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<td></td>
<td></td>
<td>Site Prep: Repeat herbicide application as necessary</td>
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<td></td>
<td></td>
<td>Site Prep: Remove weed trees and debris</td>
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<td></td>
<td></td>
<td>Installation: See cost estimate and meadow management documents in appendix for details</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>Installation: Seed meadows</td>
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<td></td>
<td></td>
<td>Installation: Establish gathering areas through seeding with low mow turf grass</td>
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<td></td>
<td></td>
<td></td>
<td>Installation: Signage explaining meadow and wet meadow projects</td>
</tr>
<tr>
<td></td>
<td>Project Name</td>
<td>Seg. #</td>
<td>Project Manager</td>
<td>Installation Date</td>
<td>Installer</td>
<td>Follow-up Inspection:</td>
<td>Description of Project</td>
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</tr>
<tr>
<td>11</td>
<td>Vine Creek</td>
<td>2.3 &amp;4</td>
<td>P&amp;R, FOCHT &amp; Contractor</td>
<td></td>
<td></td>
<td></td>
<td>Site Description: Degraded stream, eroded, some steep side slopes</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Site Description: Banks overrun by knotweed in places</td>
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<td></td>
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<td>Site Description: Limited access due to vegetation and bank conditions.</td>
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<td>Site Description: Stream well shaded and flows regularly.</td>
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<td></td>
<td>Site Description: Existing bridge and nearby buildings are amenities, visual interest</td>
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<td></td>
<td></td>
<td></td>
<td>Prep: Further study to determine feasible phases based on volunteer, funding and resource availability</td>
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<td>Site Prep: Obtain permits from DEP as necessary.</td>
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<td></td>
<td>Site Work: Restore / stabilize the bridge</td>
</tr>
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<td></td>
<td></td>
<td>Site Work: Remove vines from bridge and nearby cemetery building</td>
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<td></td>
<td></td>
<td></td>
<td>Installation: Replace gate with pedestrian friendly bollards (work with Westminster Cemetery)</td>
</tr>
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<td></td>
<td></td>
<td>Site Prep: Remove invasive species such as knotweed through mechanical means, hand pulling or herbicide application</td>
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<td></td>
<td></td>
<td></td>
<td>Installation: Plant flowering trees and shrubs near bridge to frame entrance and create gathering space</td>
</tr>
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<td></td>
<td>Installation: Plant shade trees along the banks to stabilize soil, shade out grasses and invasive species and contribute to the overall health of the stream</td>
</tr>
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<td></td>
<td>Installation: Plant shrubs after trees have formed continuous canopies.</td>
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<td></td>
<td>Installation: Establish grass paths which approach stream at angles to reduce fall line erosion.</td>
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<td></td>
<td>Installation: Place large flat stones intermittently along bank to provide stream access. Stones must be placed in areas where erosion is not taking place.</td>
</tr>
</tbody>
</table>
### Master Maintenance Schedule

<table>
<thead>
<tr>
<th>Priority</th>
<th>Task</th>
<th>Responsible Party</th>
<th>Frequency</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collect Branches Felled by Winter Storms</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Annually + As Needed</td>
<td>Trail clearing and pickup</td>
<td>After the final snowfall of the season, remove branches from the trail and trailside. Some may be scattered in woodlands, while others may need to be collected disposed of. Volunteers may help gather and move smaller branches, while Township staff addresses larger limbs.</td>
</tr>
<tr>
<td>1</td>
<td>Maintain Swale Grasses</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Twice per Year</td>
<td>Spring Trimming</td>
<td>Prior to April 1st To 8-12” height With line trimmer or similar equipment</td>
</tr>
<tr>
<td>1</td>
<td>Monitor For Hazard Trees</td>
<td>P&amp;R, PW, Consultant</td>
<td>Quarterly + After Major Storm Events</td>
<td>Per Township Policy</td>
<td>The potential for hazard trees exists along the entire trail, most notably along Vine Creek and approaching Belmont Avenue.</td>
</tr>
<tr>
<td>1</td>
<td>Perform Winter Maintenance</td>
<td>P&amp;R, PW</td>
<td>Annually</td>
<td>Equipment and Structures</td>
<td>Assess and inventory existing equipment and structures Fix or perform routine maintenance Purchase new equipment as necessary</td>
</tr>
<tr>
<td>1</td>
<td>Maintain Meadows</td>
<td>P&amp;R, PW</td>
<td>Twice to Three Times per Year</td>
<td>Spring Maintenance</td>
<td>Mow meadow to 8-12” height</td>
</tr>
<tr>
<td>2</td>
<td>Monitor for Graffiti and Vandalism</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Visual Inspection</td>
<td>Volunteers can be given authorization to paint over graffitti as they see fit. The Township should provide paint to be used on concrete walls and fencing. Where stone walls, signage or other materials have been vandalized, these incidents should be reported to P &amp; R.</td>
</tr>
<tr>
<td>2</td>
<td>Monitor and Assess Fencing</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Annually</td>
<td>Visual Inspection w/ tagging</td>
<td>After the final snowfall of the season, the split rail fence should be assessed for rotting or broken posts and rails. Those to be replaced can be marked with paint or tape, to be addressed by staff or volunteers.</td>
</tr>
<tr>
<td>3</td>
<td>Control Invasive Plants</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Vines and Shrubs</td>
<td>Cut vines in canopy trees Cut/herbicide shrubs Spray evergreen vines if temperature is above 45 degrees F.</td>
</tr>
<tr>
<td>3</td>
<td>Remove debris piles</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Annually</td>
<td>Soil, stones, other.</td>
<td>Many berms and hills along the trail are covered piles of stones, cinder blocks and other materials. If their removal is part of a larger project, they can be removed early in the year, before plant related tasks become more important.</td>
</tr>
<tr>
<td>3</td>
<td>Monitor Property Boundaries</td>
<td>P&amp;R, PW</td>
<td>Annually</td>
<td>Visual Inspection</td>
<td>No survey exists, most boundaries are not marked in the field, but obvious encroachments should be noted and addressed.</td>
</tr>
<tr>
<td>AA</td>
<td>Prep New Planting Beds</td>
<td>P&amp;R, PW, Volunteers</td>
<td>As applicable</td>
<td>Vegetation removal, soil amendments, etc</td>
<td>Vegetation removal may be a multi-month process if undertaken through smothering or other non-mechanical and non-chemical means. It must be planned for in conjunction with new plantings.</td>
</tr>
<tr>
<td>Priority</td>
<td>Task</td>
<td>Responsible Party</td>
<td>Frequency</td>
<td>Description</td>
<td>Notes</td>
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</tr>
<tr>
<td>1</td>
<td>Maintain Plantings</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Visual Assessment - Address Accordingly</td>
<td>Visually assess recent plantings for: Overall health of plants (Bi-weekly) Weed growth Condition of mulch Condition of tree tubes, stakes, deer fencing or other structures Address needs accordingly</td>
</tr>
<tr>
<td>1</td>
<td>Monitor For Hazard Trees</td>
<td>P&amp;R, PW, Consultant</td>
<td>Quarterly + After Major Storm Events</td>
<td>Per Township Policy</td>
<td>The potential for hazard trees exists along the entire trail, most notably along Vine Creek and approaching Belmont Avenue.</td>
</tr>
<tr>
<td>1</td>
<td>Monitor for Grafitti and Vandalism</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Visual Inspection</td>
<td>Volunteers can be given authorization to paint over grafitti as they see fit. The Township should provide paint to be used on concrete walls and fencing. Where stone walls, signage or other materials have been vandalized, these incidents should be reported to P &amp; R.</td>
</tr>
<tr>
<td>1</td>
<td>Maintain Trail Sides and Gathering Areas</td>
<td>P&amp;R, PW</td>
<td>Bi-weekly or as-needed per event schedule or weather</td>
<td>Mowing or Weed Wacking</td>
<td>Trail sides should be kept clear of vegetation by mowing or weed whacking the first two feet off the edge of the trail on a bi-weekly, or as needed basis. Gathering areas with traditional turf grass should be mowed on a bi-weekly, or as needed basis. Gathering areas planted with low or no mow turf grass should be mowed per manufacturers instructions. All turfgrasses should be permitted to grow to a height of 4-6&quot;, which will encourage root growth and discourage weeds and other species from growing into</td>
</tr>
<tr>
<td>2</td>
<td>Control Invasive Plants</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>All Vegetation Types</td>
<td>Cut vines in canopy trees Cut/herbicide large shrubs Hand pull seedlings and saplings Cut and herbicide woody plants on rock slopes</td>
</tr>
<tr>
<td>2</td>
<td>Monitor Trail Entrances</td>
<td>P&amp;R, PW, Other Twp Staff</td>
<td>Annually</td>
<td>Private/ Unsanctioned Entrances</td>
<td>Staff should visually assess any new, unsanctioned trail entrances and determine whether they meet the township building code, whether they interfere with the flow of stormwater within the swales or cause any other</td>
</tr>
<tr>
<td>2</td>
<td>Maintain Soft Surface Trail</td>
<td>P&amp;R, PW</td>
<td>Annually</td>
<td>Monitor surface for erosion and plant growth</td>
<td>Staff should visually assess the length of the soft surface trail and address areas of erosion or plant growth. As the enzyme solution is proprietary, it is unclear whether herbicide will affect the bonding agents in the surface. Effects should be monitored. Where erosion has occurred, additional soil treated with permazyme should be applied and compacted mechanically or by hand with tampers. Additional soil</td>
</tr>
<tr>
<td>Priority</td>
<td>Task</td>
<td>Responsible Party</td>
<td>Frequency</td>
<td>Description</td>
<td>Notes</td>
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</tbody>
</table>
| 1        | Maintain Plantings | P&R, PW, Volunteers | Monthly | Visual Assessment - Address Accordingly | Visually assess recent plantings for:
- Overall health of plants (Bi-weekly)
- Weed growth
- Condition of mulch
- Condition of tree tubes, stakes, deer fencing or other structures
- Address needs accordingly |
| 1        | Monitor For Hazard Trees | P&R, PW, Consultant | Quarterly + After Major Storm Events | Per Township Policy | The potential for hazard trees exists along the entire trail, most notably along Vine Creek and approaching Belmont Avenue. |
| 1        | Monitor for Graffiti and Vandalism | P&R, PW, Volunteers | Monthly | Visual Inspection | Volunteers can be given authorization to paint over graffiti as they see fit. The Township should provide paint to be used on concrete walls and fencing. Where stone walls, signage or other materials have been vandalized, these incidents should be reported to P & R. |
| 1        | Maintain Trail Sides and Gathering Areas | P&R, PW | Bi-weekly or as-needed per event schedule or weather | Mowing or Weed Wacking | Trail sides should be kept clear of vegetation by mowing or weed whacking the first two feet off the edge of the trail on a bi-weekly, or as needed basis. Gathering areas with traditional turf grass should be mowed on a bi-weekly, or as needed basis. Gathering areas planted with low or no mow turf grass should be mowed per manufacturers instructions. All turfgrasses should be permitted to grow to a height of 4-6", which will encourage root growth and discourage weeds and other species from growing into |
| 2        | Control Invasive Plants | P&R, PW, Volunteers | Monthly | All Vegetation Types | Cut vines in canopy trees
Cut/herbicide large shrubs
Hand pull seedlings and saplings
Cut and herbicide woody plants on rock slopes |
<p>| 2        | Monitor Trail Entrances | P&amp;R, PW, Other Twp Staff | Annually | Private/ Unsanctioned Entrances | Staff should visually assess any new, unsanctioned trail entrances and determine whether they meet the township building code, whether they interfere with the flow of stormwater within the swales or cause any other |
| 2        | Maintain Soft Surface Trail | P&amp;R, PW | Annually | Monitor surface for erosion and plant growth | Staff should visually assess the length of the soft surface trail and address areas of erosion or plant growth. As the enzyme solution is proprietary, it is unclear whether herbicide will affect the bonding agents in the surface. Effects should be monitored. Where erosion has occurred, additional soil treated with permazyme should be applied and compacted mechanically or by hand with tampers. Additional soil |</p>
<table>
<thead>
<tr>
<th></th>
<th>Task Description</th>
<th>Responsible Parties</th>
<th>Frequency</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Remove debris piles</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Annually</td>
<td>Soil, stones, vegetation, other. Many berms and hills along the trail are covered piles of stones, cinder blocks and other materials. If their removal is part of a larger project, they can be removed early in the year, before plant related tasks become more important. Tree branches, weed piles and other related materials may also be present in piles along the trail as spring and summer progress.</td>
</tr>
</tbody>
</table>
| AA | Prep New Planting Beds | P&R, PW, Volunteers | As applicable | Vegetation removal, soil amendments, Vegetation removal may be a multi-month process if undertaken through smothering or other non-mechanical and non-chemical means. It must be | Prep New Planting Beds are P&R, PW, Volunteers. Vegetation removal, soil amendments, Vegetation removal may be a multi-month process if undertaken through smothering or other non-mechanical and non-chemical means. It must be |}
<p>| AA | Install Plantings       | P&amp;R, PW, Volunteers | Twice per Year (Spring and Fall Plantings) | Plantings proposed in maintenance and design sections of | Install Plantings are P&amp;R, PW, Volunteers. Plantings proposed in maintenance and design sections of |
| AA | Water Plantings         | P&amp;R, PW, Volunteers | Weekly/ As Needed (Weather dependent) | Recently planted trees, shrubs and perennials | Water Plantings are P&amp;R, PW, Volunteers. Recently planted trees, shrubs and perennials |
| AA | Prep and plant meadows  | P&amp;R, PW, Consultant | As applicable | Site Preparation and Planting Prior to June 1st Site Preparation may include application of herbicide, sod removal, or other methods of clearing Planting per seed mix manufacturers instructions | Prep and plant meadows are P&amp;R, PW, Consultant. Site Preparation and Planting Prior to June 1st Site Preparation may include application of herbicide, sod removal, or other methods of clearing Planting per seed mix manufacturers instructions |</p>
<table>
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<tr>
<th>Priority</th>
<th>Task</th>
<th>Responsible Party</th>
<th>Frequency</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maintain Trail Sides and Gathering Areas</td>
<td>P&amp;R, PW</td>
<td>Bi-weekly or as-needed per event schedule or weather</td>
<td>Mowing and Trimming</td>
<td>Trail sides should be kept clear of vegetation by mowing or weed whacking the first two feet off the edge of the trail on a bi-weekly, or as needed basis. Gathering areas with traditional turf grass should be mowed on a bi-weekly, or as needed basis. Gathering areas planted with low or no mow turf grass should be mowed per manufacturers instructions. All turfgrasses should be permitted to grow to a height of 4-6&quot;, which will encourage root growth and discourage weeds and other species from growing into...</td>
</tr>
<tr>
<td>1</td>
<td>Monitor for Grafitti and Vandalism</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Visual Inspection</td>
<td>Volunteers can be given authorization to paint over graffi as they see fit. The Township should provide paint to be used on concrete walls and fencing. Where stone walls, signage or other materials have been vandalized, these incidents should be reported to P &amp; R.</td>
</tr>
<tr>
<td>1</td>
<td>Monitor For Hazard Trees</td>
<td>P&amp;R, PW, Consultant</td>
<td>Quarterly + After Major Storm Events</td>
<td>Per Township Policy</td>
<td>The potential for hazard trees exists along the entire trail, most notably along Vine Creek and approaching Belmont Avenue.</td>
</tr>
<tr>
<td>1</td>
<td>Water New Plantings</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Weekly/ As Needed (Weather dependent)</td>
<td>Recently planted trees, shrubs and perennials as</td>
<td>Water recent plantings during dry periods. Ground should be kept moist to the touch.</td>
</tr>
<tr>
<td>1</td>
<td>Maintain Plantings</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Visual Assessment - Address Accordingly</td>
<td>Visually assess recent plantings for: Overall health of plants (Bi-weekly) Weed growth Condition of mulch Condition of tree tubes, stakes, deer fencing or other structures Address needs accordingly</td>
</tr>
<tr>
<td>2</td>
<td>Maintain Swale Grasses</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Twice per Year</td>
<td>Summer trimming</td>
<td>After mid August With line trimmer or similar equipment To 8-12&quot; height</td>
</tr>
<tr>
<td>3</td>
<td>Control Invasive Plants</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Broadleaf Weed Control</td>
<td>Spray or hand pull broadleaf plants in grasslands, meadows, swales and other areas.</td>
</tr>
<tr>
<td>AA</td>
<td>Maintain Meadows</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Twice to Three Times</td>
<td>Summer Mowing</td>
<td>Mow meadow to 6-10&quot; height if necessary to control outbreaks of invasive or woody species</td>
</tr>
<tr>
<td>AA</td>
<td>Prepare new meadow sites</td>
<td>P&amp;R, PW, Contractor</td>
<td>As applicable</td>
<td>Site Preparation</td>
<td>Site Preparation may include application of herbicide, sod removal, or other methods of clearing. Should be undertaken as early as September.</td>
</tr>
<tr>
<td>AA</td>
<td>Install No / Low Mow Grass</td>
<td>P&amp;R, PW, Contractor</td>
<td>As applicable</td>
<td>Turf Installation and Site Prep</td>
<td>After August 20th Per manufacturers instructions Site preparation may include sod removal, herbicide application, soil improvements, etc.</td>
</tr>
<tr>
<td>AA</td>
<td>Install Plantings (Sept Only)</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Twice per Year (Spring and Fall Plantings)</td>
<td>Plantings proposed in maintenance and design sections of</td>
<td>Plantings should be installed as weather permits, but most likely in September.</td>
</tr>
<tr>
<td>-----</td>
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<td>----------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AA</td>
<td>Prep New Planting Beds</td>
<td>P&amp;R, PW, Volunteers</td>
<td>As applicable</td>
<td>Vegetation removal, soil amendments,</td>
<td>Vegetation removal may be a multi-month process if undertaken through smothering or other non-mechanical and non-chemical means. It must be</td>
</tr>
<tr>
<td>Priority</td>
<td>Task</td>
<td>Responsible Party</td>
<td>Frequency</td>
<td>Description</td>
<td>Notes</td>
</tr>
<tr>
<td>----------</td>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Monitor for Grafitti and Vandalism</td>
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<td>Monthly</td>
<td>Visual Inspection</td>
<td>Volunteers can be given authorization to paint over graffiti as they see fit. The Township should provide paint to be used on concrete walls and fencing. Where stone walls, signage or other materials have been vandalized, these incidents should be reported to P &amp; R.</td>
</tr>
<tr>
<td>1</td>
<td>Monitor For Hazard Trees</td>
<td>P&amp;R, PW, Consultant</td>
<td>Quarterly +</td>
<td>Per Township Policy</td>
<td>The potential for hazard trees exists along the entire trail, most notably along Vine Creek and approaching Belmont Avenue.</td>
</tr>
<tr>
<td></td>
<td>Remove Potential Hazard Trees</td>
<td>P&amp;R, PW, Contractor</td>
<td>Annually</td>
<td>Trees</td>
<td>Cut and remove potential hazard trees after leaves have fallen. Late fall to early winter cutting will avoid heavy sap flows in many species.</td>
</tr>
<tr>
<td>1</td>
<td>Water New Plantings</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Weekly/ As Needed</td>
<td>Recently planted trees, shrubs and perennials as</td>
<td>Water recent plantings during dry periods. Ground should be kept moist to the touch.</td>
</tr>
<tr>
<td></td>
<td>Maintain Plantings</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Visual Assessment - Address Accordingly</td>
<td>Visually assess recent plantings for: Overall health of plants (Bi-weekly) Weed growth Condition of mulch Condition of tree tubes, stakes, deer fencing or other structures Address needs accordingly</td>
</tr>
<tr>
<td></td>
<td>Remove Branches and Debris</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Fall Cleanup</td>
<td>Branches and other debris should be removed from the trail and immediate trail sides. Branches can be scattered in the woodlands to provide habitat and</td>
</tr>
<tr>
<td>2</td>
<td>Maintain Soft Surface Trail</td>
<td>P&amp;R, PW</td>
<td>Annually</td>
<td>Monitor surface for erosion and plant growth</td>
<td>Staff should visually assess the length of the soft surface trail and address areas of erosion or plant growth. As the enzyme solution is proprietary, it is unclear whether herbicide will affect the bonding agents in the surface. This should be monitored. Where erosion has occurred, additional soil treated with permazyme should be applied and compacted mechanically or by hand with tampers. Additional soil</td>
</tr>
<tr>
<td>2</td>
<td>Control Invasive Plants</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Monthly</td>
<td>Vines and Shrubs</td>
<td>Cut vines in canopy trees Cut/herbicide shrubs Spray evergreen vines if temperature is above 45</td>
</tr>
<tr>
<td>2</td>
<td>Remove Invasive Trees</td>
<td>P&amp;R, PW, Contractor</td>
<td>Annually</td>
<td>Trees</td>
<td>Cut and remove invasive trees after leaves have fallen. Late fall to early winter cutting will avoid heavy sap flows in many species.</td>
</tr>
<tr>
<td>3</td>
<td>Remove Leaves</td>
<td>Volunteers</td>
<td>As Available</td>
<td>Fall Cleanup</td>
<td>Leaves should be removed from the trail, with the understanding that other leaves will likely blow onto the trail. Areas with split rail fence or other structures which catch and trap leaves should be addressed first. Leaves should be collected for compost or leaf mulch, only when other prioritized tasks have been completed.</td>
</tr>
<tr>
<td></td>
<td>Planting Activity</td>
<td>Responsible</td>
<td>Frequency</td>
<td>Season</td>
<td>Notes</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>3</td>
<td>Prune Trees in Plantings</td>
<td>P&amp;R, PW, Volunteers</td>
<td>Annually or as needed</td>
<td>Pruning</td>
<td>Prune trees to remove dead wood or broken branches which can be damaged by winter snow or ice accumulations. Late fall to early winter pruning will also avoid heavy sap flows in many species.</td>
</tr>
</tbody>
</table>
| AA | Maintain Meadows | P&R, PW | Twice to Three Times | Fall Mowing | After November 15th  
Mow to height of 6-10" |
| AA | Install No / Low Mow Grass | P&R, PW, Contractor | As applicable | Turf Installation and Site Prep | Prior to October 20th  
Per manufacturers instructions  
Site preparation may include sod removal, herbicide application, soil improvements, etc. |
| AA | Prep and Plant Meadows | P&R, PW, Contractor | As applicable | Site Preparation and Planting | Prior to Nov. 15th  
Plant cover crop  
Plant meadow mix after hard frost deters further germination |
| AA | Install Plantings (Prior to frost) | P&R, PW, Volunteers | Twice per Year (Spring and Fall Plantings) | Plantings proposed in maintenance and design sections of | Plantings should be installed as weather permits, but most likely in October. |
Invasive Plants in Pennsylvania

Golden Bamboo

*Phyllostachys aurea*

**Description:**
At a maximum height of 30 to 40 feet, golden bamboo towers over most other grasses. The hollow culms (stems) are initially green, turning yellow when exposed to sunlight. The evergreen, lanceolate leaves may be rough or smooth. Golden bamboo flowers infrequently, perhaps every seven to 12 years.

**Biology and Spread:**
Golden bamboo spreads predominately through vegetative growth. It is a fast-growing species and expands quickly by underground rhizomes. Despite containment efforts, it will often find its way out of confinement to infest nearby areas.

**Ecological Threat:**
Due to the thick, tall nature of the colonies it produces, golden bamboo virtually eliminates all understory plants that stand in its way. In effect, it leaves little appropriate habitat for wildlife, sharply decreasing biodiversity. Once established in an area, it is quite difficult to remove.

**Background:**
Golden bamboo, an enormous member of the grass family *Poaceae*, was introduced into the United States in 1882, specifically in Alabama. Property owners commonly turn to this aggressive plant when needing a visual screen or noise barrier in their yards. It is readily available from commercial nurseries.

**Range:**
Golden bamboo is native to Southeast China. Unfortunately, it can now also be found throughout the Mid-Atlantic and Southeastern regions of the United States.

**Habitat:**
Golden bamboo thrives in full sun, but will grow well in sparsely wooded secondary forests. The most vigorous growth occurs in moist, deep, loamy soils, where this bamboo spreads rapidly. Golden bamboo will still flourish in less than ideal habitats, although at a diminished rate.
How to Control this Species:

Physical
Small infestations, or areas where herbicides are not permitted, can be controlled mechanically by cutting and mowing. Cut plants as close to the ground as possible. This management technique will need to be repeated several times throughout the growing season since bamboo readily re-sprouts. Monitoring and retreatment over the course of several growing seasons is essential in order to ensure that energy reserves in the rhizomes are exhausted.

Chemical
Large areas of bamboo, where risks to non-target species are minimal, can be treated with foliar applications of five percent glyphosate mixed in water. Canes should first be cut and herbicides applied to newly expanded leaves. Alternatively, a 25 percent solution of glyphosate mixed in water can be applied to freshly cut stumps.

Look-A-Likes:
Golden bamboo looks similar to our native giant cane, which grows throughout the Mid-Atlantic and Southeast.

Native Alternatives:
Dense native shrubs and grasses make excellent natural screens. For similarly interesting foliage, try scouring rush horsetail (Equisetum hyemale var. affine). Giant cane (Arundinaria gigantean) is another option.

References:
Center for Invasive Species and Ecosystem Health: http://www.invasive.org/browse/subinfo.cfm?sub=3063
Southeast Exotic Pest Plant Council: http://dnr.state.il.us/stewardship/cd/eppc/phau1.html
USDA Forest Service: http://www.invasive.org/weedcd/pdfs/wow/golden-

For More Information:
DCNR Invasive Species Site: http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm
Japanese Barberry

*Berberis thunbergii* DC.
Barberry family (Berberidaceae)

**NATIVE RANGE**
Japan

**DESCRIPTION**
Japanese barberry is a dense, deciduous, spiny shrub that grows 2 to 8 ft. high. The branches are brown, deeply grooved, somewhat zig-zag in form and bear a single very sharp spine at each node. The leaves are small (½ to 1 ½ inches long), oval to spatula-shaped, green, bluish-green, or dark reddish purple. Flowering occurs from mid-April to May in the northeastern U.S. Pale yellow flowers about ¼ in (0.6 cm) across hang in umbrella-shaped clusters of 2-4 flowers each along the length of the stem. The fruits are bright red berries about 1/3 in (1 cm) long that are borne on narrow stalks. They mature during late summer and fall and persist through the winter.

**NOTE:** Japanese barberry may be confused with American barberry (*Berberis canadensis*), the only native species of barberry in North America, and common or European barberry (*Berberis vulgaris*) which is an introduced, sometimes invasive plant.

**ECOLOGICAL THREAT**
Japanese barberry forms dense stands in natural habitats including canopy forests, open woodlands, wetlands, pastures, and meadows and alters soil pH, nitrogen levels, and biological activity in the soil. Once established, barberry displaces native plants and reduces wildlife habitat and forage. White-tailed deer apparently avoid browsing barberry, preferring to feed on native plants, giving barberry a competitive advantage. In New Jersey, Japanese barberry has been found to raise soil pH (i.e., make it more basic) and reduce the depth of the litter layer in forests.

**DISTRIBUTION IN THE UNITED STATES**
Japanese barberry has been reported to be invasive in twenty states and the District of Columbia. Due to its ornamental interest, barberry is still widely propagated and sold by nurseries for landscaping purposes in many parts of the U.S.

**HABITAT IN THE UNITED STATES**
Barberry is shade tolerant, drought resistant, and adaptable to a variety of open and wooded habitats, wetlands and disturbed areas. It prefers to grow in full sun to part shade but will flower and fruit even in heavy shade.

**BACKGROUND**
Japanese barberry was introduced to the U.S. and New England as an ornamental plant in 1875 in the form of seeds sent from Russia to the Arnold Arboretum in Boston, Massachusetts. In 1896, barberry shrubs grown from these seeds were planted at the New York Botanic Garden. Japanese barberry was later promoted as a substitute for common barberry (*Berberis vulgaris*) which was planted by settlers for hedgerows, dye and jam, and later found to be a host for the black stem grain rust. Because Japanese barberry has been cultivated for ornamental purposes for many years, a number of cultivars exist.
BIOLOGY & SPREAD
Japanese barberry spreads by seed and by vegetative expansion. Barberry produces large numbers of seeds which have a high germination rate, estimated as high as 90%. Barberry seed is transported to new locations with the help of birds (e.g., turkey and ruffed grouse) and small mammals which eat it. Birds frequently disperse seed while perched on powerlines or on trees at forest edges. Vegetative spread is through branches touching the ground that can root to form new plants and root fragments remaining in the soil that can sprout to form new plants.

MANAGEMENT OPTIONS
Do not plant Japanese barberry. Because it is a prolific seed-producer with a high germination rate, prevention of seed production should be a management priority. Because barberry can resprout from root fragments remaining in soil, thorough removal of root portions is important. Manual control works well but may need to be combined with chemical in large or persistent infestations.

Biological
No biological control organisms are available for this plant.

Chemical
Treatments using the systemic herbicides glyphosate (e.g., Roundup®) and triclopyr (e.g., Garlon®) have been effective in managing Japanese barberry infestations that are too large for hand pulling. For whole plant treatment, apply a 2% solution of glyphosate mixed with water and a surfactant. This non-selective herbicide should be used with care to avoid impacting non-target native plants. Application early in the season before native vegetation has matured may minimize non-target impacts. However, application in late summer during fruiting may be most effective. Triclopyr or glyphosphate may be used on cut stumps or as a basal bark application in a 25% solution with water, covering the outer 20% of the stump.

Manual
Because Japanese barberry leaves out early, it is easy to identify and begin removal efforts in early spring. Small plants can be pulled by hand, using thick gloves to avoid injury from the spines. The root system is shallow making it easy to pull plants from the ground, and it is important to get the entire root system. The key is to pull when the soil is damp and loose. Young plants can be dug up individually using a hoe or shovel. Hand pulling and using a shovel to remove plants up to about 3 ft high is effective if the root system is loosened up around the primary tap root first before digging out the whole plant.

Mechanical
Mechanical removal using a hoe or Weed Wrench® can be very effective and may pose the least threat to non-target species and the general environment at the site. Tools like the Weed Wrench® are helpful for uprooting larger or older shrubs. Shrubs can also be mowed or cut repeatedly. If time does not allow for complete removal of barberry plants at a site, mowing or cutting in late summer prior to seed production is advisable.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACTS
For more information on the management of Japanese barberry, please contact:

- Ian Shackleford, Ottawa National Forest, E6248 U.S.2, Ironwood, MI 49938; (906) 932-1330 x508
- Jessica Murray, Ecological Restoration Coordinator, Berkshire Taconic Landscape Program, The Nature Conservancy, PO Box 268, Sheffield, MA 01262; (413) 229-0232 x228; jmurray at tnc.org

SUGGESTED ALTERNATIVE PLANTS
Many attractive native shrubs are available that make great substitutes for Japanese barberry. A few examples include bayberry (*Myrica pensylvanica*), ink-berry (*Ilex glabra*), winterberry (*Ilex verticillata*), arrow-wood (*Viburnum dentatum*), mountain laurel (*Kalmia latifolia*), ninebark (*Physocarpus opulifolius*) and hearts-a-bustin’ (*Euonymus americana*). Please check with your state native plant nursery for suggestions for plants appropriate to your area.

20 May 2005
OTHER LINKS
- http://www.invasive.org/search/action.cfm?q=Berberis%20thunbergii

AUTHOR
Jil M. Swearingen, National Park Service, Center for Urban Ecology, Washington, DC

REVIEWERS
Sylvan Kaufman, Conservation Curator, Adkins Arboretum, Ridgely, MD

PHOTOGRAPH
Jil M. Swearingen, National Park Service, Center for Urban Ecology, Washington, DC

REFERENCES


McDonald, Brian (personal communication with Sylvan Kaufman).


Shackleford, Ian (personal communication with Sylvan Kaufman).


Invasive Plants in Pennsylvania

Burning Bush

*Euonymus alatus*

**Description:**

Burning bush is a fast-growing, deciduous shrub that may reach five to 15 feet in height. Its green stems usually have prominent, corky wings. Elliptic leaves with finely serrated margins are arranged in opposite formation and turn a brilliant purplish-red to scarlet in the fall. Flowers are small and yellowish-green, becoming fruits that split to expose four red-orange seeds in late fall.

**Biology and Spread:**

This shrub is a prodigious seed producer. Many germinate where they fall, close to the mother plant, creating a dense bed of seedlings. Others are carried by birds, allowing infestations to spread rapidly.

**Ecological Threat:**

Winged euonymus easily outcompetes native plants with its large, dense silhouette. Lacking pests and tolerant of deep shade, this shrub can force itself into moist forested sites, creating large thickets that displace native herbs and shrubs. This displacement has negative consequences for both aquatic and terrestrial ecosystems.

**Background:**

Burning bush, also commonly known as winged euonymus, was introduced into the United States in 1860 for use as an ornamental shrub. Its attractive, bright red fall foliage and desirable form has made this shrub a popular ornamental and an easy go-to plant used by landscape designers. As a result, it is commonly planted along interstate highways, as hedges and in foundation plantings.

**Range:**

Native to northeastern Asia, winged euonymus has escaped throughout the Northeast and Midwestern United States.

**Habitat:**

Winged euonymus quickly escapes into woodlands, mature forests and open fields. It is highly adaptable to a variety of soil types and pH levels, although it generally doesn’t do well in dry areas. It is tolerant of full shade.
How to Control this Species:

Physical
Seedlings, up to two feet tall, can be easily hand-pulled, especially when the soil is moist.

Larger plants must be dug out with a spading fork, pulled with a weed wrench, or cut. The stump must be ground out or the re-growth clipped; be sure to remove a majority of the root system.

Chemical
Glyphosate can be applied as a foliar spray or painted on cut stumps.

Look-A-Likes:
Winged euonymus may be confused with other species of euonymus, including our native strawberry bush (Euonymus americana). Saplings of native sweetgum (Liquidambar styraciflua) also have winged stems.

Native Alternatives:
A wide variety of native shrubs provide beauty and wildlife value to the landscape, including:

References:
Center for Invasive Species and Ecosystem Health: http://www.invasive.org/browse/subinfo.cfm?sub=3023

For More Information:
DCNR Invasive Species Site: http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm
DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers: http://www.dcnr.state.pa.us/forestry/invasivetutorial/winged_euonymus.htm
Butterfly Bush *Buddleja davidii* Franch.

**Common Names:** butterfly bush, orange-eye butterfly bush, summer lilac  
**Native Origin:** China  
**Description:** A perennial woody shrub with a weeping form that can grow 3-12 feet in height and has a spread of 4-15 feet. Opposite, lance-shaped leaves (6-10 inches) with margins finely toothed grow on long arching stems. Leaves are gray-green above with lower surface white-tomentose. Small fragrant flowers are borne in long, erect or nodding spikes that are 8-18 inch with cone-shaped clusters that droop in a profusion of color. The flower clusters can be so profuse that they cause the branches to arch even more. Flower colors may be purple, white, pink, or red, and they usually have an orange throat in the center. It spreads by seeds that are produced in abundance and dispersed by the wind.

**Habitat:** Butterfly bush likes well drained, average soil. They thrive in fairly dry conditions once established. Roots may perish in wet soil.

**Distribution:** In the United States, it is recorded in states shaded on the map.

**Ecological Impacts:** It has been planted in landscapes to attract butterflies, bees, moths and birds. It can escape from plantings and become invasive in a variety of habitats such as surface mined lands, coastal forest edges, roadsides, abandoned railroads, rural dumps, stream and river banks to displace native plants.

**Control and Management:**

- **Manual**- Hand pick seedlings or dig out where possible. Big plants may be difficult to dig out.
- **Chemical**- Cut plants and treat stumps with any of several readily available general use herbicides such as triclopyr or glyphosate. Follow label directions and state requirements.
Weed of the Week
Produced by the USDA Forest Service, Forest Health Staff, Newtown Square, PA.

Butterfly Bush
Buddleja davidii Franch.

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- Manual - Hand pick seedlings or dig out where possible. Big plants may be difficult to dig out.
- Chemical - Cut plants and treat stumps with any of several readily available general use herbicides such as triclopyr or glyphosate. Follow label directions and state requirements.
- Biological control:
  - Goats eat this plant. They damage the plant by stripping leaves and flowers and break plants over. Areas which can be fenced can be treated with goats if a 3-4 year treatment program is acceptable.
  - In New Zealand it is estimated that the weed pest is displacing valued native species and costing the forestry industry $0.5 to 2.9 million annually in control and lost production. New Zealand has begun to consider biological controls to prevent further spread of B. davidii in forestry plantations. A species of weevil, Cleopus japonicus (Coleoptera: Curculionidae), was tested as a potential biological control agent for B. davidii. Tests showed that feeding damage caused by the weevil can result in a significant reduction in stem length and biomass and can even cause death in some plants. In addition, a stem boring beetle, Mecyslobus erro, is also being considered for biological control of B. davidii in New Zealand. (For more information, see abstract: www.hortnet.co.nz/publications/nzpps/proceedings/99/99_113.pdf)

References:
www.nps.gov/plants/alien/pubs/midatlantic/budd.htm,
http://plants.usda.gov,
www.uark.edu/ArkHort/research_programs/buddleja.html,
www.invasive.org/eastern/species/10956.html, http://plants.usda.gov,
www.oregonstate.edu/dept/idplants/buda1.htm,
www.nwcb.wa.gov/weed_info/Written_findings/buddleja_davidii.htm

Produced by the USDA Forest Service, Forest Health Staff, Newtown Square, PA. WOW 09-27-05
Invasive Plants website: http://www.na.fs.fed.us/fhp/invasive_plants
Invasive Plants in Pennsylvania

Canada Thistle
*Cirsium arvense*

**Description:**
Canada thistle is an erect herbaceous perennial with an extensive creeping rootstock. Its leaves are irregularly lobed with spiny, toothed margins. Rose-purple or sometimes white flower heads appear in terminal clusters from June through October. The small seeds have feathery plumes.

**Biology and Spread:**
Canada thistle produces an abundance of feathery seeds, which are quickly dispersed in the wind. The seeds can remain viable in the soil for up to 20 years or more. The fibrous taproot is capable of sending out lateral roots, which sprout shoots at frequent intervals.

**Ecological Threat:**
Once established in an area, Canada thistle crowds out and replaces native plants, changing the structure and species composition of plant communities and reducing diversity. This thistle outcompetes native plants through shading, competition for soil resources and possibly through the release of toxic allelochemicals.

**Background:**
Canada thistle was probably introduced into the United States by accident in the early 1600s. By 1954, it had been declared a noxious weed in 43 states. It is considered one of the most tenacious and economically important agricultural weeds and is becoming increasingly recognized as a problem in natural areas.

**Range:**
Despite its name, Canada thistle is native to temperate regions of Eurasia. In North America, it is distributed throughout Canada and the northern United States, from northern California to Maine and south to Virginia.

**Habitat:**
This plant does best in open and disturbed upland areas, but also invades wet places with fluctuating water levels, such as stream bank meadows. It is commonly found in barrens, glades, meadows, prairies, fields, pastures and waste places.
How to Control this Species:

Because Canada thistle is a perennial and spreads primarily by its root system, the entire plant must be destroyed for effective control.

Control efforts may be more successful when Canada thistle is under environmental stress, such as during droughts and floods, or after a very severe winter.

Canada thistle is stubborn and difficult to remove. Management practices that limit soil disturbance and encourage diverse native plant communities will help prevent establishment of this species.

<table>
<thead>
<tr>
<th>Physical</th>
<th>Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>For light infestations, black plastic sheeting can be used to smother this thistle. Repeated and frequent pulling or hand-cutting will eventually starve underground stems. This should be performed at least three times each season.</td>
<td>In areas interspersed with desirable native plants, targeted application of a systemic herbicide, such as glyphosate, works well. For extensive infestations in disturbed areas, a broad application may be more effective. Repeated applications are usually necessary in order to exhaust the seed bank.</td>
</tr>
<tr>
<td>Mowing does not kill Canada thistle unless repeated monthly for up to four years. This method is not recommended for natural areas.</td>
<td>Herbicide treatment is best done in late summer or fall when plants are in the rosette stage.</td>
</tr>
<tr>
<td>Late spring burns, between May and June, are detrimental to this invasive.</td>
<td>Varying the type of herbicide used will prevent clone colonies from becoming resistant.</td>
</tr>
</tbody>
</table>

Look-A-Likes:

Native species of thistle (Cirsium sp.), some of which are rare, could be confused with Canada thistle. Before control is attempted, the thistle species in question should be accurately identified.

References:

Center for Invasive Species and Ecosystem Health:
http://www.invasive.org/browse/subinfo.cfm?sub=2792

Plant Conservation Alliance’s Alien Plant Working Group:
http://www.nps.gov/plants/alien/fact/ciar1.htm

For More Information:

DCNR Invasive Species Site: http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm

DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers:
http://www.dcnr.state.pa.us/forestry/invasivetutorial/canada_thistle.htm

Chris Evans, River to River CWMA
www.forestrypictures.org
Invasive Plants in Pennsylvania

Common Reed

*Phragmites australis ssp. australis*

**Description:**
Common reed is a tall, perennial grass that can reach 15 feet in height. A dense network of roots and rhizomes reach a depth of three feet underground. Its leaves are elongate with rough margins. In late July and August, feathery flower plumes, purple or golden in color, tower over wetlands. Stands include both live and dead stems from the previous year’s growth.

**Biology and Spread:**
Colonization of new sites is typically accomplished by wind-dispersed seeds, which are produced in abundance, but at low viability. Fragments of rhizomes may be washed to new locations along rivers and shorelines or transported by heavy machinery. Common reed spreads horizontally by sending out quickly growing rhizome runners.

**Ecological Threat:**
Common reed can rapidly take over wetland communities, crowding out native plants, changing hydrology, altering wildlife habitat and increasing fire potential.

**Background:**
Although this species is indigenous to North America (ssp. *americanus*), a more invasive genotype, originating in the Old World, was introduced in the late 18th or early 19th centuries. Common reed most likely arrived in contaminated ballast material.

**Range:**
Native to Eurasia, the Old World genotype of common reed can now be found throughout southern Canada and the lower 48 states.

**Habitat:**
Common reed can be found in tidal and non-tidal brackish and freshwater marshes, river edges, shores of lakes and ponds, roadsides and disturbed areas. It is especially common in alkaline and slightly saline environments, but is quite tolerant of a variety of wetland conditions.
How to Control this Species:

**Physical**
Cutting, pulling, or mowing can be done in late July, which removes most of the food reserves produced by the plant that season. The placement of black plastic over cut stems has had some success at dampening populations.

Excavation of sediments may also be effective, but small fragments of root left in the soil may lead to reestablishment.

All cut shoots should be removed to prevent re-sprouting.

**Chemical**
Glyphosate-based herbicides are effective for established populations. Be sure to use a formulation approved for aquatic use.

Herbicides are best applied in early fall after the plant has flowered, as a foliar spray.

Monitor the site in the following seasons to treat remnant sprouts to prevent re-establishment. Treatment will often need to be repeated for several years to prevent any surviving rhizomes from re-sprouting.

**Look-A-Likes:**
Native and non-native genotypes of common reed are quite similar. Common reed could also be confused with wild rice (*Zizania aquatica*) and reed canary grass (*Phalaris arundinacea*).

**References:**


**For More Information:**

DCNR Invasive Species Site: [http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm](http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm)


**Invasive Plants in Pennsylvania**

**English Ivy**

*Hedera helix*

**Description:**

English ivy is an evergreen climbing vine with waxy, dark green leaves and conspicuous white veins. It attaches to surfaces by aerial rootlets. In sufficient light, terminal clusters of yellow-green flowers are produced in the fall. The black-purple fruits persist through the winter if not eaten by wildlife.

**Background:**

English ivy was probably first introduced into the United States by early European settlers for ornamental purposes. It continues to be a popular groundcover and vine due to its fast-growing, evergreen, pest-free and cold-hardy nature.

**Range:**

English ivy is native to Europe, western Asia and northern Africa. In the United States, it is now established mainly in the east, south and along the West Coast.

**Biology and Spread:**

Frugivorous birds are important seed dispersers of English ivy, transporting the vine to new areas over long distances. This vine also spreads through vegetative growth and can form new plants via broken pieces of stem that manage to root in the soil.

**Ecological Threat:**

Both a climbing vine and a groundcover, English ivy impacts all structural levels of ecosystems. As it climbs trees in search of light, it kills branches by covering leaves and preventing photosynthesis. Its sheer weight makes trees susceptible to blow-over during inclement weather. On the ground, it forms dense monocultures that exclude native plants. English ivy is also a reservoir for Bacterial Leaf Scorch (*Xylella fastidiosa*), a threat to native trees.
How to Control this Species:

**Physical**

Vines growing as a ground-cover can be pulled by hand, but not without difficulty. Another option is mulching, where the infestation is smothered under several inches of biodegradable plant material, such as wood chips. The mulch needs to stay in place for at least two growing seasons. Climbing vines may be severed near the ground in order to kill upper portions. Damage to the host tree’s bark should be minimized if possible. Rooted portions of climbing vines should be pulled or treated with herbicide.

**Chemical**

A 25 percent solution of triclopyr or glyphosate mixed in water can be applied to freshly cut stumps. Products like Brush-B-Gone®, Brush Killer®, and Roundup Pro® Concentrate are effective. Alternatively, a 20 percent solution of triclopyr ester (Garlon® 4) mixed in basal oil may be applied to intact vine stems. Garlon 4 may also be applied to wet leaves. Herbicide applications can be made at any time of the year as long as temperatures are above 60° Fahrenheit and rain is not expected within 24 hours. Garlon 4 is very toxic to aquatic life and should not be used near water sources.

**Native Alternatives:**

Many native groundcovers and vines are better options than English ivy.

**Look-A-Likes:**

English ivy is sometimes confused with eastern poison-ivy (Toxicodendron radicans), especially in the winter, because both are robust vines with obvious aerial rootlets.

**References:**

*Center for Invasive Species and Ecosystem Health:* [http://www.invasive.org/browse/subinfo.cfm?sub=3027](http://www.invasive.org/browse/subinfo.cfm?sub=3027)


**For More Information:**

*DCNR Invasive Species Site:* [http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm](http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm)


Invasive Plants in Pennsylvania

Garlic Mustard

*Alliaria petiolata*

**Description:**
Garlic mustard is a cool season biennial herb with triangular to heart-shaped leaves. Leaves give off an odor of garlic when crushed. First-year plants appear as a rosette of leaves that remain green through winter, maturing the following spring. Button-like clusters of white flowers give way to erect, slender pods by May. Dead stalks of dry, brown seedpods hold viable seed throughout the summer.

**Biology and Spread:**
Garlic mustard plants develop rapidly, each individual producing thousands of seeds that scatter nearby. Because white-tailed deer find garlic mustard distasteful, they further its expansion by eliminating native competition, as well as by exposing the soil and seedbed through trampling.

**Ecological Threat:**
Highly shade-tolerant, garlic mustard is capable of invading high-quality, mature forests. To the detriment of spring ephemeral wildflowers, garlic mustard quickly forms monocultures by monopolizing resources. Its allelopathic compounds inhibit seed germination of other species.

Toothwort (*Dentaria* sp.), the host plant of the rare West Virginia white butterfly (*Pieris virginiensis*), is one of the spring ephemerals outcompeted by garlic mustard. The butterfly is drawn to lay its eggs on garlic mustard, a fatal mistake for its offspring. Garlic mustard may also disrupt the mutualistic relationship between native trees and mycorrhizal fungi.

**Background:**
Garlic mustard was likely introduced into the United States by early European settlers for culinary or medicinal purposes. It was first recorded in Long Island, New York in 1868.

**Range:**
Native to Europe, garlic mustard now ranges from eastern Canada, south to Georgia and as far west as Oregon.
How to Control this Species:

Physical
Because garlic mustard seeds can remain viable in the soil for five years or more, effective management is a long-term commitment. The goal of management is to prevent further seed production and to nip pioneering colonies in the bud.

For small infestations, hand-pulling is extremely effective. Larger infestations may be controlled by cutting. This should be done when the plant is in flower. All plant material should be removed from the site following treatment, since seeds can still develop on cut stems.

Look-A-Likes:
Many native white-flowered plants occur alongside garlic mustard, and may be mistaken for it. These include toothworts, sweet cicely (Osmorhiza claytonia) and early saxifrage (Saxifraga virginica).

Chemical
For heavy infestations, where the risk to non-target species is minimal, the systemic herbicide glyphosate may be useful.

Herbicide can be applied at any time of the year, including winter (to kill overwintering rosettes) as long as the temperature remains above 50° Fahrenheit, and rain is not expected for at least 8 hours.

Chemical control is best done in late fall when most native plants are dormant.

Prevention
Infestations may be prevented by monitoring and removing pioneering plants. Disturbances, such as foot traffic, overgrazing and erosion, should be minimized.

A regular burning regime in fire-adapted oak woodlands can also prevent infestations.

References:
Center for Invasive Species and Ecosystem Health:
http://www.invasive.org/browse/subinfo.cfm?sub=3005

Plant Conservation Alliance’s Alien Plant Working Group:
http://www.nps.gov/plants/alien/fact/alpe1.htm

For More Information:
DCNR Invasive Species Site: http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm

DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers:
http://www.dcnr.state.pa.us/forestry/invasivetutorial/garlic_mustard.htm
Invasive Plants in Pennsylvania
Shrub Honeysuckles
(Amur, Morrow’s, Bells, Standish, and Tartarian)

*Lonicera maackii, L. morrowii, L. x bella, L. standishii, and L. tatarica*

**Description:**
Nonnative bush honeysuckles grow to heights of six to 20 feet. Their stems are thornless with a hollow brown pith. Their leaves are opposite and egg-shaped. Their flowers, which bloom from May to June, are fragrant, tubular and less than an inch long. They range in color from white to yellow to pink to red. The berries are small and red or yellow.

**Biology and Spread:**
Nonnative bush honeysuckles produce large numbers of small fruits, particularly when growing in open sunlight. These are eaten by birds, which then spread the seeds in their droppings. Once a population establishes, vegetative sprouting continues the spread of these plants.

**Ecological Threat:**
These invasive species compete with native plants for sunlight, moisture and pollinators. And while birds eat the fruit, it is poorer in fats and nutrients than fruits from native plants, so the birds do not get enough nutrients to help sustain long flights during migrations.

**Background:**
Shrub or bush honeysuckles were introduced to North America for use in landscaping, erosion control and wildlife cover. Unfortunately, these plants then spread throughout much of the country.

**Range:**
The nonnative bush honeysuckles are native to eastern Asia, Europe and Japan. Currently, they can be found in a variety of habitats from the Great Plains to southern New England, and south to Tennessee.

**Habitat:**
Nonnative bush honeysuckles are relatively shade-intolerant, and often occur in disturbed woods or edges, roadsides and abandoned fields where more light is available. Morrow’s and Bell’s honeysuckles are capable of invading bogs, fens, lakeshores and sandplains.
How to Control this Species:

The two main methods of controlling nonnative bush honeysuckles are mechanical and chemical. Smaller populations can be removed by hand, making sure to include the roots. Larger populations should be cut to ground level at least once per year, in either early spring or late fall.

Glyphosate can be sprayed onto the leaves, or could also be applied to cut stems in order to kill the root system.

No biological controls are known that would target solely nonnative bush honeysuckle species. In open areas, prescribed fire may help to eradicate this species. In order to optimize this approach, however, the burn should be conducted prior to late summer in order to prevent seed dispersal.

Look-A-Likes:

Native bush honeysuckles exist throughout North America. The natives generally have solid stems, as opposed to the hollow pith of the invasive ones. Be very cautious when buying so-called “native” honeysuckles from a nursery or online.

Native Alternatives:

There are a large variety of shrub-sized, berry-producing, deciduous alternatives for landscaping purposes. These include species such as spicebush (\textit{Lindera benzoin}), dogwoods (\textit{Cornus} spp.) and chokeberry (\textit{Aronia} spp.). These species will all provide food and cover for wildlife.

References:

\textit{Invasive Exotic Plant Tutorial for Natural Lands Managers:}  
http://www.dcnr.state.pa.us/forestry/invasivetutorial/bush_honeysuckles.htm

\textit{University of Wisconsin, Invasive Plants of Wisconsin:}  
http://www.uwgb.edu/biodiversity/herbarium/invasive_species/lonxbe01.htm

\textit{Plant Conservation Alliance’s Least Wanted List:}  
http://www.nps.gov/plants/alien/fact/loni1.htm

\textit{University of Connecticut Plant Database:}  
http://www.hort.uconn.edu/plants/index.html

\textit{Robert W. Freckmannn Herbarium:}  
Invasive Plants in Pennsylvania

Japanese Angelica Tree

*Aralia elata*

**Description:**
This is an upright deciduous shrub or tree that can reach heights of 40 feet, with a spreading, multi-stemmed form. Thick stems and the trunk have sharp prickles and spines. The leaves are bi- or tri-pinnately compound with pubescence underneath. Cream white flowers in large panicles appear in late summer and ripen into small purplish-black fruits.

**Background:**
Japanese angelica tree is native to Japan, Korea, Manchuria and far eastern Russia. It was first introduced in 1830 as an ornamental species, but has begun to spread to natural areas through dispersal by birds.

**Range:**
This is a relatively new invasive species in Pennsylvania that is generating more attention as it’s being found in the natural environment. Currently, it is only known to occur in southern PA, but due to its striking similarity to our native *Aralia spinosa*, it may often be overlooked.

**Biology and Spread:**
Records of the North American native *Aralia spinosa* in Maryland and Delaware are now thought to have really been *Aralia elata*.

Japanese angelica tree acts aggressively by sprouting from root sprouts, forming large competitive thickets. It spreads into uninvaded areas through bird dispersal of the berries.

**Ecological Threat:**
Where observed, this species acts more aggressively than the native *A. spinosa*, replacing other native vegetation and reducing biodiversity. In places, this species is displacing *A. spinosa* and hybridization between the two species may also be occurring.

**Habitat:**
Japanese Angelica tree may be found in wood edges, open areas, thickets and disturbed grounds, especially near urban areas. It is common in the Philadelphia, New York City and Long Island areas, and becoming increasingly frequent in the Piedmont region of northern Delaware.
How to Control this Species:

Because this species is not widely spread throughout the United States, very little treatment information is available.

According to the New Jersey Invasive Species Strike Team, Japanese angelica tree is best treated with herbicide, as it will prolifically sprout from only using mechanical treatments. Late season applications with glyphosate on the foliage or triclopyr ester on cut stumps is recommended for best control.

Look-A-Likes:

The non-native Japanese angelica tree can be very difficult to distinguish from the native *A. spinosa* (devil’s walking stick). Both species have spines covering most of the plant, compound leaves, white flowers, black berries, and can grow to 40 feet tall.

The structure of the inflorescence is the most obvious distinguishing characteristic between the two. On Japanese angelica tree, the flower is shorter, branching and with no central axis. On *A. spinosa*, the flower is longer with a distinct central axis.

References:

*Weed of the Week, Japanese angelica tree.*
USDA Forest Service:

*Mistaken Identity, Japanese angelica trees.* Delaware Department of Agriculture:
http://www.nybg.org/files/scientists/rnaczi/Mistaken_Identity_Final.pdf

For More Information:

*DCNR Invasive Species Site:*
http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm

*Plant Invaders of Mid-Atlantic Natural Areas, National Park Service:*

*Invasive Plants Field and Reference Guide, U.S. Forest Service:*
Invasive Plants in Pennsylvania

Japanese Hops

*Humulus japonica*

**Description:**

Japanese hops is an annual, climbing or trailing vine that can grow up to 35 feet in length in one growing season. Leaves are opposite along the vine and have an average of five lobes with toothed margins and a rough surface. The stem is covered with prickles (*see photo below*). Female flowers appear in mid summer as cone-shaped clusters that hang down (called hops), while male flowers are upright and stem-like.

**Habitat:**

Disturbed habitats like scoured river banks, roadsides and rights-of-way are prime habitat, although it will also colonize forest edges and fields. It prefers moist soil and full sun. It will grow in sandy, loamy or clay soils.

**Background:**

This vine is native to China, Japan, Korea and Taiwan. It was brought to the U.S. in the mid-to-late 1800s as an ornamental and as a medicinal plant. This is not the type of hops used for beer making.

**Range:**

Japanese hops is found in scattered counties throughout New England, the Mid-Atlantic and Midwest states, and as far south as Alabama.

**Ecological Threat:**

Japanese hops can form dense patches that outcompete and smother native vegetation.
How to Control this Species:

Manual and Mechanical
The plants may be pulled in late spring and early summer, before they flower and set seed, typically prior to August. Be sure to wear gloves as protection from the hooked hairs that may cause blistering of the skin. When pulling, remove as much of the roots as possible, as the plant may resprout. Bag and discard all plant material.

Repeated cutting or mowing close to the ground may also be used, however its effectiveness is limited as vines quickly re-grow from cut stems.

Chemical
A pre-emergent herbicide, which kills weed seeds as they germinate, may be used on Japanese hops. This will reduce the impact to other vegetation.

Combining a pre-emergent with later application of a glyphosate herbicide may provide longer-lasting control. The herbicide should be applied to the leaves, ideally when the rootstock is accumulating energy reserves (July through September).

Look-A-Likes:

Common hop (Humulus lupulus) has five varieties, three of which are native to the U.S. (vars. lupuloides, neomexicanus and pubescens). The other two are native to Europe (var. lupulus) and eastern Asia (var. cordifolius), respectively. Common hop leaves have either no lobes or three lobes, as opposed to Japanese hops’ five or more lobes.

Japanese hops may also resemble the native bur cucumber (Sicyos angulatus), but that plant lacks prickles, has tendrils and the lobes are less pronounced.

References:

Center for Invasive Species and Ecosystem Health:
http://www.invasive.org/browse/subinfo.cfm?sub=10091

Invasive Exotic Plant Tutorial for Natural Lands Managers:
http://www.dcnr.state.pa.us/forestry/invasivetutorial/japanese_hops.htm

USDA Forest Service Weed of the Week:

Plant Conservation Alliance’s Least Wanted List:
http://www.nps.gov/plants/alien/fact/huja1.htm

Photo: Theodore Webster, USDA, www.forestryimages.org

Photo: Charlie McDonald, US Forest Service, www.fs.fed.us

Invasive Plants in Pennsylvania

Chinese and Japanese Wisteria

*Wisteria sinensis and Wisteria floribunda*

**Description:**

Wisteria are long-lived, deciduous, woody climbing vines that may reach a height of 60 to 70 feet or more. Chinese wisteria vines are brown-gray in color with fine white hairs, while the Japanese wisteria vines are smooth and brown. Both can attain a diameter of 15 inches or more. The compound leaves alternate along the stem and have many leaflets (Japanese: up to 19, Chinese: up to 13). The flowers are showy, violet-blue in color and occur in long drooping clusters.

**Biology and Spread:**

Most infestations of exotic wisterias appear to be the result of persistent vegetative spread of old plantings, although seed propagation is also possible. Four to six seeds are contained within each fuzzy, flat five-inch-long fruit.

**Background:**

Exotic wisterias are popular ornamental landscape plants that can escape from yards into natural areas. They were brought to the U.S. in the early 1800s.

**Range:**

Chinese wisteria is more widespread than the Japanese species, but both can be found throughout much of the east coast, particularly in the south. Chinese wisteria can be found as far north as New England.

**Ecological Threat:**

Because of the twining nature of these vines, they can outcompete trees and other vegetation for canopy space. A dense, nearly impenetrable thicket can result, inhibiting normal forest succession.

Photo: Chris Evans, River to River CWMA, www.invasive.org

Photo: James Miller & Ted Bodner, Southern Weed Science Society, www.invasive.org

Photo: James Miller, USDA FS, www.invasive.org
How to Control this Species:

A combination of methods yields the best results.

**Manual**

For small infestations, hand-pull, getting the roots too. Bag and dispose of all plant parts. Any portion of the root remaining in the ground may re-sprout.

For vines in trees, cut the stem, pull out the rooted portion, and leave the vine in the tree. Do not attempt to pull it out as it could cause damage to the tree or fall and injure you.

**Chemical**

For vines climbing up trees or buildings, cut the stem and apply a concentrated systemic herbicide like triclopyr or glyphosate to the cut surface of the rooted portion of the vine.

For large infestations, a foliar herbicide may be the best option, rather than manual or mechanical removal which could disturb too much soil. The ideal time to spray is when the plant has gone dormant in October or November.

**Look-A-Likes:**

American wisteria *(shown below)* has smaller flower clusters and smooth seed pods. The stems are brown to reddish-brown and smooth. The vines twine clockwise around a tree, whereas the exotics twine counterclockwise.

**Native Alternatives:**

There is a native American wisteria (*Wisteria frutescens L Poir.*) that grows from Virginia to Florida. It is not as common in the nursery trade as the exotics. Other native vine alternatives include trumpet creeper (*Campsis radicans*), trumpet honeysuckle (*Lonicera sempervirens*) and crossvine (*Bignonia capreolata*) - shown below.

**References:**

*Plant Conservation Alliance’s Least Wanted factsheets:*


*Invasive Exotic Plant Tutorial for Land Managers:*

[http://www.dcnr.state.pa.us/forestry/inasivetutorial/wisteria.htm](http://www.dcnr.state.pa.us/forestry/inasivetutorial/wisteria.htm)

**For More Information:**

To learn more about invasive plants in Pennsylvania and the northeast, here are some useful resources:

*DCNR Invasive Species Site:*

[http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm](http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm)

*Plant Invaders of Mid-Atlantic Natural Areas, National Park Service:*

Invasive Plants in Pennsylvania
Japanese and Giant Knotweed
*Fallopia japonica* Sieb. & Zucc. and
*Fallopia sachalinensis* F. Schmidt ex Maxim.

**Description:**
Both are annual, herbaceous perennials with erect, hollow stems that are light green, smooth, jointed and swollen at the nodes (resembling bamboo).

Early in the season, new shoots can grow three to four inches per day. Knotweed grows three to 12 feet tall. The two species are known to hybridize, so ID can sometimes be difficult. The shape of the leaf base is the best characteristic—Japanese knotweed leaves are squared-off, giant knotweed’s are heart-shaped.

The plant’s greenish white flowers are functionally unisexual, grow approximately four inches in length and appear from August to October. The fruits are papery and contain a three-sided shiny, brown seed.

**Biology and Spread:**
Knotweeds spread primarily by rhizomes. The rhizomes can be dispersed by natural causes, such as flooding and erosion, and also by man-made disturbances to the soil. Cut or broken stems will also root if left on moist soil or put directly into water. It produces only small amounts of viable seed that are dispersed mainly by gravity, wind and water.

**Ecological Threat:**
Knotweeds are capable of quickly forming dense stands where they can crowd out native vegetation. Thickets can clog small waterways and displace streamside vegetation, increasing bank erosion and lowering the quality of riparian habitat for fish and wildlife. Once established, these stands are very difficult to eradicate.
How to Control this Species:

The key to successful knotweed management is controlling the rhizomes.

Manual and Mechanical
Mechanical methods alone are largely ineffective. It may be possible to grub or pull single plants if they are not well established and soil conditions allow for complete rhizome removal. Small portions of the rhizome system not removed have the potential to resprout.

The herbaceous stems of knotweed can be cut or mowed quite easily. Cutting alone will not control the plant but when performed after June 1 will significantly reduce the height of the regrowth.

Chemical
Several herbicides, such as glyphosate, are effective in controlling this species. If the plants grow in a wetland, be sure to use an aquatic approved herbicide. Check label directions and state requirements.

Foliar herbicide applications made after July 1 and before the first killing frost are most effective at injuring the rhizomes. During this time of year carbohydrates produced in the leaves are moved to the rhizomes for growth and storage. Foliar applied herbicides move through the plant with the carbohydrates.

Native Alternatives:

Once knotweed is removed, you must plant other vegetation to prevent re-establishment of knotweed. The following are useful native plants:

**Shrubs** - winterberry holly (*Ilex verticillata*), spicebush (*Lindera benzoin*), buttonbush (*Cephalanthus occidentalis*), silky willow (*Salix sericea*), pussy willow (*Salix discolor*)

**Herbaceous species** - wild-rye (*Elymus villosus*), big bluestem (*Andropogon gerardii*), switch grass (*Panicum virgatum*), wingstem (*Verbesina alternifolia*), joe-pye-weed (*Eupatorium fistulosum*)

References:

USDA Forest Service Invasive Plants website:
http://www.na.fs.fed.us/fhp/invasive_plants

Invasive Exotic Plant Tutorial for Natural Lands Managers:
http://www.dcnr.state.pa.us/forestry/invasivetutorial/japanese_knotweed.htm

For More Information:


Invasive Plants in Pennsylvania

Mile-a-Minute

Persicaria perfoliata

Description:
This is an herbaceous, annual vine with delicate, highly branched stems that are covered by small, curved spines. The alternate leaves are triangular, light green, one to three inches wide and barbed on the underside. Round leaf-like structures called ocreae surround the stem. It is from there that the inconspicuous flowers and fruits arise. From mid-July though the first frost, green fruits appear, turning a metallic blue color as the season goes on.

Background:
Also known as devil’s tear-thumb, mile-a-minute has been introduced into the U.S. from the Philippines several times between the late 1800s and the 1930s. It arrived in Pennsylvania in contaminated nursery stock in York.

Range:
A native of eastern Asia, this vine is not yet widespread in the U.S. but is very common is the southern two-thirds of Pennsylvania, as well as parts of WV, VA, MD, DE, NJ, NY, CT, MA, RI and NH.

Biology and Spread:
Its fast growth is one way that the plant spreads, but its seeds are the primary means. Birds and other wildlife eat the fruits and spread the seeds in their droppings. Seeds are also buoyant for up to nine days in water and can be spread by streams and floods.

Ecological Threat:
Because this plant can grow up to six inches a day, it can quickly smother native vegetation and climb into the tree canopy where it restricts light availability to plants below. It can be a pest plant on tree farms and for horticultural crops where the soil is not regularly tilled.

Habitat:
This plant readily colonizes disturbed areas along forest edges, wetlands, stream banks and roadsides. It needs regular sunlight to thrive and prefers high soil moisture.
How to Control this Species:

Manual and Mechanical
Hand-pulling of vines is possible, especially when the soil is wet, but be sure to wear thick gloves. Removal should be done prior to fruit formation. Repeated mowing will prevent the plant from flowering and thus reduce or eliminate fruit and seed production. Monitor the site for several years to ensure no seeds germinate.

Chemical
A systemic herbicide like glyphosate will work on mile-a-minute, especially when used with a surfactant that will help to penetrate the leaves’ waxy coating. Apply the herbicide in the summer, before fruits appear.

Biocontrol
A weevil, Rhinocominus latipes, is being used on various test plots in Pennsylvania and elsewhere to control mile-a-minute. These small insects feed on the leaves and bore into the stems. While they will not completely eliminate the plant they help keep it in check and reduce fruit production.

Look-a-Likes:
There are several other vines with triangular-shaped leaves that may be confused with mile-a-minute, including halbard-leaved tearthumb (Polygonum arifolium), climbing false buckwheat (Polygonum scandens), wild morning glory (Ipomoea purpurea) and hedge bindweed (Calystegia sepium). The presence of spines and ocreae will let you know that it is indeed mile-a-minute.

Chemical
A systemic herbicide like glyphosate will work on mile-a-minute, especially when used with a surfactant that will help to penetrate the leaves’ waxy coating. Apply the herbicide in the summer, before fruits appear.

Rhinocominus latipes
Photo: NJ Dept. of Agriculture

References:

Center for Invasive Species and Ecosystem Health:
http://www.invasive.org/browse/subinfo.cfm?sub=3065

Invasive Exotic Plant Tutorial for Natural Lands Managers:
http://www.dcnr.state.pa.us/forestry/invasivetutorial/mile_a_minute.htm

University of Delaware, College of Agriculture & Natural Resources, Biological Control of Mile-a-Minute Weed: http://ag.udel.edu/enwc/research/biocontrol/mileaminute.htm

Massachusetts Introduced Pests Outreach Project:
http://massnrc.org/pests/mamreport.aspx

For More Information:

Plant Invaders of Mid-Atlantic Natural Areas, National Park Service:

Invasive Plants Field and Reference Guide, U.S. Forest Service:
Invasive Plants in Pennsylvania

Mimosa

Albizia julibrissin Durazz.

Description:
A deciduous tree typically growing 10 to 50 feet high. Leaves are alternately arranged and bipinnately compound, resembling ferns (typically five to eight inches in length). Flowering occurs from May to July with flowers that are fragrant, pink and approximately one to two inches long. Fruit is a flat, six-inch long straw-colored pod.

Biology and Spread:
Mimosa reproduces vegetatively and by seed. Seeds can sprout in close proximity to the parent plant or spread longer distances by water or wildlife. Vegetative reproduction occurs through sprouting that occurs as a response to cutting.

Background:
Introduced to the United States from China in 1745 and grown as an ornamental tree since then.

Range:
Found in most states in the Northeast and southern United States.

Habitat:
This species is adaptable to a wide range of soil types. Habitat can range from vacant lots, road sides and other disturbed habitats, to stream banks.

Ecological Threat:
Mimosa is highly competitive in disturbed areas due to high seed production and sprouting ability. Mimosa has the potential to create dense stands that shade out other vegetation on-site.
How to Control this Species:

Planting of this species should be avoided and existing trees removed when possible, with care taken not to spread the seeds of the tree during its removal.

If cut, the stump will need to be treated with herbicide to prevent re-sprouting. Larger trees may be girdled, as an alternative to herbicides. Young seedlings may be controlled through pulling, but care must be taken to ensure that the entire root system is removed, in order to prevent re-sprouting of remaining root fragments.

Native Alternatives:

Many native shrubs and trees make excellent alternatives to mimosa. Examples include serviceberry (Amelanchier canadensis and A. arborea), redbud (Cercis canadensis), flowering dogwood (Cornus florida), American holly (Ilex opaca), spicebush (Lindera benzoin) and sassafras (Sassafras albidum).

References:

University of Florida IFAS Center for Aquatic and Invasive Plants: [http://plants.ifas.ufl.edu](http://plants.ifas.ufl.edu)


Center for Invasive Species and Ecosystem Health: [http://www.invasive.org](http://www.invasive.org)

For More Information:

DCNR Invasive Species Site: [http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm](http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm)


Invasive Plants in Pennsylvania
Russian and Autumn Olive
Elaeagnus angustifolia and E. umbellata

Description:
Russian and autumn olive are large, multi-stemmed shrubs that can reach upwards of 20 feet in height. Their most distinctive characteristic is a dusting of silvery scales covering young stems, leaves, flowers and fruit. Small yellow or white flowers become edible fruits in late summer and fall, which are red in autumn olive and orange in Russian olive.

Background:
Both Russian and autumn olive were introduced into the United States in the 1800s. Prized for their silvery foliage, hardiness and plentiful berries, these shrubs were planted as ornamentals, for erosion control and wind-breaks, and in wildlife food plots.

Range:
Russian olive, native to Eurasia, can be found scattered throughout the eastern U.S. and is a problem further west. Native to east Asia, autumn olive has naturalized extensively throughout the eastern half of the United States. Autumn olive is the more common of the two species in Pennsylvania.

Biology and Spread:
Both species are spread by birds and other wildlife that feed on the fruit. These shrubs grow rapidly and are able to produce fruit as early as three years of age.

Ecological Threat:
These shrubs are highly competitive against native species, shading out shorter plants. Their nitrogen-fixing capabilities may adversely affect the nitrogen cycle of native communities that depend on infertile soils. Although Russian and autumn olive provide a plentiful source of berries for birds, their fruits are actually quite low in nutrients. Ecologists have found that bird species richness is higher in riparian areas dominated by native vegetation.

Habitat:
Both species are found along streams, fields, roadsides, sparse woodlands, disturbed sites and open areas. Russian olive does particularly well in sandy floodplains. Neither species does well in densely forested areas.
How to Control this Species:

Physical
Young seedlings can be pulled by hand when the soil is moist enough to ensure complete removal of the root system.

Small saplings can be pulled sufficiently with a weed wrench. Larger individuals can be cut at ground level or girdled.

Cutting is an initial control measure and should be followed by herbicidal treatment to prevent re-sprouting.

Chemical
Use a systemic herbicide, such as glyphosate or triclopyr.

Herbicide should be applied immediately to cut stumps to prevent regeneration. It can also be applied to girdle wounds or directly to the lower bark using the basal bark method.

Large thickets, where risk to non-target species is minimal, can be controlled by the foliar spray method.

Look-A-Likes:
Russian and autumn olive may be confused with invasive bush-honeysuckles (Lonicera spp.) or native deciduous hollies (Ilex spp.)

Native Alternatives:
Many native shrubs are available for re-vegetation projects. Native plants are the best option for wildlife food plots.

References:


For More Information:
DCNR Invasive Species Site: http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm

DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers: http://www.dcnr.state.pa.us/forestry/invasivetutorial/russian_autumn_olive.htm
Invasive Plants in Pennsylvania

Oriental Bittersweet

*Celastrus orbiculatus* Thunb.

**Description:**

Oriental bittersweet is a deciduous, climbing, woody vine that can grow up to 60 feet in length. Vines can grow up to four inches in diameter. The alternate, elliptical leaves are light green in color, finely toothed and two to five inches in length. Fruits are round and yellow, splitting to reveal bright red berries through the fall and winter months.

**Biology and Spread:**

Birds and other wildlife readily consume the large number of berries, spreading seeds far and wide. Humans also spread the seed through the use of bittersweet vines and berries for craft projects. The plant also spreads vegetatively through rhizomes and root suckers.

**Ecological Threat:**

This vine is able to girdle and kill trees or break their branches off from the weight of the vines. When it grows into the canopy it can shade out natives. Oriental bittersweet has also been shown to hybridize with the American bittersweet, leading to a loss of genetic identity.

**Background:**

Also known as round-leaved and Asiatic bittersweet, this vine was introduced from China into the U.S. around 1860 as an ornamental.

**Range:**

Oriental bittersweet can be found throughout New England and the Mid-Atlantic states, down to Louisiana and up through the Midwest as far north as Wisconsin. It is not known to occur further west than that.

**Habitat:**

Commonly found on old home sites, in fields and forest edges, and along roadsides and train tracks. While it prefers open, sunny sites it can tolerate shade.
How to Control this Species:

Manual and Mechanical

Because the seeds of bittersweet are so numerous and can remain viable in the soil for several years, all control efforts will require multiple years to be effective.

Small populations, especially of vines not high up in canopy, can be pulled by hand or dug out prior to fruiting. If fruits are present, all material should be bagged and disposed of.

Vines in trees can be cut close to the ground. The vines will re-sprout, however, unless and herbicide is immediately applied to the cut stump.

Weekly mowing will prevent the vines from fruiting, but less frequent mowing will promote root sprouts.

Chemical

Because Oriental bittersweet looks so much like the native American bittersweet, be absolutely sure you have properly identified the species before doing any control work.

Systemic herbicides like glyphosate and triclopyr can successfully manage bittersweet. It is most effective when stems are cut or mowed and the herbicide is applied to the cut area immediately.

For cut stump applications, a 50% solution of glyphosate and water can be applied as long as the air temperature is above 40 degrees F. A 25 percent solution of triclopyr and water can be applied when the air temperature is above 60 degrees F.

For foliar application, a two percent solution of glyphosate or triclopyr and water, plus a 0.5 percent non-ionic surfactant, can be sprayed on the leaves when the air temperature is above 65 degrees F.

Look-A-Likes:

Oriental bittersweet closely resembles the native American bittersweet (*Celastrus scandens*), but American bittersweet has flowers and fruits at the ends of its branches, rather than in the axils of the leaves, like the Oriental variety.

References:

*Center for Invasive Species and Ecosystem Health:*
[http://www.invasive.org/browse/subinfo.cfm?sub=3012](http://www.invasive.org/browse/subinfo.cfm?sub=3012)

*Invasive Exotic Plant Tutorial for Natural Lands Managers:*
[http://www.dcnr.state.pa.us/forestry/invasivetutorial/Oriental_bittersweet.htm](http://www.dcnr.state.pa.us/forestry/invasivetutorial/Oriental_bittersweet.htm)

For More Information:

*Plant Invaders of Mid-Atlantic Natural Areas, National Park Service:*

*Invasive Plants Field and Reference Guide, U.S. Forest Service:*
Invasive Plants in Pennsylvania
Empress or Princess Tree
*Paulownia tomentosa* (Thunb.) Sieb. & Zucc. ex Steud.

**Description:**
This deciduous tree can grow up to 60 feet in height with a trunk diameter of up to two feet. Leaves are very large (six to 12 inches long), alternate along the stem, and are hairy on the underside. The bark is rough, gray-brown and interlaced with shiny, smooth areas. Showy, fragrant, violet flower clusters bloom in the spring. Thin, pecan-shaped fruit capsules open in the fall and persist well into winter.

**Biology and Spread:**
Once a tree reaches the age of eight to 10, it is capable of producing twenty million seeds that are spread by wind and water. Trees also have the ability to sprout prolifically from buds on the stems and roots, allowing it to survive fire, cutting and other disturbances. Sprouts can grow up to 15 feet in a single season.

**Ecological Threat:**
This aggressive tree can take over certain habitats, displacing native vegetation.

**Background:**
Also known as Royal paulownia, this tree is native to eastern Asia. It was first introduced into North America around 1840 for ornamental purposes and for wood carving. Plantations of this tree are still grown in the U.S. for export to Japan, where the wood is highly prized.

**Range:**
This tree can be found from southern New England through the Mid-Atlantic states to parts of the south. Its range extends to Arkansas, a few counties in Texas and scattered locations in Washington state.
How to Control this Species:

Manual and Mechanical

Seedlings can be hand pulled, especially when the soil is moist. Be sure to remove all roots to prevent resprouts.

Cutting and girdling are not suggested, as they may encourage the tree to send up root suckers. Cutting should only be used in conjunction with an herbicide treatment or as an emergency treatment to prevent seed production.

Chemical

Seedlings and small trees can be controlled by applying a two percent solution of glyphosate or triclopyr and water plus a 0.5 percent non-ionic surfactant to thoroughly wet the leaves.

Larger trees can be killed by cutting the tree and immediately applying a 50 percent solution of glyphosate or triclopyr and water to the outer 20 percent of the stump. A basal bark application of 25 percent triclopyr with 75 percent horticultural oil will also work, as long as the ground is not frozen.

References:


Center for Invasive Species and Ecosystem Health: http://www.invasive.org/browse/subinfo.cfm?sub=2426#images


Look-A-Likes:

Princess tree may be confused with the native Northern catalpa (Catalpa speciosa). Both trees have similar size, leaf and flower structure. However, paulownia has a hollow pith, while catalpa is solid and whitish. Catalpa leaves are whorled and more pointed at the tip. Catalpa fruits are much longer (eight to 18 inches) than paulownia’s (one to 2 inches).

Non-Invasive Alternatives:

Kentucky Coffeetree
(Gymnocladus dioicus)


Cucumber-tree
(Magnolia acuminate)

Photo: Charles Bryson, USDA, www.forestryimages.org

Northern Catalpa

Photo: Paul Wray, Iowa State U., www.forestryimages.org
Invasive Plants in Pennsylvania

Japanese Stilt Grass

*Microstegium vimineum*

**Description:**

Japanese stilt grass is an annual that typically grows one to three feet in height. Despite its branching, sprawling, mat-like manner, it resembles a small, delicate bamboo. Leaves are narrow and lance-shaped with a distinctive, pale, silvery stripe of reflective hairs on the upper surface. Flower spikes appear in September.

**Biology and Spread:**

Stilt grass reproduces exclusively by seed. One plant may produce 100 to 1,000 seeds that typically fall close to the parent plant. Seeds may be carried by water during heavy rains or move about in contaminated hay, soil or mud stuck in footwear. Stilt grass seeds remain viable in the soil for five or more years and germinate readily.

**Ecological Threat:**

When Japanese stilt grass invades a site, it can quickly crowd out native plant species. Invasions can also change soil nutrient cycling processes, inhibit tree survival and growth, and reduce light availability. After it dies back in late fall, it forms a thick layer of smothering thatch that is slow to decompose. Because stilt grass is relatively unpalatable, it may encourage heavier deer browsing on native plant species.

**Background:**

Japanese stilt grass was first documented in Tennessee in 1919. Its introduction into the United States was accidental, likely a result of its use as a packing material for porcelain.

**Range:**

Native to Asia, this successful invasive has colonized most of the eastern United States, as far west as Texas.

James H. Miller, USDA Forest Service
[www.forestryimages.org](http://www.forestryimages.org)

James H. Miller & Ted Bodner, SWSS
[www.forestryimages.org](http://www.forestryimages.org)

James H. Miller & Ted Bodner, SWSS
[www.forestryimages.org](http://www.forestryimages.org)

Chris Evans, River to River CWMA
[www.forestryimages.org](http://www.forestryimages.org)
How to Control this Species:

**Physical**

Japanese stilt grass is quite shallow-rooted and can be easily pulled by hand, especially when the soil is moist. Pulling is easiest in late summer when plants are mature. Stilt grass can also be mowed. Follow up monitoring and treatment will be necessary for years.

Hand pulling and mowing should be done in late summer when the plants are just about to flower. Performing these activities earlier in the summer months encourages flowering and early seed dispersal.

**Chemical**

For extensive infestations, a systemic herbicide can be used quite effectively. Using an herbicide leaves the plants and soil in place, minimizing the likelihood of additional germination of stilt grass seed.

Grass-specific herbicides, such as quizalofop, limit damage to native plants.

Be careful when treating stilt grass in wetland sites. Make sure you use an herbicide suitable for wetlands.

**Look-A-Likes:**

The native perennial Virginia cutgrass (*Leersia virginica*) is quite similar. Japanese stilt grass may also be confused with some smartweeds (*Persicaria* sp.).

**References:**

- Purdue University Cooperative Extension Service: [http://www.btny.purdue.edu/weedscience/2011/Microstegium-01.pdf](http://www.btny.purdue.edu/weedscience/2011/Microstegium-01.pdf)
- Wisconsin Department of Natural Resources: [http://dnr.wi.gov/invasives/fact/japanstgrass.htm](http://dnr.wi.gov/invasives/fact/japanstgrass.htm)

**For More Information:**

- DCNR Invasive Species Site: [http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm](http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm)
- DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers: [http://www.dcnr.state.pa.us/forestry/invasivetutorial/Japanese_stiltgrass.htm](http://www.dcnr.state.pa.us/forestry/invasivetutorial/Japanese_stiltgrass.htm)
Invasive Plants in Pennsylvania

Tree of Heaven

*Ailanthus altissima*

**Description:**
This rapidly growing tree can reach a height of 80 feet, with up to a six-foot diameter trunk. Leaves are pinnately compound with 10 to 41 leaflets with smooth leaf margins. When crushed, the leaves and other plant parts have a rancid smell like cat urine or burnt peanut butter.

**Biology and Spread:**
Tree of heaven spreads by hundreds of thousands of seeds per tree and through vegetative sprouting. A cut or injured ailanthus tree may send up dozens of root suckers and resprouts, creating large clonal colonies.

**Ecological Threat:**
This tree produces chemicals in its roots that prevent the establishment of other plant species nearby. Its fast growth limits habitat for other species. Its root system may be extensive and has been known to cause damage to sewer lines and building foundations.

**Background:**
Also known as Chinese sumac, stinking sumac and tree of hell, this tree is native to China. It was brought to Philadelphia in 1784 by an amateur gardener. By 1840 it was commonly available from nurseries. Ailanthus is the subject of the well known book, “A Tree Grows in Brooklyn,” by Betty Smith.

**Range:**
Tree of heaven is very common in the northeast and Midwest, through parts of the southeast, southwest and west coast.

**Flowering occurs in early summer, when large clusters of yellowish flowers develop above the leaves, Fruit produced on the female trees are tan to reddish, single winged, papery seeds, called samaras. They may remain on the tree throughout late fall.**

**Habitat:**
Ailanthus is extremely tolerant of poor soils and will even grow through cracks in pavement. Trees are not shade tolerant. They will quickly colonize forest edges, fields and roadsides.

Photo: Jessica Sprajcar, DCNR

Photo: Chuck Bargeron, U. Of Georgia, www.invasive.org

Look-A-Likes:

The native trees most likely to be confused with ailanthus are the sumacs (*Rhus* spp.). One way to tell them apart is the small glands on the underside of ailanthus leaves (see photo below). Staghorn sumac leaves do not have this gland, but have toothed leaf margins, while ailanthus’ leaf edges are smooth. Sumac fruits are fuzzy and red.

Young ailanthus may also be confused with black walnut (*Juglans nigra*) because of the compound leaves and shield-shaped leaf scars. However, the flowers, seeds and smell of ailanthus should give it away.

How to Control this Species:

Elimination of this species is difficult and time consuming, due to its abundant seed, high germination rate, and frequent root sprouts.

**Manual and Mechanical**

While young seedlings could be pulled or dug up, the chance of getting all root fragments is difficult and can lead to re-sprouts. Seedlings can be confused with root suckers, which would be nearly impossible to remove effectively by hand.

Cutting is not recommended, as the trees will send up large numbers of root sprouts and suckers, creating a bigger problem than before.

**Chemical**

The most effective way to treat ailanthus is with herbicides. Foliar application of triclopyr or glyphosate, mixed with water and a non-ionic surfactant, is effective on smaller trees when applied between June and late August.

For larger trees, application of triclopyr or glyphosate with the basal bark, hack and squirt, injection or cut stump method should work effectively. Application rates may vary—see the references below for more specific information.

Follow-up monitoring and treatment are very important. Regardless of the control method used, treated areas should be checked one or more times a year.

References:

*Plant Conservation Alliance’s Least Wanted List:*
http://www.nps.gov/plants/alien/fact/aial1.htm

*Center for Invasive Species and Ecosystem Health:*
http://www.invasive.org/browse/subinfo.cfm?sub=3003

*Virginia Cooperative Extension:*

For More Information:

*Penn State University Vegetation Management Publications:*
http://horticulture.psu.edu/research/labs/vegetative-management/publications
## Data Release: Year 2014 Quarter 3

### Barmouth Station-Phase I

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<td>Shrubs, ilex verticillata female winterberry, B &amp; B, Zone 4, 3' to 4'</td>
<td>Ea.</td>
<td>$43.68</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 43.68</td>
<td>$1,310.40</td>
<td>$ -</td>
<td>$ -</td>
<td>$1,310.40</td>
<td>$47.84</td>
<td>$ -</td>
<td>$ -</td>
<td>$47.84</td>
<td>$1,435.20</td>
<td>$ -</td>
<td>$ -</td>
<td>$1,435.20</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>Shrubs, ilex verticillata male, Winterberry, B &amp; B, Zone 4, 3' to 4'</td>
<td>Ea.</td>
<td>$43.68</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 43.68</td>
<td>$436.80</td>
<td>$ -</td>
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<td>$436.80</td>
<td>$48.36</td>
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<td>$48.36</td>
<td>$483.60</td>
<td>$ -</td>
<td>$ -</td>
<td>$483.60</td>
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<tr>
<td>11</td>
<td>570</td>
<td>Stone retaining walls, decorative random stone, to 6' high, 1'-6&quot; thick, mortar set, includes excavation, concrete footing and stone, 3' below grade; Price is exposed face area</td>
<td>S.F.</td>
<td>$34.74</td>
<td>$ 17.08</td>
<td>$ -</td>
<td>$ 51.82</td>
<td>$19,801.80</td>
<td>$ 9,735.60</td>
<td>$ -</td>
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<td>$64.25</td>
<td>$21,870.90</td>
<td>$14,751.60</td>
<td>$36,622.50</td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td>0.15</td>
<td>Cleaning &amp; grubbing, tree removal congested area, 22&quot; diameter, pull-it truck</td>
<td>Ea.</td>
<td>$ -</td>
<td>$ 398.76</td>
<td>$ 298.76</td>
<td>$ 654.92</td>
<td>$59.72</td>
<td>$ 98.24</td>
<td>$ -</td>
<td>$604.85</td>
<td>$282.24</td>
<td>$ 887.04</td>
<td>$ -</td>
<td>$90.72</td>
<td>$42.34</td>
<td>$133.06</td>
<td>Tree removal for parking area.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>3500</td>
<td>Asphaltic concrete paving, parking lots &amp; driveways, 6&quot; stone base, 2&quot; binder course, 1&quot; topping, no asphalt hauling included</td>
<td>S.F.</td>
<td>$1.71</td>
<td>$ 0.23</td>
<td>$ 0.26</td>
<td>$ 2.20</td>
<td>$5,985.00</td>
<td>$ 805.00</td>
<td>$ 7,700.00</td>
<td>$ 1.89</td>
<td>$ 0.36</td>
<td>$ 2.52</td>
<td>$ 6.615.00</td>
<td>$1,260.00</td>
<td>$980.00</td>
<td>$8,955.00</td>
<td>Base course and top courses for asphalt parking area.</td>
<td></td>
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<tr>
<td>14</td>
<td>1</td>
<td>Rough grading sites, 3,000-6,000 S.F., skid steer &amp; labor</td>
<td>Ea.</td>
<td>$ -</td>
<td>$ 968.86</td>
<td>$ 170.52</td>
<td>$ 1,139.38</td>
<td>$968.86</td>
<td>$ 170.52</td>
<td>$ 1,139.38</td>
<td>$ -</td>
<td>$1,480.90</td>
<td>$188.16</td>
<td>$1,669.06</td>
<td>$ -</td>
<td>$1,480.90</td>
<td>$188.16</td>
<td>Rough grading parking area.</td>
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<tr>
<td>15</td>
<td>2</td>
<td>Mobilization or demobilization, dozer, loader, backhoe or excavator, above 150 H.P., up to 50 miles</td>
<td>Ea.</td>
<td>$ -</td>
<td>$ 136.30</td>
<td>$ 313.60</td>
<td>$ 449.90</td>
<td>$272.61</td>
<td>$ 627.20</td>
<td>$ 899.80</td>
<td>$ -</td>
<td>$208.54</td>
<td>$347.90</td>
<td>$ 506.44</td>
<td>$ -</td>
<td>$417.08</td>
<td>$696.80</td>
<td>$1,112.88</td>
<td>Transportation of dozer for parking area.</td>
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</table>
### Barmouth Station-Phase I

<table>
<thead>
<tr>
<th>Line #</th>
<th>Qty.</th>
<th>Description</th>
<th>Unit</th>
<th>Mat'l</th>
<th>Labor</th>
<th>Equip.</th>
<th>Total</th>
<th>Mat'l</th>
<th>Labor</th>
<th>Equip.</th>
<th>Total</th>
<th>Mat'l</th>
<th>Labor</th>
<th>Equip.</th>
<th>Total</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>16</td>
<td>300</td>
<td>Planting trees, shrubs, and ground cover, heavy or rocky soil, container, 1 gallon, includes planting only</td>
<td>Ea</td>
<td>$ 14.70</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 14.70</td>
<td>$ -</td>
<td>$ 2,940.00</td>
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<td>$ 2,940.00</td>
<td>$ -</td>
<td>$ 22.77</td>
<td>$ -</td>
<td>$ 4,554.00</td>
<td>$ -</td>
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<tr>
<td>17</td>
<td>1</td>
<td>Rough grading areas, 450-1000 S.F., hand labor</td>
<td>Ea</td>
<td>$ 988.58</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 988.58</td>
<td>$ -</td>
<td>$ 988.58</td>
<td>$ -</td>
<td>$ 1,380.50</td>
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<td>$ 1,380.50</td>
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<tr>
<td>18</td>
<td>1</td>
<td>Upgrade the existing storage unit, or add a customized unit to act as a field office for the FOCHT, Twp and others. Prices start at $27,500 for unit w/ bathroom.</td>
<td>Ea</td>
<td>$ 50,000.00</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 50,000.00</td>
<td>$ -</td>
<td>$ 50,000.00</td>
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<td>$ 50,000.00</td>
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<td>$ 50,000.00</td>
<td>$ -</td>
<td>$ 50,000.00</td>
<td>$ -</td>
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<tr>
<td>19</td>
<td>300</td>
<td>Water supply distribution piping, ductile iron pipe, cement lined, mechanical joint, no fittings, 18' lengths, 6&quot; diameter, class 50, excludes excavation or backfill</td>
<td>L.F.</td>
<td>$ 17.73</td>
<td>$ 16.04</td>
<td>$ 2.95</td>
<td>$ 36.72</td>
<td>$ 5,319.00</td>
<td>$ 4,812.00</td>
<td>$ 885.00</td>
<td>$ 11,016.00</td>
<td>$ 19.53</td>
<td>$ 24.46</td>
<td>$ 3.24</td>
<td>$ 47.22</td>
<td>$ 7,335.00</td>
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<tr>
<td>20</td>
<td>300</td>
<td>Excavating, trench or continuous footing, common earth, 1/2 C.Y., excavator, 1 to 4' deep, excludes sheeting or dewatering</td>
<td>B.C.Y.</td>
<td>$ -</td>
<td>$ 3.43</td>
<td>$ 1.95</td>
<td>$ 5.38</td>
<td>$ 343.00</td>
<td>$ 195.00</td>
<td>$ 538.00</td>
<td>$ -</td>
<td>$ 5.27</td>
<td>$ 2.15</td>
<td>$ 7.42</td>
<td>$ -</td>
<td>$ 527.00</td>
</tr>
<tr>
<td>21</td>
<td>300</td>
<td>Pipe, cast iron soc, one hub, service weight, 6&quot; diameter, lead and oakum joints, 10' O.C., includes steel hanger assemblies S' O.C.</td>
<td>L.F.</td>
<td>$ 28.85</td>
<td>$ 23.92</td>
<td>$ -</td>
<td>$ 52.78</td>
<td>$ 8,658.00</td>
<td>$ 7,776.00</td>
<td>$ -</td>
<td>$ 15,834.00</td>
<td>$ 31.84</td>
<td>$ 35.91</td>
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<td>$ 71.75</td>
<td>$ 9,552.00</td>
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### Data Release: Year 2014 Quarter 3

#### Barmouth Station-Phase I

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</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>1</td>
<td>Pump, sewage ejector, simplex system, polyethylene tank, 12 GPM, 1/2 H.P., 15' head, 37 gallon, 2&quot; discharge, includes operating and level controls, tank, cover and pump</td>
<td>Ea.</td>
<td>$477.60</td>
<td>$350.95</td>
<td>$ -</td>
<td>$828.55</td>
<td>$477.60</td>
<td>$350.95</td>
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<td>$522.38</td>
<td>$528.45</td>
<td>$ -</td>
<td>$1,050.83</td>
<td>$522.38</td>
<td>$528.45</td>
<td>$ -</td>
<td>$1,050.83</td>
<td>Sanitary sewer pump to move waste up to leveling mill road.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>200</td>
<td>Segmental retaining walls, unit masonry, interlocking wall system, 3 plane split, 8&quot; high x 18&quot; wide x 20&quot; deep, includes pins, and void fill, excludes base</td>
<td>S.F.</td>
<td>$14.10</td>
<td>$3.32</td>
<td>$0.57</td>
<td>$17.99</td>
<td>$2,820.00</td>
<td>$604.00</td>
<td>$14.00</td>
<td>$3,998.00</td>
<td>$15.50</td>
<td>$5.09</td>
<td>$0.63</td>
<td>$21.22</td>
<td>$3,100.00</td>
<td>$10.18</td>
<td>$126.00</td>
<td>$4,244.00</td>
<td>Concrete blocks for materials storage areas</td>
<td></td>
</tr>
</tbody>
</table>

**Total**

$57,810.09 | $103,330.16 | $30,264.40 | $4,113.88 | $137,098.44 | $65,199.31 | $108,738.39 | $46,015.52 | $4,508.55 | $159,312.66
### Barmouth Station - Phase II

Data Release: Year 2014 Quarter 3

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>300</td>
<td>Stone retaining walls, decorative random stone, to 6' high, 1'-6&quot; thick, mortar set, includes excavation, concrete footing and stone, 3' below grade. Price is exposed face area</td>
<td>S.F.</td>
<td>$34.74</td>
<td>$17.08</td>
<td>$ -</td>
<td>$51.82</td>
<td>$10,422.00</td>
<td>$5,124.00</td>
<td>$ -</td>
<td>$15,546.00</td>
<td>$38.37</td>
<td>$25.88</td>
<td>$ -</td>
<td>$64.25</td>
<td>$11,511.00</td>
<td>$7,764.00</td>
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<td>$19,275.00</td>
<td>Stone retaining wall to extend ruins and support raised lawn.</td>
</tr>
<tr>
<td>2</td>
<td>222</td>
<td>Fill, dumped material, spread, by dozer, excludes compaction</td>
<td>L.C.Y.</td>
<td>$ -</td>
<td>$0.54</td>
<td>$1.30</td>
<td>$1.84</td>
<td>$ -</td>
<td>$119.88</td>
<td>$288.60</td>
<td>$ -</td>
<td>$408.48</td>
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<td>$0.82</td>
<td>$1.43</td>
<td>$2.25</td>
<td>$ -</td>
<td>$182.04</td>
<td>$317.46</td>
<td>$ -</td>
</tr>
<tr>
<td>3</td>
<td>166</td>
<td>Planting beds preparation, mix planting soil, by hand, includes loam, manure, peat</td>
<td>C.Y.</td>
<td>$44.72</td>
<td>$10.09</td>
<td>$ -</td>
<td>$54.81</td>
<td>$7,423.52</td>
<td>$1,674.94</td>
<td>$ -</td>
<td>$9,098.46</td>
<td>$49.40</td>
<td>$15.63</td>
<td>$ -</td>
<td>$65.03</td>
<td>$8,200.40</td>
<td>$2,594.58</td>
<td>$ -</td>
<td>$10,794.98</td>
<td>Preparation of lawn planting area.</td>
</tr>
<tr>
<td>4</td>
<td>666</td>
<td>Topsoil placement and grading, loam or topsoil, fine grading and seeding, with equipment</td>
<td>S.Y.</td>
<td>$0.49</td>
<td>$1.93</td>
<td>$0.36</td>
<td>$2.78</td>
<td>$326.34</td>
<td>$1,285.38</td>
<td>$ -</td>
<td>$1,674.56</td>
<td>$0.53</td>
<td>$2.96</td>
<td>$0.39</td>
<td>$3.88</td>
<td>$352.98</td>
<td>$1,971.36</td>
<td>$259.74</td>
<td>$2,584.08</td>
<td>Additional topsoil for raised lawn - includes seeding of lawn.</td>
</tr>
<tr>
<td>5</td>
<td>75</td>
<td>Columns, rough sawn cedar posts, 4&quot; x 4&quot;</td>
<td>V.L.F.</td>
<td>$3.42</td>
<td>$4.26</td>
<td>$ -</td>
<td>$7.68</td>
<td>$256.50</td>
<td>$319.50</td>
<td>$ -</td>
<td>$576.00</td>
<td>$3.76</td>
<td>$6.58</td>
<td>$ -</td>
<td>$10.34</td>
<td>$282.00</td>
<td>$493.50</td>
<td>$ -</td>
<td>$775.50</td>
<td>Construction of trellis from existing semi-circle ruins.</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
<td>Low Mow Turf Seed</td>
<td>Lb.</td>
<td>$7.00</td>
<td>$ -</td>
<td>$ -</td>
<td>$7.00</td>
<td>$210.00</td>
<td>$ -</td>
<td>$ -</td>
<td>$210.00</td>
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<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>Low mow grass mix - seed only.</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>Mobilization or demobilization, dozer, loader, backhoe or excavator, 70 H.P. to 150 H.P., up to 50 miles</td>
<td>E.S.</td>
<td>$ -</td>
<td>$102.23</td>
<td>$139.16</td>
<td>$241.39</td>
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<td>$313.50</td>
<td>$307.72</td>
<td>$621.22</td>
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<tr>
<td>8</td>
<td>5000</td>
<td>Underground sprinklers irrigation system, for lawns, residential system, custom, 1&quot; supply</td>
<td>SF</td>
<td>$0.25</td>
<td>$0.49</td>
<td>$ -</td>
<td>$0.74</td>
<td>$1,250.00</td>
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<td>$3,700.00</td>
<td>$0.28</td>
<td>$0.76</td>
<td>$ -</td>
<td>$1.04</td>
<td>$1,400.00</td>
<td>$3,800.00</td>
<td>$ -</td>
<td>$5,200.00</td>
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Total | $368.06 | $19,888.36 | $11,178.16 | $806.68 | $31,873.20 | $457.40 | $21,746.38 | $17,118.98 | $884.92 | $39,750.28 |
## THE CYNWYD HERITAGE TRAIL PHASE II PLAN

### Lower Merion Township, Montgomery County

### Data Release: Year 2014 Quarter 3

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<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Deciduous trees, Amelanchier canadensis, (shadblow), B&amp;B, zone 4, 6' to 8'</td>
<td>Ea.</td>
<td>8</td>
<td>137.28$</td>
<td>1,098.24$</td>
<td>150.80$</td>
<td>1,206.40$</td>
<td>4 trees to be planted near trailhead.</td>
</tr>
<tr>
<td>2</td>
<td>Rough stone, wall, over 18&quot; thick, dry laid (no mortar)</td>
<td>C.F.</td>
<td>200</td>
<td>15.34$</td>
<td>3,068.00$</td>
<td>5,582.00$</td>
<td>8,638.00$</td>
<td>Large boulders to edge trailhead rock garden.</td>
</tr>
<tr>
<td>3</td>
<td>Demolish, remove pavement &amp; curb, remove bituminous pavement, up to, 3&quot; thick, excludes hauling and disposal fees</td>
<td>S.Y.</td>
<td>3</td>
<td>-$</td>
<td>7.29$</td>
<td>12.75$</td>
<td>11.16$</td>
<td>Sidewalk and pavement demolition.</td>
</tr>
<tr>
<td>5</td>
<td>Base course drainage layers, aggregate base course for roadways and large paved areas, sand, washed and graded, compacted, 3/4&quot;, 3&quot; deep</td>
<td>E.C.Y.</td>
<td>1</td>
<td>27.99$</td>
<td>29.55$</td>
<td>13.08$</td>
<td>43.38$</td>
<td>Base course for new sidewalk.</td>
</tr>
<tr>
<td>6</td>
<td>Planting beds preparation, excavate planting pit, heavy soil or clay, by hand</td>
<td>C.Y.</td>
<td>9</td>
<td>-$</td>
<td>116.96$</td>
<td>116.96$</td>
<td>116.96$</td>
<td>Preparation of planting areas.</td>
</tr>
<tr>
<td>7</td>
<td>Shrubs, rhododendron PJM, (PJM Rhododendron), container/B&amp;B, Zone 4, 2-1/2' to 3'</td>
<td>Ea.</td>
<td>5</td>
<td>73.84$</td>
<td>369.20$</td>
<td>81.12$</td>
<td>405.60$</td>
<td>Garden shrubs.</td>
</tr>
<tr>
<td>8</td>
<td>Shrubs, azalea Evergreen Hybrids, (Azalea Evergreen), container/B&amp;B, Zone 6, 2-1/2' - 3'</td>
<td>Ea.</td>
<td>5</td>
<td>59.28$</td>
<td>296.40$</td>
<td>81.12$</td>
<td>325.00$</td>
<td>Garden shrubs.</td>
</tr>
</tbody>
</table>

### Belmont Trailhead
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<tbody>
<tr>
<td>9</td>
<td>5</td>
<td>Shrub, kalmia latifolia, (Mountain Laurel), B &amp; B, Zone 5, 2' to 3'</td>
<td>Ea</td>
<td>$93.60</td>
<td>$ -</td>
<td>$ -</td>
<td>$93.60</td>
<td>$468.00</td>
<td>$ -</td>
<td>$ -</td>
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<td>$102.96</td>
<td>$ -</td>
<td>$102.96</td>
<td>$514.80</td>
<td>$ -</td>
<td>$514.80</td>
<td>Garden shrubs.</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>Shrub, hydrangea paniculata grandiflora, (Peegee Hydrangea), B &amp; B, Zone 5, 3' to 4'</td>
<td>Ea</td>
<td>$52.52</td>
<td>$ -</td>
<td>$ -</td>
<td>$52.52</td>
<td>$262.60</td>
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<td>$262.60</td>
<td>$57.72</td>
<td>$ -</td>
<td>$57.72</td>
<td>$288.60</td>
<td>$ -</td>
<td>$288.60</td>
<td>Substitute Hydrangea quercifolia- Garden shrubs.</td>
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<tr>
<td>11</td>
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<td>Ostrich Fern - 1.5 gal spread</td>
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<td>$25.00</td>
<td>$ -</td>
<td>$ -</td>
<td>$25.00</td>
<td>$250.00</td>
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<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>Material Only- garden plant.</td>
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<tr>
<td>12</td>
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<td>Foamflower- 1 qt. groundcover</td>
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<td>$ -</td>
<td>$5.00</td>
<td>$100.00</td>
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<td>$ -</td>
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<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>Material only- groundcover.</td>
</tr>
<tr>
<td>13</td>
<td>25</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 2 gallon, includes planting only</td>
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<td>$ -</td>
<td>$24.32</td>
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<td>$37.26</td>
<td>$37.26</td>
<td>$931.50</td>
<td>$ -</td>
<td>$931.50</td>
<td>Installation only - 25 shrubs</td>
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<tr>
<td>14</td>
<td>30</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, includes planting only</td>
<td>Ea</td>
<td>$ -</td>
<td>$14.70</td>
<td>$ -</td>
<td>$14.70</td>
<td>$441.00</td>
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<td>$ -</td>
<td>$22.77</td>
<td>$22.77</td>
<td>$683.10</td>
<td>$ -</td>
<td>$683.10</td>
<td>Installation of 30 1 qt. ferns and foamflowers</td>
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<td>25</td>
<td>Soil preparation, mulching, aged barks, 3&quot; deep, hand spread</td>
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<td>$3.52</td>
<td>$3.03</td>
<td>$ -</td>
<td>$5.55</td>
<td>$88.00</td>
<td>$75.75</td>
<td>$ -</td>
<td>$163.75</td>
<td>$3.87</td>
<td>$4.65</td>
<td>$8.55</td>
<td>$95.75</td>
<td>$117.00</td>
<td>$213.75</td>
<td>Mulch for plantings</td>
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<tr>
<td>16</td>
<td>400</td>
<td>Asphalt concrete paving, parking lots &amp; driveways, 6&quot; stone base, 2&quot; binder course, 1&quot; topping, no asphalt hauling included</td>
<td>S.F.</td>
<td>$1.71</td>
<td>$0.23</td>
<td>$0.26</td>
<td>$2.20</td>
<td>$84.00</td>
<td>$92.00</td>
<td>$104.00</td>
<td>$880.00</td>
<td>$1.89</td>
<td>$0.36</td>
<td>$0.28</td>
<td>$2.53</td>
<td>$756.00</td>
<td>$144.00</td>
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<tr>
<td>17</td>
<td>2</td>
<td>Site seating, park benches, steel barstock pedestals with backs, 2 x 3 wood rails, 8' long</td>
<td>Ea</td>
<td>$1,423.80</td>
<td>$104.33</td>
<td>$ -</td>
<td>$1,528.13</td>
<td>$2,847.60</td>
<td>$208.66</td>
<td>$ -</td>
<td>$3,056.26</td>
<td>$1,576.35</td>
<td>$160.22</td>
<td>$1,736.57</td>
<td>$3,152.70</td>
<td>$320.44</td>
<td>$3,473.14</td>
<td>Two benches to be placed near Belmont Trailhead</td>
</tr>
<tr>
<td>18</td>
<td>8</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, potted, 3&quot; diameter, includes planting only</td>
<td>Ea</td>
<td>$ -</td>
<td>$0.88</td>
<td>$ -</td>
<td>$0.88</td>
<td>$7.04</td>
<td>$ -</td>
<td>$ -</td>
<td>$7.04</td>
<td>$ -</td>
<td>$1.37</td>
<td>$1.37</td>
<td>$10.96</td>
<td>$ -</td>
<td>$10.96</td>
<td>Planting of flowering trees</td>
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## Belmont Trailhead

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>19</td>
<td>1</td>
<td>Clearing &amp; grubbing, grub stumps and remove</td>
<td>Acre</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$ 498.96</td>
<td>$ 1,176.00</td>
<td>$ 1,674.96</td>
<td>$ 64.86</td>
<td>$ 152.88</td>
<td>$ 217.74</td>
<td>$ 761.04</td>
<td>$ 1,208.50</td>
<td>$ 2,059.54</td>
<td>$ 98.94</td>
<td>$ 168.81</td>
<td>$ 267.74</td>
<td>Veg removal for turnaround loop.</td>
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<tr>
<td>20</td>
<td>20</td>
<td>Water supply distribution piping, polyethylene pipe, 160 PSI, 2&quot; diameter, C901, excludes excavation or backfill</td>
<td>L.F.</td>
<td>2.10</td>
<td>2.23</td>
<td>-</td>
<td>$ 4.33</td>
<td>$ 105.00</td>
<td>$ 111.50</td>
<td>$ 216.50</td>
<td>$ 3.36</td>
<td>-</td>
<td>$ 5.67</td>
<td>$ 115.50</td>
<td>$ 168.00</td>
<td>$ 283.50</td>
<td>$ 197.30</td>
<td>$ 72.00</td>
<td>Pipe to extend water pipe to garden area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>7.5</td>
<td>Excavating, trench or continuous footing, common-earth, 3/8 C.Y. excavator, 1' to 4' deep, excludes sheeting or dewatering</td>
<td>B.C.Y.</td>
<td>-</td>
<td>4.58</td>
<td>2.39</td>
<td>$ 6.97</td>
<td>$ 34.35</td>
<td>$ 17.93</td>
<td>$ 52.28</td>
<td>$ 6.98</td>
<td>-</td>
<td>$ 2.63</td>
<td>$ 9.61</td>
<td>-</td>
<td>$ 52.35</td>
<td>$ 197.30</td>
<td>$ 72.00</td>
<td>Trench to run water pipe to garden area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>2</td>
<td>Mobilization or demobilization, dozer, loader, backhoe or excavator, 70 H.P. to 150 H.P., up to 50 miles</td>
<td>Ea.</td>
<td>-</td>
<td>102.23</td>
<td>241.39</td>
<td>$ 204.46</td>
<td>$ 278.32</td>
<td>$ 482.78</td>
<td>$ 156.75</td>
<td>$ 158.86</td>
<td>-</td>
<td>$ 310.61</td>
<td>$ 313.50</td>
<td>$ 307.72</td>
<td>$ 621.22</td>
<td>$ 171.00</td>
<td>$ 234.00</td>
<td>Mobilization of backhoe to dig trench for water line</td>
<td></td>
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<tr>
<td>23</td>
<td>225</td>
<td>Underground sprinklers irrigation system, for lawns, residential systems, custom, 1&quot; supply</td>
<td>SF</td>
<td>0.25</td>
<td>0.49</td>
<td>0.74</td>
<td>$ 56.25</td>
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<td>$ 0.76</td>
<td>-</td>
<td>$ 1.04</td>
<td>$ 63.00</td>
<td>$ 171.00</td>
<td>$ 234.00</td>
<td>$ 625.15</td>
<td>$ 237.74</td>
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Total: $ 4,128.91  $ 9,748.19  $ 9,244.66  $ 568.57  $ 18,561.42  $ 4,897.55  $ 10,362.34  $ 12,732.30  $ 625.15  $ 23,779.79
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1125</td>
<td>Stone retaining walls, decorative random stone, to 6' high, 1'-6&quot; thick, mortar set, includes excavation, concrete footing and stone, 3' below grade Price is exposed face area</td>
<td>S.F.</td>
<td>$34.74</td>
<td>$17.08</td>
<td>-</td>
<td>$51.82</td>
<td>$39,082.50</td>
<td>$19,215.00</td>
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<td>$58,297.50</td>
<td>$38.37</td>
<td>$25.88</td>
<td>-</td>
<td>$64.25</td>
<td>$43,166.25</td>
<td>$1,984.50</td>
<td>$218.25</td>
<td>-</td>
<td>$72,281.25</td>
<td>Stone walls along overlook, at bridge gateway and to support raised lawn.</td>
</tr>
<tr>
<td>2</td>
<td>75</td>
<td>Soils for earthwork, topsoil borrow, weed free, spread with 200 H.P. dozer, includes load at pit and haul, 2 miles round trip, excludes compaction</td>
<td>C.Y.</td>
<td>$24.01</td>
<td>$1.92</td>
<td>$4.43</td>
<td>$30.36</td>
<td>$1,800.75</td>
<td>$144.00</td>
<td>$2,277.00</td>
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<td>$64.25</td>
<td>-</td>
<td>$64.25</td>
<td>$1,984.50</td>
<td>$218.25</td>
<td>-</td>
<td>$72,281.25</td>
<td>Fill to raise up lawn.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Mobilization or demobilization, dozer, backhoe or excavator, 70 H.P. to 150 H.P., up to 50 miles</td>
<td>Ea.</td>
<td>$ -</td>
<td>$102.23</td>
<td>$139.16</td>
<td>$241.39</td>
<td>$204.46</td>
<td>$278.32</td>
<td>$462.78</td>
<td>$156.75</td>
<td>$153.86</td>
<td>$310.61</td>
<td>-</td>
<td>$307.72</td>
<td>$307.72</td>
<td>$307.72</td>
<td>-</td>
<td>$621.22</td>
<td>Transport of bulldozer or backhoe for earth moving to create lawn.</td>
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<tr>
<td>4</td>
<td>10</td>
<td>Low Mow Seed, preparation, mix planting soil, skid steer loader, includes loam, manure, peat</td>
<td>C.Y.</td>
<td>$44.72</td>
<td>$6.62</td>
<td>$1.14</td>
<td>$52.48</td>
<td>$3,354.00</td>
<td>$496.50</td>
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<td>$5,692.50</td>
<td>$5,692.50</td>
<td>-</td>
<td>$153.00</td>
<td>Low mow seed mix - seed only.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>75</td>
<td>Planting beds, preparation, mix planting soil, skid steer loader, includes loam, manure, peat, excludes&amp;B, Zone 4, 2 - 1/2'</td>
<td>S.Y.</td>
<td>$ -</td>
<td>$0.23</td>
<td>$0.30</td>
<td>$0.53</td>
<td>$51.75</td>
<td>$67.50</td>
<td>$119.25</td>
<td>$34.37</td>
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<td>$68.74</td>
<td>$10,608.00</td>
<td>-</td>
<td>$10,608.00</td>
<td>$10,608.00</td>
<td>-</td>
<td>$153.00</td>
<td>Cutting of new beds along walls and at gateway.</td>
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</tr>
<tr>
<td>6</td>
<td>225</td>
<td>Shrub, Ilex glabra compacta, (Compact Inkberry), B &amp; B, Zone 4, 2-1/2'</td>
<td>S.F.</td>
<td>$ -</td>
<td>$0.16</td>
<td>$0.10</td>
<td>$0.26</td>
<td>$36.00</td>
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<td>$34.37</td>
<td>$68.74</td>
<td>$10,608.00</td>
<td>-</td>
<td>$10,608.00</td>
<td>$10,608.00</td>
<td>-</td>
<td>$153.00</td>
<td>Shrub for planting along overlook wall.</td>
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</tr>
<tr>
<td>7</td>
<td>200</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, includes planting only</td>
<td>S.F.</td>
<td>$ -</td>
<td>$14.70</td>
<td>$14.70</td>
<td>$3,675.00</td>
<td>$3,675.00</td>
<td>$22.77</td>
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<td>-</td>
<td>Ornamental grasses for bed plantings.</td>
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</tr>
<tr>
<td>8</td>
<td>25</td>
<td>Big Bluestem - qt</td>
<td>Ea.</td>
<td>$ -</td>
<td>$ -</td>
<td>$5.00</td>
<td>$5.00</td>
<td>$5.00</td>
<td>$5.00</td>
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<td>$5.00</td>
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<td>$5.00</td>
<td>Ornamental grasses for bed plantings.</td>
</tr>
<tr>
<td>9</td>
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<td>Little Bluestem - 1 qt</td>
<td>Ea.</td>
<td>$5.00</td>
<td>$ -</td>
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<td>$5.00</td>
<td>$5.00</td>
<td>Low mow grass seed installation.</td>
</tr>
<tr>
<td>10</td>
<td>225</td>
<td>Soil preparation, mulching, aged barks, 3' deep, hand spread</td>
<td>S.Y.</td>
<td>$ -</td>
<td>$0.16</td>
<td>$0.10</td>
<td>$0.26</td>
<td>$36.00</td>
<td>$22.50</td>
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<td>$10,608.00</td>
<td>$10,608.00</td>
<td>-</td>
<td>$153.00</td>
<td>Mulch for beds along wall and at gateway.</td>
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<tr>
<td>11</td>
<td>2025</td>
<td>Underground sprinklers irrigation system, for lawns, residential system, custom, 1&quot; supply</td>
<td>SF</td>
<td>$0.25</td>
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### THE CYNWYD HERITAGE TRAIL PHASE II PLAN

**Lower Merion Township, Montgomery County**

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**Data Release:** Year 2014 Quarter 3

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<tr>
<td>1</td>
<td>1</td>
<td>Lump Sum for pavement graphics- for estimate only- depends on intricacy of final design</td>
<td>All</td>
<td>$2,000.00</td>
<td>$3,000.00</td>
<td>$-</td>
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<td>Lump sum estimate for stamped asphalt/duratherm installation. Price could vary from $50K and up depending on intricacy of design.</td>
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<td>Perennials, baptisia aurata, (False Indigo), zone 3, container, 1 gallon</td>
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<td>$7.49</td>
<td>$-</td>
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<td>$246.60</td>
<td>$-</td>
<td>$246.60</td>
<td>$-</td>
<td>$246.60</td>
<td>Perennials to be planted on parkside of trail.</td>
<td></td>
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<tr>
<td>4</td>
<td>20</td>
<td>Shrubs, vaccinium corymbosum, (Highbush Blueberry), Zone 4, container/B &amp; B, 3' to 4'</td>
<td>Ea</td>
<td>$42.64</td>
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<td>$946.40</td>
<td>Shrubs to be planted on backyard side of trail.</td>
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<tr>
<td>5</td>
<td>20</td>
<td>Shrubs, sambucus canadensis, (American Elder), B &amp; B, Zone 4, 2' to 3'</td>
<td>Ea</td>
<td>$28.08</td>
<td>$-</td>
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<td>$-</td>
<td>$613.60</td>
<td>Shrubs to be planted on backyard side of trail.</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>100</td>
<td>Planting, trees, shrubs, and ground cover, heavy or clay soil, container, 1 gallon, includes planting only</td>
<td>Ea</td>
<td>$-</td>
<td>$14.70</td>
<td>$-</td>
<td>$14.70</td>
<td>$1,470.00</td>
<td>$-</td>
<td>$1,470.00</td>
<td>$-</td>
<td>$22.77</td>
<td>$-</td>
<td>$22.77</td>
<td>$2,277.00</td>
<td>$-</td>
<td>$2,277.00</td>
<td>$-</td>
<td>$2,277.00</td>
<td>Planting of shrubs and perennials.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>Planting beds preparation, excavate planting pit, heavy soil or clay, by hand</td>
<td>C.Y.</td>
<td>$-</td>
<td>$76.07</td>
<td>$-</td>
<td>$76.07</td>
<td>$760.70</td>
<td>$-</td>
<td>$760.70</td>
<td>$116.96</td>
<td>$-</td>
<td>$116.96</td>
<td>$1,169.60</td>
<td>$-</td>
<td>$1,169.60</td>
<td>$-</td>
<td>$1,169.60</td>
<td>Preparation of planting beds.</td>
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<tr>
<td>8</td>
<td>30</td>
<td>Soil preparation, mulching, aged barks, 3' deep, hand spread</td>
<td>S.Y.</td>
<td>$3.52</td>
<td>$3.03</td>
<td>$-</td>
<td>$6.55</td>
<td>$106.50</td>
<td>$90.90</td>
<td>$-</td>
<td>$196.50</td>
<td>$3.87</td>
<td>$-</td>
<td>$4.68</td>
<td>$8.55</td>
<td>$116.10</td>
<td>$140.40</td>
<td>$-</td>
<td>$256.50</td>
<td>Mulch- material and labor.</td>
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<td>9</td>
<td>370</td>
<td>Underground sprinklers irrigation system, for lawns, residential system</td>
<td>SF</td>
<td>$0.25</td>
<td>$0.49</td>
<td>$-</td>
<td>$0.74</td>
<td>$67.50</td>
<td>$132.30</td>
<td>$-</td>
<td>$199.80</td>
<td>$0.28</td>
<td>$-</td>
<td>$0.76</td>
<td>$1.04</td>
<td>$75.60</td>
<td>$205.20</td>
<td>$-</td>
<td>$280.80</td>
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**Total**

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<td>$5,186.25</td>
<td>$4,111.60</td>
<td>$5,453.90</td>
<td>$-</td>
<td>$9,565.50</td>
<td>$6,246.51</td>
<td>$4,727.40</td>
<td>$7,392.20</td>
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<tr>
<td>Line</td>
<td>Qty</td>
<td>Description</td>
<td>Unit</td>
<td>Ext. Labor</td>
<td>Ext. Equip</td>
<td>Ext. Total</td>
<td>Notes</td>
</tr>
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</tr>
<tr>
<td>1</td>
<td>6</td>
<td>Shrubs, aronia melancarpa, &quot;Elata&quot;, (elata black chokeberry), B &amp; B, Zone 3, 3' to 4'</td>
<td>Ea.</td>
<td>$43.68</td>
<td>-</td>
<td>$43.68</td>
<td>Six sun loving chokeberries for use at northern intersection.</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Shrubs, rhododendron PJM, (PJM Rhododendron), container/B &amp; B, Zone 4, 2-1/2' to 3'</td>
<td>Ea.</td>
<td>$73.84</td>
<td>-</td>
<td>$73.84</td>
<td>Six shade tolerant rhododendrons for use at southern intersection.</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, includes planting</td>
<td>Ea.</td>
<td>-</td>
<td>$14.70</td>
<td>$14.70</td>
<td>Planting of six shrubs at each trailhead.</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Deciduous trees, cercis canadensis, (eastern redbud), B&amp;B, zone 5, 5 gallon</td>
<td>Ea.</td>
<td>72.80</td>
<td>-</td>
<td>72.80</td>
<td>Two redbuds (full sun) for use at northern intersection.</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Deciduous trees, cornus florida, (white flowering dogwood), B&amp;B, zone 5, 6' to 7'</td>
<td>Ea.</td>
<td>110.24</td>
<td>-</td>
<td>110.24</td>
<td>Two dogwoods (shade tolerant) for use at southern intersection.</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 5 gallon, includes planting</td>
<td>Ea.</td>
<td>-</td>
<td>$43.47</td>
<td>$43.47</td>
<td>Planting of two trees at each trailhead.</td>
</tr>
<tr>
<td>7</td>
<td>7.5</td>
<td>Planting beds preparation, excavate planting pit, heavy soil or clay, by hand</td>
<td>C.Y.</td>
<td>-</td>
<td>$76.07</td>
<td>$76.07</td>
<td>Scraping and prepping two planting beds at each trailhead.</td>
</tr>
<tr>
<td>8</td>
<td>45</td>
<td>Soil stabilization, grading, sub-base, 3'-6&quot; deep, compacted</td>
<td>C.Y.</td>
<td>3.92</td>
<td>3.09</td>
<td>6.01</td>
<td>Stone retaining wall wingwalls at each trailhead. Pillars would likely be cheaper.</td>
</tr>
<tr>
<td>9</td>
<td>40</td>
<td>Stone retaining walls, cut stone, to 6' high, 1'-6&quot; thick, mortar set, includes excavation, concrete footing and stone, 3'-6&quot; below grade</td>
<td>S.F.</td>
<td>33.70</td>
<td>17.08</td>
<td>50.78</td>
<td>Stone retaining walls for use at each trailhead.</td>
</tr>
</tbody>
</table>

Total Cost: $698.97 + $2,644.63 + $2,844.63 + $2,663.28 = $9,251.71
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</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>Ripping till, boulder clay/hardpan, soft, adverse conditions, 300 H.P., dozer with single shank ripper</td>
<td>B.C.Y.</td>
<td>-</td>
<td>0.09</td>
<td>0.29</td>
<td>0.38</td>
<td>-</td>
<td>1.80</td>
<td>5.80</td>
<td>7.60</td>
<td>-</td>
<td>0.13</td>
<td>0.32</td>
<td>0.45</td>
<td>-</td>
<td>2.60</td>
<td>6.40</td>
<td>9.00</td>
<td>Scrapping ground surface to prepare for paving.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Mobilization or demobilization, dozer, loader, backhoe or excavator, 70 H.P. to 150 H.P., up to 50 miles</td>
<td>Ea.</td>
<td>-</td>
<td>102.23</td>
<td>139.16</td>
<td>241.39</td>
<td>-</td>
<td>204.46</td>
<td>278.32</td>
<td>482.76</td>
<td>156.75</td>
<td>153.65</td>
<td>310.61</td>
<td>-</td>
<td>313.50</td>
<td>307.72</td>
<td>621.22</td>
<td>Transportation of dozer for scraping.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>Synthetic erosion control, hay bales, staked</td>
<td>L.F.</td>
<td>9.07</td>
<td>0.35</td>
<td>0.11</td>
<td>9.53</td>
<td>544.20</td>
<td>21.00</td>
<td>6.60</td>
<td>571.80</td>
<td>9.96</td>
<td>0.54</td>
<td>0.12</td>
<td>10.62</td>
<td>597.60</td>
<td>32.40</td>
<td>7.20</td>
<td>637.20</td>
<td>E&amp;S materials to control stormwater erosion and sedimentation.</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>Plant mixed asphaltic base courses, for roadway and large paved areas, macadam base, crushed stone/slag, dry-bound</td>
<td>E.C.Y.</td>
<td>65.70</td>
<td>1.12</td>
<td>2.25</td>
<td>69.16</td>
<td>1,315.80</td>
<td>22.40</td>
<td>45.00</td>
<td>1,383.20</td>
<td>72.18</td>
<td>1.71</td>
<td>2.48</td>
<td>76.37</td>
<td>1,443.60</td>
<td>34.20</td>
<td>49.60</td>
<td>1,527.40</td>
<td>Base course for asphalt.</td>
</tr>
<tr>
<td>5</td>
<td>111</td>
<td>Plant-mix asphalt paving, for highways and large paved areas, binder course, 1-1/2&quot; thick, no hauling included</td>
<td>S.Y.</td>
<td>5.45</td>
<td>0.49</td>
<td>0.35</td>
<td>6.29</td>
<td>604.95</td>
<td>54.39</td>
<td>38.85</td>
<td>698.19</td>
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<td>0.74</td>
<td>0.38</td>
<td>7.11</td>
<td>664.89</td>
<td>82.14</td>
<td>42.18</td>
<td>789.21</td>
<td>Top course of asphalt.</td>
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<tr>
<td>6</td>
<td>60</td>
<td>Stone retaining walls, decorative random stone, to 6’ high, 1-1/2&quot; thick, mortar set, includes excavation, concrete footing and stone, 3’ below grade Price is exposed face area</td>
<td>S.F.</td>
<td>34.74</td>
<td>17.08</td>
<td>-</td>
<td>51.82</td>
<td>2,084.40</td>
<td>1,024.80</td>
<td>38.37</td>
<td>2,302.20</td>
<td>310.20</td>
<td>25.86</td>
<td>-</td>
<td>64.25</td>
<td>2,302.20</td>
<td>1,552.80</td>
<td>-</td>
<td>3,855.00</td>
<td>Stone wall to create edge of space, protect visitors from steep slope.</td>
</tr>
</tbody>
</table>
### Historic Overlook Area

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>3</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, B&amp;B, 18&quot;</td>
<td>Ea.</td>
<td>$108.68</td>
<td>$ -</td>
<td>$ -</td>
<td>$108.68</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$326.04</td>
<td>$ -</td>
<td>$ -</td>
<td>$167.67</td>
<td>$167.67</td>
<td>$503.01</td>
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<tr>
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<td>3</td>
<td>Deciduous trees, amelanchier canadensis, (shadbown), B&amp;B, zone 4, 6' to 8'</td>
<td>Ea.</td>
<td>$137.28</td>
<td>$ -</td>
<td>$ -</td>
<td>$137.28</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$411.84</td>
<td>$ -</td>
<td>$ -</td>
<td>$150.80</td>
<td>$150.80</td>
<td>$452.40</td>
</tr>
<tr>
<td>9</td>
<td>30</td>
<td>Shrubs, lex glabra compacta, (Compact Inkberry), B &amp; B, Zone 4, 2' - 2-1/2'</td>
<td>Ea.</td>
<td>$48.36</td>
<td>$ -</td>
<td>$ -</td>
<td>$48.36</td>
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<td>$53.04</td>
<td>$1591.20</td>
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<tr>
<td>10</td>
<td>5</td>
<td>Excavating, bulk bank measure, 1-1/2 C.Y., capacity = 125 C.Y/hr, hydraulic,</td>
<td>B.C.Y.</td>
<td>$0.70</td>
<td>$1.01</td>
<td>$1.71</td>
<td>$3.50</td>
<td>$5.05</td>
<td>$8.55</td>
<td>$ -</td>
<td>$106.00</td>
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<tr>
<td></td>
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<td>backhoe, crawler mounted, excluding truck loading</td>
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</tr>
<tr>
<td>11</td>
<td>10</td>
<td>Selective clearing and grubbing, 6&quot; to 12&quot; diameter, remove selective</td>
<td>Ea.</td>
<td>$157.25</td>
<td>$137.20</td>
<td>$294.45</td>
<td>$1,572.50</td>
<td>$1,372.00</td>
<td>$2,944.50</td>
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<td>$241.92</td>
<td>$150.92</td>
<td>$392.84</td>
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<td>$1509.20</td>
<td>$3,928.40</td>
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<tr>
<td></td>
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<td>trees, on site using chain saws and chipper, excludes stumps</td>
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</tr>
<tr>
<td>12</td>
<td>30</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container,</td>
<td>Ea.</td>
<td>$14.70</td>
<td>$14.70</td>
<td>$14.70</td>
<td>$441.00</td>
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<td>$683.10</td>
<td>$683.10</td>
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<td>1 gallon, includes planting only</td>
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</tr>
<tr>
<td>13</td>
<td>12</td>
<td>Soil preparation, mulching, aged barks, 3&quot; deep, hand spread</td>
<td>S.Y.</td>
<td>$3.52</td>
<td>$3.03</td>
<td>$6.55</td>
<td>$42.24</td>
<td>$36.36</td>
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<td>$78.60</td>
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<td>$8.55</td>
<td>$46.44</td>
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</table>
## Natural Lands Trust

### THE CYNWYD HERITAGE TRAIL PHASE II PLAN

**Lower Merion Township, Montgomery County**

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</thead>
<tbody>
<tr>
<td>1</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>2035</td>
<td>12320</td>
<td>62.40</td>
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<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
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<tr>
<td>3</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
<tr>
<td>4</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
<tr>
<td>5</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
<tr>
<td>6</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
<tr>
<td>7</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
<tr>
<td>8</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
<tr>
<td>9</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
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<tr>
<td>10</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
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<td>11</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
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<td>2277</td>
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<td>79.05</td>
<td>86.47</td>
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<tr>
<td>12</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
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<td>86.47</td>
</tr>
<tr>
<td>13</td>
<td>Shrub plantings for large semi-circle behind benches.</td>
<td>10</td>
<td>2277</td>
<td>7.42</td>
<td>79.05</td>
<td>86.47</td>
</tr>
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### Total

- **Total Ext. Mat'l.:** $30,328.17
- **Total Ext. Labor:** $29,947.20
- **Total Ext. Equip.:** $8,044.20
- **Total Ext. Total:** $39,286.57

---

**Notes:**

- Planting beds preparation, excavate planting pit, heavy soil or clay, 1/2 C.Y.
- Preparation of shrub planting beds.
- Excavating, trench or continuous footing, common earth, 1/2 C.Y. excavator, 1' to 4' deep, excludes sheeting or
- Underground shurbs for planting on berm between trail and Cynwyd Club.
- Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, includes planting only
- Planting of all trees and shrubs.
- Water supply line piping, ductile iron pipe, cement lined, mechanical joint, no fittings, 18' lengths, 6" Excavating, trench or
- Water supply line to extend from Cynwyd Club.
- Low growing shrubs for use in swales - apply at 1/2 lb per 1000 sq ft.
- For soil mixtures apply at 1/2 lb per 1000 sq ft.
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Package of fitness equipment including 5 different units, each averaging $750 to $1500 in price. Installed</td>
<td>All</td>
<td>$5,625.00</td>
<td>$11,250.00</td>
<td>-</td>
<td>$16,875.00</td>
<td>$5,625.00</td>
<td>$11,250.00</td>
<td>-</td>
<td>$16,875.00</td>
<td>$6,750.00</td>
<td>$13,500.00</td>
<td>-</td>
<td>$20,250.00</td>
<td>$6,750.00</td>
<td>$13,500.00</td>
<td>-</td>
<td>$20,250.00</td>
<td>Lump sum to cover purchase and installation of basic 5 element equipment package.</td>
</tr>
<tr>
<td>2</td>
<td>1000</td>
<td>Playground protective surfacing, resilient rubber surface, colors, 2&quot; thick, poured in place</td>
<td>S.F.</td>
<td>$5.94</td>
<td>$0.29</td>
<td>-</td>
<td>$6.23</td>
<td>$5,940.00</td>
<td>$290.00</td>
<td>-</td>
<td>$6,230.00</td>
<td>$6.53</td>
<td>$0.45</td>
<td>-</td>
<td>$6.98</td>
<td>$120.00</td>
<td>-</td>
<td>$6,530.00</td>
<td>$490.00</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>112</td>
<td>Fine grading, finish grading, small area, to be paved with grader</td>
<td>S.Y.</td>
<td>$1.72</td>
<td>$1.73</td>
<td>$3.45</td>
<td>-</td>
<td>$192.64</td>
<td>$193.36</td>
<td>$386.40</td>
<td>-</td>
<td>$2.62</td>
<td>$1.90</td>
<td>$4.52</td>
<td>-</td>
<td>$293.44</td>
<td>$212.80</td>
<td>-</td>
<td>$506.24</td>
<td>Grading of area for soft surface installation.</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Mobilization or demobilization, dozer, loader, backhoe or excavator, 70 H.P. to 150 H.P., up to 50 miles</td>
<td>Ea.</td>
<td>-</td>
<td>$102.23</td>
<td>$139.16</td>
<td>$241.39</td>
<td>-</td>
<td>$408.92</td>
<td>$556.64</td>
<td>$965.56</td>
<td>-</td>
<td>$156.75</td>
<td>$153.86</td>
<td>$310.61</td>
<td>-</td>
<td>$627.00</td>
<td>$615.44</td>
<td>-</td>
<td>$1,242.44</td>
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<tr>
<td>5</td>
<td>38</td>
<td>Structural concrete, in place, slab on grade (3500 psi), 4&quot; thick, includes forms (4 uses), Grade 60 rebar, concrete (Portland cement Type I), and placing, excludes finishing</td>
<td>C.Y.</td>
<td>$121.92</td>
<td>$88.10</td>
<td>$0.54</td>
<td>$210.36</td>
<td>$4,632.96</td>
<td>$3,347.80</td>
<td>$201.28</td>
<td>$8,001.28</td>
<td>$134.11</td>
<td>$135.85</td>
<td>$0.58</td>
<td>$270.54</td>
<td>$5,096.18</td>
<td>$5,162.30</td>
<td>-</td>
<td>$10,260.58</td>
<td>Concrete slab underlayment for soft surface pad.</td>
</tr>
<tr>
<td>6</td>
<td>100</td>
<td>Fencing demolition, chain link, to 6' high, remove only, excludes hauling</td>
<td>L.F.</td>
<td>-</td>
<td>$1.86</td>
<td>$0.69</td>
<td>$2.55</td>
<td>-</td>
<td>$186.00</td>
<td>$69.00</td>
<td>$255.00</td>
<td>-</td>
<td>$2.86</td>
<td>$0.75</td>
<td>$3.61</td>
<td>-</td>
<td>$286.00</td>
<td>$75.00</td>
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<td>$361.00</td>
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<tr>
<td>7</td>
<td>25</td>
<td>Stone retaining walls, decorative random stone, to 6' high, 1'-6&quot; thick, mortar set, includes excavation, concrete footing and stone, 3' below grade Price is exposed face area</td>
<td>S.F.</td>
<td>$34.74</td>
<td>$17.08</td>
<td>-</td>
<td>$51.82</td>
<td>$665.50</td>
<td>$427.00</td>
<td>-</td>
<td>$1,295.50</td>
<td>$38.37</td>
<td>$25.88</td>
<td>-</td>
<td>$64.25</td>
<td>$959.25</td>
<td>$647.00</td>
<td>$1,606.25</td>
<td>Store retaining wall to hold cut soil uphill of exercise cluster.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>75</td>
<td>Water supply distribution piping, piping polyvinyl chloride, class 150, 1-1/2&quot; diameter, excludes excavation or backfill, unless specified</td>
<td>L.F.</td>
<td>$0.43</td>
<td>$1.08</td>
<td>-</td>
<td>$1.51</td>
<td>$32.25</td>
<td>$81.00</td>
<td>-</td>
<td>$113.25</td>
<td>$0.47</td>
<td>$1.64</td>
<td>-</td>
<td>$2.11</td>
<td>$35.25</td>
<td>$123.00</td>
<td>$158.25</td>
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</tr>
<tr>
<td>9</td>
<td>15</td>
<td>Excavating, trench or continuous footing, common earth, 3/8 C.Y. excavator, 1 to 4 deep, excludes sheeting or dewatering</td>
<td>B.C.</td>
<td>-</td>
<td>$4.58</td>
<td>$2.39</td>
<td>$6.97</td>
<td>$68.70</td>
<td>$35.85</td>
<td>-</td>
<td>$104.55</td>
<td>$6.98</td>
<td>$2.63</td>
<td>$9.61</td>
<td>-</td>
<td>$104.70</td>
<td>$39.45</td>
<td>$144.15</td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Drinking fountain, floor mounted, pedestal type, aluminum, architectural style cast iron base, wheelchair handicapped unit, for connection to cold water supply</td>
<td>Ea.</td>
<td>$1,616.88</td>
<td>$311.65</td>
<td>-</td>
<td>$1,928.53</td>
<td>$1,616.88</td>
<td>$311.65</td>
<td>-</td>
<td>$1,928.53</td>
<td>$1,766.13</td>
<td>$474.25</td>
<td>-</td>
<td>$2,240.38</td>
<td>$1,766.13</td>
<td>$474.25</td>
<td>-</td>
<td>$2,240.38</td>
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</table>

**Total**: $19,328.01 | $18,715.59 | $16,563.71 | $875.77 | $36,155.07 | $23,162.61 | $21,136.81 | $21,667.69 | $964.73 | $43,769.23
### THE CYNWYD HERITAGE TRAIL PHASE II PLAN

**Lower Merion Township, Montgomery County**

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</thead>
<tbody>
<tr>
<td>1</td>
<td>80</td>
<td>Low-Growing Wildflower &amp; Grass Mix - 20-40 lb. / acre</td>
<td>Lb.</td>
<td>$8.12</td>
<td>$0</td>
<td>$0</td>
<td>$8.12</td>
<td>$649.60</td>
<td>$0</td>
<td>$649.60</td>
<td>$0</td>
<td>$0</td>
<td>$649.60</td>
<td>$0</td>
<td>$0</td>
<td>$720.00</td>
<td>$0</td>
<td>$0</td>
<td>$720.00</td>
<td>58.6% Sheep Fescue, (Festuca ovina) 17% Annual Ryegrass (Lolium multiflorum) 8% Perennial Blue Festuca (Festuca pratensis) 5% Shasta Daisy (Chrysanthemum inermis) 5% Lomatium Cordata 2% Blackseed Swans (Rudbeckia hirta) 1% Spotted Beebalm 1% Corn Poppy/Shirley Mix 1% Partridge Pea</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>Wet Meadow Seed Mix</td>
<td>Lb.</td>
<td>$118.00</td>
<td>$0</td>
<td>$0</td>
<td>$118.00</td>
<td>$1180.00</td>
<td>$0</td>
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<td>$0</td>
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<td>$1180.00</td>
<td>$0</td>
<td>$0</td>
<td>$1180.00</td>
</tr>
<tr>
<td>3</td>
<td>2.25</td>
<td>Meadow Install Rough Cost - $500/acre</td>
<td>Acre</td>
<td>$1200.00</td>
<td>$0</td>
<td>$0</td>
<td>$1200.00</td>
<td>$1200.00</td>
<td>$0</td>
<td>$0</td>
<td>$1200.00</td>
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<td>$1200.00</td>
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<td>$0</td>
<td>$1200.00</td>
<td>$0</td>
<td>$0</td>
<td>$1200.00</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Clearing &amp; grubbing trees to 12&quot; diameter, grub stumps and remove</td>
<td>Acre</td>
<td>$997.92</td>
<td>$997.92</td>
<td>$3,374.42</td>
<td>$4,372.00</td>
<td>$0</td>
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<td>$0</td>
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<td>$0</td>
<td>$0</td>
<td>$4,372.00</td>
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<td>$0</td>
<td>$4,372.00</td>
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<td>$0</td>
<td>$4,372.00</td>
</tr>
<tr>
<td>5</td>
<td>137</td>
<td>Low Mow Seed Mix</td>
<td>Lb.</td>
<td>$7.00</td>
<td>$0</td>
<td>$0</td>
<td>$7.00</td>
<td>$959.00</td>
<td>$0</td>
<td>$0</td>
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<td>$959.00</td>
<td>$0</td>
<td>$0</td>
<td>$959.00</td>
</tr>
<tr>
<td>6</td>
<td>3033</td>
<td>Topsoil placement and grading, loam or topsoil, fine grading and seeding with equipment</td>
<td>S.Y.</td>
<td>$0.49</td>
<td>$1.93</td>
<td>$0.38</td>
<td>$2.78</td>
<td>$1486.17</td>
<td>$5,853.69</td>
<td>$1,091.88</td>
<td>$6,431.74</td>
<td>$0.03</td>
<td>$2.96</td>
<td>$0.38</td>
<td>$3.38</td>
<td>$1,607.49</td>
<td>$8,977.68</td>
<td>$1,182.67</td>
<td>$11,768.04</td>
<td>Topsoil prep and seeding of low mow seed.</td>
</tr>
</tbody>
</table>

**TOTAL:**

$4,710.32 | $4,274.77 | $9,351.61 | $3,468.38 | $17,294.76 | $5,809.58 | $4,782.39 | $13,504.68 | $3,779.87 | $22,066.94
## THE CYNWYD HERITAGE TRAIL PHASE II PLAN

*Lower Merion Township, Montgomery County*

### Data Release: Year 2014 Quarter 3

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty</th>
<th>Description</th>
<th>Unit</th>
<th>Labor</th>
<th>Ext. Labor</th>
<th>Equip.</th>
<th>Total Ext. O&amp;P</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>0.25</td>
<td>Clearing &amp; grubbing, brush, including stumps</td>
<td>Acre</td>
<td>-</td>
<td>1,713.60</td>
<td>-</td>
<td>4,483.50</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>Deciduous trees, <em>acer rubrum</em> (Red Maple), B&amp;B, zone 4, 2&quot; to 2-1/2&quot; caliper</td>
<td>Ea.</td>
<td>260.00</td>
<td>3,120.00</td>
<td>3,403.00</td>
<td>7,523.00</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>Deciduous trees, <em>acer saccharum</em> (Sugar Maple), B&amp;B, zone 3, 2&quot; to 2-1/2&quot; caliper</td>
<td>Ea.</td>
<td>317.20</td>
<td>3,806.40</td>
<td>4,180.80</td>
<td>7,987.20</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>Deciduous trees, <em>betula maximowicziana</em> (monarch birch), B&amp;B, zone 5, 2&quot; to 2-1/2&quot; caliper</td>
<td>Ea.</td>
<td>262.08</td>
<td>3,144.96</td>
<td>3,456.96</td>
<td>6,601.92</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>Deciduous trees, <em>gleditsia triacanthos inermis</em> (Thornless Honeylocust), B&amp;B, zone 5, 2&quot; to 2-1/2&quot; caliper</td>
<td>Ea.</td>
<td>343.20</td>
<td>4,118.40</td>
<td>4,555.20</td>
<td>8,673.60</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>Deciduous trees, <em>liquidambar styraciflua</em> (Sweetgum), B&amp;B, zone 6, 2&quot; to 2-1/2&quot; caliper</td>
<td>Ea.</td>
<td>210.08</td>
<td>2,520.96</td>
<td>2,770.56</td>
<td>5,291.52</td>
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<tr>
<td>7</td>
<td>12</td>
<td>Deciduous trees, <em>liriodendron tulipifera</em> (Tuliptree), B&amp;B, zone 5, 2&quot; to 2-1/2&quot; caliper</td>
<td>Ea.</td>
<td>296.40</td>
<td>3,556.80</td>
<td>3,931.20</td>
<td>7,488.00</td>
</tr>
<tr>
<td>8</td>
<td>72</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, B&amp;B, 12&quot; diameter ball, by hand, includes planting only</td>
<td>Ea.</td>
<td>-</td>
<td>66.76</td>
<td>-</td>
<td>4,746.56</td>
</tr>
<tr>
<td>9</td>
<td>25</td>
<td>Shrubs, <em>aronia arbutifolia brilliantissima</em> (brilliant chokeberry), B &amp; B, Zone 5, 3' to 4'</td>
<td>Ea.</td>
<td>43.68</td>
<td>1,089.00</td>
<td>-</td>
<td>4,802.00</td>
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</tbody>
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### Notes
- Vine Creek
### Vine Creek

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</thead>
<tbody>
<tr>
<td>10</td>
<td>25</td>
<td>Shrubs, dehnia arhilla rosea, (Pink Summersweet), B &amp; B, Zone 4, 3 to 4</td>
<td>Ea.</td>
<td>$32.76</td>
<td>$-</td>
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<td>$32.76</td>
<td>$819.00</td>
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<td>$-</td>
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<td>$897.00</td>
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<td>$-</td>
<td>$897.00</td>
<td>$35.88</td>
<td>Shrubs for initial riparian buffer plantings.</td>
<td></td>
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<tr>
<td>11</td>
<td>25</td>
<td>Shrubs, oomus racemosus, (Gray Dogwood), B &amp; B, Zone 4, 2 to 3</td>
<td>Ea.</td>
<td>$41.60</td>
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<td>$41.60</td>
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<td>$45.76</td>
<td>$1144.00</td>
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<td>$45.76</td>
<td>Shrubs for initial riparian buffer plantings.</td>
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<tr>
<td>12</td>
<td>25</td>
<td>Shrubs, hamanaslii female, (Nemal Witch-Hazel), B &amp; B, Zone 4, 2 to 3</td>
<td>Ea.</td>
<td>$34.32</td>
<td>$-</td>
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<td>$34.32</td>
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<td>$949.00</td>
<td>$37.96</td>
<td>Shrubs for initial riparian buffer plantings.</td>
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<tr>
<td>13</td>
<td>25</td>
<td>Shrubs, lea virginia, (Virga Sweetpires), B &amp; B, Zone 6, 21 to 30</td>
<td>Ea.</td>
<td>$30.68</td>
<td>$-</td>
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<td>$30.68</td>
<td>$767.00</td>
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<td>$767.00</td>
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<td>Shrubs for initial riparian buffer plantings.</td>
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</tr>
<tr>
<td>14</td>
<td>25</td>
<td>Shrubs, lekasia kastlia, (Mountain Laurel), B &amp; B, Zone 5, 2 to 3</td>
<td>Ea.</td>
<td>$93.60</td>
<td>$-</td>
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<td>$93.60</td>
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<td>$102.96</td>
<td>$2574.00</td>
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<td>$-</td>
<td>$2574.00</td>
<td>$102.96</td>
<td>Shrubs for initial riparian buffer plantings.</td>
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</tr>
<tr>
<td>15</td>
<td>100</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, includes planting only</td>
<td>Ea.</td>
<td>$-</td>
<td>$14.70</td>
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<td>$14.70</td>
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<td>$-</td>
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<td>$22.77</td>
<td>Planting of shrubs for initial riparian buffer plantings.</td>
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<td>16</td>
<td>19</td>
<td>Deciduous trees, acer rubrum, (Red Maple), B&amp;B, zone 4, 2&quot; to 2-1/2&quot; caliber</td>
<td>Ea.</td>
<td>$260.00</td>
<td>$-</td>
<td>$-</td>
<td>$260.00</td>
<td>$30160.00</td>
<td>$-</td>
<td>$30160.00</td>
<td>$286.00</td>
<td>$-</td>
<td>$-</td>
<td>$286.00</td>
<td>$33176.00</td>
<td>$-</td>
<td>$-</td>
<td>$33176.00</td>
<td>$286.00</td>
<td>186 trees to be planted within the quarter acre to be cleared and grubbed of knotweed. These areas should be cleared and replanted in phases based on volunteer and funding availability.</td>
<td></td>
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</tr>
<tr>
<td>17</td>
<td>1200</td>
<td>Shrubs, aronia abalbula, brilliantismo (brilliant chokecherry), B &amp; B, Zone 5, 3 to 4</td>
<td>Ea.</td>
<td>$43.68</td>
<td>$-</td>
<td>$-</td>
<td>$43.68</td>
<td>$52416.00</td>
<td>$-</td>
<td>$52416.00</td>
<td>$47.84</td>
<td>$-</td>
<td>$-</td>
<td>$47.84</td>
<td>$57408.00</td>
<td>$-</td>
<td>$-</td>
<td>$57408.00</td>
<td>$47.84</td>
<td>Additional 1280 shrubs to be planted where lawn is removed. Estimate based on 10,000 sf of clearing and grubbing of invasives. These areas should be addressed in phases as funding and volunteers are available.</td>
<td></td>
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</tr>
<tr>
<td>18</td>
<td>19</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, 12&quot; diameter ball, by hand, includes planting only</td>
<td>Ea.</td>
<td>$-</td>
<td>$66.76</td>
<td>$-</td>
<td>$66.76</td>
<td>$7744.16</td>
<td>$-</td>
<td>$7744.16</td>
<td>$102.98</td>
<td>$-</td>
<td>$-</td>
<td>$102.98</td>
<td>$11945.68</td>
<td>$-</td>
<td>$-</td>
<td>$11945.68</td>
<td>$102.98</td>
<td>Planting of additional 185 trees.</td>
<td></td>
<td></td>
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<tr>
<td>19</td>
<td>1200</td>
<td>Planting, trees, shrubs, and ground cover, heavy or stony soil, container, 1 gallon, includes planting only</td>
<td>Ea.</td>
<td>$-</td>
<td>$14.70</td>
<td>$-</td>
<td>$14.70</td>
<td>$17640.00</td>
<td>$-</td>
<td>$17640.00</td>
<td>$22.77</td>
<td>$-</td>
<td>$-</td>
<td>$22.77</td>
<td>$27324.00</td>
<td>$-</td>
<td>$-</td>
<td>$27324.00</td>
<td>$22.77</td>
<td>Planting of 1200 additional shrubs.</td>
<td></td>
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Total: $8,237.30 $109,759.52 $32,824.28 $1,022.88 $143,406.68 $9,854.40 $120,515.72 $50,754.94 $1,120.88 $172,391.54
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<tbody>
<tr>
<td>1</td>
<td>22</td>
<td>Deciduous trees, amelanchier canadensis, (shadblow), B&amp;B, zone 4, 6' to 8'</td>
<td>Ea.</td>
<td>$137.26 $</td>
<td>- $</td>
<td>- $</td>
<td>$137.26 $</td>
<td>$3,020.16 $</td>
<td>- $</td>
<td>- $</td>
<td>$3,020.16 $</td>
<td>$150.80 $</td>
<td>$3,170.90 $</td>
<td>$3,170.90 $</td>
<td>$150.80 $</td>
<td>- $</td>
<td>- $</td>
<td>$3,170.90 $</td>
<td>Flowing trees to line trail from Manayunk Bridge to Belmont woodlands.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Mobilization or demobilization, dozer, loader, backhoe or excavator, 70 H.P. to 150 H.P., up to 50 miles</td>
<td>Ea.</td>
<td>$ - $</td>
<td>$102.23 $</td>
<td>$139.16 $</td>
<td>$241.39 $</td>
<td>$204.46 $</td>
<td>$278.32 $</td>
<td>$482.78 $</td>
<td>$156.75 $</td>
<td>$153.86 $</td>
<td>$310.61 $</td>
<td>$313.80 $</td>
<td>$307.72 $</td>
<td>$621.22 $</td>
<td>Mobilization of backhoe for augering tree pits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>Deciduous trees, cornus florida rubra, (pink flowering dogwood), B&amp;B, zone 5, 6' to 7'</td>
<td>Ea.</td>
<td>$157.04 $</td>
<td>- $</td>
<td>- $</td>
<td>$157.04 $</td>
<td>$3,454.88 $</td>
<td>- $</td>
<td>- $</td>
<td>$3,454.88 $</td>
<td>$172.64 $</td>
<td>$3,798.08 $</td>
<td>$3,798.08 $</td>
<td>$172.64 $</td>
<td>- $</td>
<td>- $</td>
<td>$3,798.08 $</td>
<td>Flowing trees to line trail from Manayunk Bridge to Belmont woods.</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>Deciduous trees, cercas canadensis, (eastern redbud), B&amp;B, zone 5, 6' to 7'</td>
<td>Ea.</td>
<td>$158.08 $</td>
<td>- $</td>
<td>- $</td>
<td>$158.08 $</td>
<td>$3,477.76 $</td>
<td>- $</td>
<td>- $</td>
<td>$3,477.76 $</td>
<td>$173.68 $</td>
<td>$3,820.96 $</td>
<td>$3,820.96 $</td>
<td>$173.68 $</td>
<td>- $</td>
<td>- $</td>
<td>$3,820.96 $</td>
<td>Flowing trees to line trail from Manayunk Bridge to Belmont woods.</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
<td>Shrubs, viburnum trilobum, (American Cranberry Bush), Z2, container/B &amp; B, Zone 5, 6' to 8'</td>
<td>Ea.</td>
<td>$31.72 $</td>
<td>- $</td>
<td>- $</td>
<td>$31.72 $</td>
<td>$1,586.00 $</td>
<td>- $</td>
<td>- $</td>
<td>$1,586.00 $</td>
<td>$34.84 $</td>
<td>$1,740.84 $</td>
<td>$1,740.84 $</td>
<td>$34.84 $</td>
<td>- $</td>
<td>- $</td>
<td>$1,740.84 $</td>
<td>Shrub to line trail from Manayunk Bridge to Belmont woods.</td>
</tr>
<tr>
<td>6</td>
<td>50</td>
<td>Shrubs, sambucus canadensis, (American Elder), B &amp; B, Zone 4, 2' to 3'</td>
<td>Ea.</td>
<td>$28.08 $</td>
<td>- $</td>
<td>- $</td>
<td>$28.08 $</td>
<td>$1,404.00 $</td>
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<td>- $</td>
<td>$1,404.00 $</td>
<td>$30.68 $</td>
<td>$1,534.68 $</td>
<td>$1,534.68 $</td>
<td>$30.68 $</td>
<td>- $</td>
<td>- $</td>
<td>$1,534.68 $</td>
<td>Shrub to line trail from Manayunk bridge to Belmont woods.</td>
</tr>
<tr>
<td>7</td>
<td>50</td>
<td>Shrubs, aronia arbutifolia, (brilliant chokeberry), B &amp; B, Zone 5, 3' to 4'</td>
<td>Ea.</td>
<td>$43.68 $</td>
<td>- $</td>
<td>- $</td>
<td>$43.68 $</td>
<td>$2,184.00 $</td>
<td>- $</td>
<td>- $</td>
<td>$2,184.00 $</td>
<td>$47.84 $</td>
<td>$2,392.84 $</td>
<td>$2,392.84 $</td>
<td>$47.84 $</td>
<td>- $</td>
<td>- $</td>
<td>$2,392.84 $</td>
<td>Shrub to line trail from Manayunk bridge to Belmont woods.</td>
</tr>
<tr>
<td>8</td>
<td>50</td>
<td>Shrubs, clethra alternifolia rosea, (Pink Summersweet), B &amp; B, Zone 4, 3' to 4'</td>
<td>Ea.</td>
<td>$32.76 $</td>
<td>- $</td>
<td>- $</td>
<td>$32.76 $</td>
<td>$1,638.00 $</td>
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<td>- $</td>
<td>$1,638.00 $</td>
<td>$35.88 $</td>
<td>$1,794.88 $</td>
<td>$1,794.88 $</td>
<td>$35.88 $</td>
<td>- $</td>
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<td>$1,794.88 $</td>
<td>Shrub to line trail from Manayunk bridge to Belmont woods.</td>
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### Segment Six

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</thead>
<tbody>
<tr>
<td>9</td>
<td>40</td>
<td>Shrubs, ilex verticillata female winterberry, B &amp; B, Zone 4, 3' to 4'</td>
<td>Ea.</td>
<td>$43.68</td>
<td>$ -</td>
<td>$ -</td>
<td>$43.68</td>
<td>$1,747.20</td>
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<td>$47.84</td>
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<td>$1,913.60</td>
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<td>$1,913.60</td>
<td>Shrub to line trail from Manayunk bridge to Belmont woods.</td>
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<tr>
<td>10</td>
<td>50</td>
<td>Shrubs, vaccinium corymbosum, (Highbush Blueberry), 24, container/B &amp; B, 3' to 4'</td>
<td>Ea.</td>
<td>$42.64</td>
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<td>$47.32</td>
<td>$2,366.00</td>
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<td>$2,366.00</td>
<td>Shrub to line trail from Manayunk bridge to Belmont woods.</td>
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<tr>
<td>11</td>
<td>50</td>
<td>Shrubs, myrica pensylvanica, (Northern Bayberry), B &amp; B, Zone 2, 2-1/2' to 3'</td>
<td>Ea.</td>
<td>$49.40</td>
<td>$ -</td>
<td>$ -</td>
<td>$49.40</td>
<td>$2,470.00</td>
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<td>$54.60</td>
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<td>$54.60</td>
<td>$2,730.00</td>
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<td>$2,730.00</td>
<td>Shrub to line trail from Manayunk bridge to Belmont woods.</td>
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<tr>
<td>12</td>
<td>1600</td>
<td>Planting, trees, shrubs, and ground cover.</td>
<td>Ea.</td>
<td>$ -</td>
<td>$14.70</td>
<td>$ -</td>
<td>$14.70</td>
<td>$23,520.00</td>
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<td>$22.77</td>
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<td>$ -</td>
<td>$22.77</td>
<td>$36,432.00</td>
<td>$ -</td>
<td>$36,432.00</td>
<td>Planting of trees and shrubs to line trail from Manayunk bridge to Belmont woods.</td>
<td></td>
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<tr>
<td>13</td>
<td>3300</td>
<td>Stone retaining walls, decorative random stone, to 6' high, 1'-6&quot; thick, dry set, includes excavation, concrete footing and stone, 3' below grade. Price is exposed face area</td>
<td>S.F.</td>
<td>$31.63</td>
<td>$19.56</td>
<td>$ -</td>
<td>$51.19</td>
<td>$104,379.00</td>
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<td>$64.76</td>
<td>$ -</td>
<td>$ -</td>
<td>$64.76</td>
<td>$114,642.00</td>
<td>$ -</td>
<td>$213,708.00</td>
<td>Stone wall to provide edge of trail from Manayunk bridge area to Belmont woods.</td>
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<tr>
<td>14</td>
<td>10</td>
<td>Fruits and nuts, raspberry, (Everbearing), zone 4, package of 5</td>
<td>Ea.</td>
<td>$26.00</td>
<td>$ -</td>
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<td>$26.00</td>
<td>$280.00</td>
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<td>$28.60</td>
<td>$286.00</td>
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<td>$286.00</td>
<td>Berry bramble plants for uphill side of trail.</td>
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<tr>
<td>15</td>
<td>615</td>
<td>Planting beds preparation, remove sod, sod cutter.</td>
<td>S.Y.</td>
<td>$ -</td>
<td>$0.23</td>
<td>$0.30</td>
<td>$0.53</td>
<td>$141.46</td>
<td>$184.50</td>
<td>$325.95</td>
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<td>$0.34</td>
<td>$0.68</td>
<td>$209.10</td>
<td>$209.10</td>
<td>$418.20</td>
<td>Preparation of planting areas.</td>
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## Data Release: Year 2014 Quarter 3

### Segment Six

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<tbody>
<tr>
<td>16</td>
<td>615</td>
<td>Planting beds preparation, excavate planting pit, heavy soil or clay, 1/2 C.Y. backhoe</td>
<td>C.Y.</td>
<td>$ - $ 6.16 $ 3.12 $ 9.28 $ - $ 3,788.40</td>
<td>$ 3,788.40</td>
<td>$ 5,707.20</td>
<td>$ 1,918.80</td>
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<td>$ 3.42</td>
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<td>$ 5,793.30</td>
<td>$ 1,918.80</td>
<td>$ 2,103.30</td>
<td>$ 7,896.60</td>
<td>Preparation of planting areas.</td>
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<tr>
<td>17</td>
<td>400</td>
<td>Big Bluestem - Qt</td>
<td>Ea.</td>
<td>$ 5.00 $ - $ - $ - $ 5.00</td>
<td>$ 2,000.00</td>
<td>$ -</td>
<td>- $ 2,000.00</td>
<td>$ -</td>
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<td>- $</td>
<td>Grasses to line trail from Manayunk bridge to Belmont woods.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>400</td>
<td>Little Bluestem - Qt</td>
<td>Ea.</td>
<td>$ 5.00 $ - $ - $ - $ 5.00</td>
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<td>Grasses to line trail from Manayunk bridge to Belmont woods.</td>
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<tr>
<td>19</td>
<td>400</td>
<td>Purple Lovegrass Qt</td>
<td>Ea.</td>
<td>$ 7.00 $ - $ - $ - $ 7.00</td>
<td>$ 2,800.00</td>
<td>$ -</td>
<td>- $ 2,800.00</td>
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<td>- $</td>
<td>Grasses to line trail from Manayunk bridge to Belmont woods.</td>
<td></td>
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<tr>
<td>20</td>
<td>615</td>
<td>Soil preparation, mulching, aged barks, 3&quot; deep, hand spread</td>
<td>S.Y.</td>
<td>$ 3.53 $ 3.03 $ 6.56</td>
<td>$ 2,164.80</td>
<td>$ 1,863.45</td>
<td>$ -</td>
<td>$ 4,028.25</td>
<td>$ 3.87</td>
<td>$ 4.68</td>
<td>$ 8.55</td>
<td>$ 2,380.05</td>
<td>$ 2,878.30</td>
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<td>5,258.25</td>
<td>Mulch material and labor</td>
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<td>21</td>
<td>10</td>
<td>Shrub, ilex verticillata male, (Winterberry), B &amp; B, Zone 4</td>
<td>Ea.</td>
<td>$ - $ - $ - $ - $ -</td>
<td>$ -</td>
<td>$ -</td>
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<td>- $ -</td>
<td>- $ -</td>
<td>- $ -</td>
<td>- $</td>
<td>Shrubs to line trail from Manayunk bridge to Belmont woods.</td>
<td></td>
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**Total**

|                     | $ 1,091.00 | $ 136,717.80 | $ 94,065.76 | $ 2,381.62 | $ 233,165.18 | $ 1,244.30 | $ 142,716.29 | $ 144,692.10 | $ 2,620.12 | $ 290,023.51 |

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*Note: Quantities and costs are approximate and subject to change.*
### Selective Striping on Curves & Intersections

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<tbody>
<tr>
<td>1</td>
<td>181</td>
<td>Painted pavement markings, acrylic waterborne, white or yellow, 4&quot; wide, less than 3000 LF</td>
<td>L.F.</td>
<td>$0.15</td>
<td>$0.10</td>
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<td>$181.00</td>
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<td>$506.80</td>
<td>$0.16</td>
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<tr>
<td>2</td>
<td>2</td>
<td>Equip rental, striper truck mounted 120 gal paint, 460 H.P., incl. Hourly Oper. Cost.</td>
<td>Day</td>
<td>$69.63</td>
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<td>$1,577.27</td>
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<td>$2,271.15</td>
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**Total**

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**Total**
No Mow Lawn
Seeding Instructions

Everything you need to know to get the best results with your No Mow Lawn.

IMPORTANT PRELIMINARIES

Prairie Nursery’s No Mow Lawn Seed Mix is a special blend of six different fine fescue varieties. Fescues have some of the deepest roots of all the turf grasses, making them more drought tolerant than bluegrass and other lawn grasses. Fescues also require much less nitrogen fertilizer than other turf grasses, making No Mow more ecological than other mixes. We generally recommend that you NOT apply nitrogen fertilizer to your No Mow Lawn.

Site Conditions

No Mow thrives in most soil types and light conditions, including moderate shade. However, it is not recommended for planting in wet soils, heavy clay soils with little or no topsoil, and in deep shade. No Mow requires good drainage and will not tolerate standing water for more than a day or two at a time.

When to Plant

The best time to plant No Mow Lawn Seed Mix is between August 20 and October 20. Fall seeding is strongly recommended, ideally when daytime highs drop below 80 degrees. The fescue grasses germinate during the cool, often damp fall months. Most weeds germinate in spring, so fall plantings typically have far fewer weeds than spring seedings. If fall planting is not an option, the best time to plant in spring is between March 15 and May 15. Seeding between June 1 and August 15 is not recommended, except in cool climates that do not experience hot summers. Fescue grasses do not generally germinate well in the heat of summer, and drought is always a concern during this time. Watering No Mow for the first two months after seeding is strongly recommended for best germination and growth.

Planting Steep Slopes and Erosion Prone Sites

When planting steep slopes or other erosion-prone sites, we recommend using No Mow with Annual Rye nurse crop. The annual rye germinates rapidly and provides quick cover to help stabilize slopes. When planting erosion-prone sites in fall, the best dates for seeding are between August 20 and September 20. This provides time for the annual rye and fescue to grow and hold the soil before the onset of winter. On steep slopes, the application of biodegradable erosion-control blankets is recommended. No Mow with Annual Rye is recommended only in USDA Hardiness Zones 2 – 4. In warmer zones (5+) the annual rye does not always die over winter, and can compete with the No Mow.

IMPORTANT – Prepare Your Site Thoroughly!

For a successful planting your site will need to be well prepared in advance. To prepare your site for planting, all existing vegetation must be killed or removed. Existing lawn grass, weeds, and other plants will compete with the No Mow seeds for nutrients, moisture, and sunlight. All perennial weeds must be eliminated prior to seeding. Perennial weeds such as quackgrass, bromegrass, thistles, creeping goldenrods and other aggressive plants will present a long-term problem if not controlled prior to seeding your No Mow turf. Annual weeds which are present in the soil as seeds can require your attention in early going (establishment stage), but should not pose a long-term threat.
These guidelines are based on our experience. If you have any questions, please call or email us with your concerns. We will do our very best to ensure the success of your No Mow Lawn.

800-476-9453
Mon.–Fri., 8am to 5pm CST
Email: cs@prairienursery.com

STEP 1: SITE PREPARATION METHODS

Since a variety of site conditions will be encountered when planting an area, it is difficult to write a standard “recipe” for site preparation and planting procedures. Select from the following site preparation Methods and Options to match your particular situation:

METHOD A: Existing Lawns

1. SMOTHERING OPTION
   a) Cover the site with either black plastic, old carpet, plywood or a thick layer of leaves or newspapers.
   b) Leave in place for a full growing season.
   c) Remove the “smother cover” in fall or the following spring.
   d) Plant into a prepared bed in fall, between August 20 and October 20 (see specifics in Step 2).

2. SOD CUTTING OPTION
   a) Remove the top two to three inches of grass and soil using a sod-cutter.
   b) Till lightly and plant into a prepared bed.
   c) If deep-rooted perennial weeds are present, sod-cutting will not remove them. Follow the preparation procedures and time lines outlined in Option B, “Existing Crop Fields.”

3. CULTIVATING OPTION
   a) Cultivate two to three times at one week intervals to kill the lawn.
   b) Till the soil prior to seeding to break up remaining thatch and create a smooth seedbed.
   c) If perennial weeds are present, cultivate all growing season every two to three weeks and plant into a prepared bed, free of clumps of dead sod and thatch.

4. HERBICIDING OPTION
   a) Apply a Glyphosate herbicide when the lawn is actively growing (in fall or spring).
   b) Till the sod under when the grass has turned brown, and break up the thatch to create a smooth seedbed. Plant in fall between August 20 and October 20, or in spring between March 15 and May 15.

METHOD B: Existing Crop Fields (Corn, soybeans, or small grains)

Before planting, check the field history of herbicide application. If herbicides with long-term residual activity in the soil (such as Atrazine) have been applied within the past year or two, consider testing the soil for herbicide residue. Atrazine is commonly applied to cornfields, and can kill germinating seedlings of fescue grasses if present in sufficient concentrations.

1. CULTIVATING OPTION
   a) If perennial weeds are present, cultivate at a depth of four to five inches every two to three weeks from spring through fall. This should kill all the weeds on the site.
   b) Plant in fall between August 20 and October 20 for best results.
   Note: Year-long cultivation is Not Recommended on steep, erosion-prone sites.

2. HERBICIDING OPTION
   a) Spring: Spray once in mid to late spring, wait 10 days and plant into a prepared seedbed, between March 15 and May 15.
   b) Fall: Spray once after the crop is removed when weedy vegetation is still actively growing. Wait 10 days and plant into a prepared bed between August 20 and October 20.
   Note: If perennial weeds are present in the field, refer to “Old Field” herbiciding instructions below, and take a full year to prepare the site to remove problem weeds prior to seeding in fall.

METHOD C: Old Fields
(Abandoned agricultural fields that have grown up to weeds)

1. CULTIVATING OPTION
   a) Mow and rake or burn the existing vegetation to the ground in late fall or early spring.
   b) Cultivate to a depth of four to five inches every two to three weeks from spring through late summer.
   c) Before planting, make sure all the existing weeds have been killed.
   d) Plant in fall between August 20 and October 20.
   Note: Year-long cultivation is Not Recommended on steep, erosion-prone sites.

2. HERBICIDING OPTION
   a) Mow and rake, or burn the existing vegetation to the ground in late fall or early spring.
   b) Apply a Glyphosate herbicide (Roundup) three times at six to eight week intervals during the growing season (mid-spring, mid-summer, early fall).
   c) When all vegetation is dead, till the soil and plant into a prepared bed between August 20 and October 20.
STEP 2: FINAL SEED BED PREPARATION

Just prior to planting, the soil should be prepared according to the type of planting method used. This is also a good time to improve the fertility and water-holding capacity of sandy soils, and the porosity of clay soils by tilling weed-free organic matter into the soil (i.e. compost, peat moss, mushroom compost, etc.).

Broadcast Seeding or Drop Seeding and Mechanical Seeding With a Brillion Seeder

Applying seed from push-type broadcast and drop seeders requires a smooth, tilled and finely graded surface for firm seed-to-soil contact. The seed is simply raked lightly into the tilled soil, and rolled to firm it.

No-Till or Slit Seeders

No-till drills and slit-seeders require a smooth, level soil surface completely free of weeds. Tilling is not necessary, unless the area is rough and requires re-grading and smoothing. No-till seeding and slit-seeding have the advantage of bringing up very few weed seeds from the soil below. Excess dead vegetation should be cut and removed, or burned prior to using slit-seeders to prevent fouling and clogging of the seeding mechanisms.

STEP 3: PLANTING

WHEN TO PLANT

Fall (August 20 to October 20). Fall is the best time to plant. Cool temperatures and gentle rains promote germination of the cool season fescue grasses. Weed germination is lower in fall than in spring. Fall-seeded lawns typically have far fewer weeds than spring-seeded lawns.

Spring (March 15 to May 15). Spring planting is a good second option. Spring seedings often require watering more frequently, summer drought can be a threat, and weeds will typically be more competitive. Seeding No Mow between May 16th and August 19th is not recommended.

PLANTING METHODS

METHOD 1: Broadcast Seeding or Drop-Seeding

a) Requires a tilled seed bed free of rocks or clumps greater than one inch diameter.

b) Fill broadcast spreader or drop seeder. Some seeders list the seeding rates for fescue grasses. If no listing is provided, experiment with setting the opening, so that the seed is distributed at the recommended rate of five pounds per 1,000 square feet.

c) Cover the seed with one eighth to one fourth inch of soil. Use a rake, or drag the planted area with seeding drag, or piece of chain link fence.

d) Firm the seed into the soil by rolling with a roller, cultipacker, or similar implement.

e) Mulch the planting with a light covering of straw such as oats, winter wheat or marsh hay. Approximately 50% of the soil should be visible through the straw. The mulch helps control erosion on gentle slopes, and retains moisture in sandy and clay soils.

f) If working on steep slopes, it is recommended that the area be covered with an erosion-control blanket immediately after seeding. The grass will come up through the erosion blanket, and the soil will be protected from washing away during heavy rains.

METHOD 2: Mechanical Planting with Tractor-Drawn Mechanical Seeders and “Slit-Seeders”

On areas greater than a 10,000 square feet, it is often more efficient to plant your No Mow seed using a mechanical seeder, such as a “Brillion” or “Land Pride” turf seeder. The Brillion seeder has heavy cast iron packing wheels that provide firm seed to soil contact. The ground must be freshly tilled when using a Brillion seeder. Land Pride turf seeders are similar to the Brillion seeders, with more aggressive soil preparation mechanisms. Brillion and Land Pride turf seeders are often available at equipment rental and farm rental establishments.

“Slit seeders” refer to various makes and models of seeders that plant the seed in rows by opening small slits in the soil at the time of seeding. “Ryan” walk-behind slit seeders are commonly available at many rental centers. When using a slit seeder, make sure not to set the slit seeder too deep, no more than 1/8 inch deep or less.

Method 3: “No-Till Broadcast Seeding” For Fall Only

This method involves planting the seed into exposed, untilled soil following a sod-cutting, smothering, or herbicide treatment. The seed is broadcast onto the surface of the soil in late summer or early fall, without tilling or raking the seed into the soil. The mineral soil must be exposed for this method to work properly. Do not use this method to seed into an unttled dead sod. The dead sod will prevent good seed-to-soil contact. Dead sod also wicks moisture up out of the soil, drying out the surface soil in the germination zone. Dead sod can be aggressively dethatched to expose mineral soil, the thatch then removed and the seed applied, either by broadcast seeding or using a Slit Seeder. Areas that are seeded using this method must be watered regularly every morning for the first three weeks to encourage germination.

This No-Till Broadcast Seeding method is an excellent choice for steep slopes and erodible sites, since the soil is never exposed by tilling. The dead roots of the grasses or weeds that were killed by smothering or herbiciding will usually hold the soil over the summer during the site preparation process, as well as after the No Mow seed is planted. The No Mow with Annual
Rye should only be used for seeding steep slopes that require rapid stabilization. The annual rye will germinate quickly and help hold the soil while the fescue germinates and develops. If a seeded slope is to be protected with a straw or excelsior erosion blanket, there is no need to use No Mow with Annual Rye.

This seeding method is recommended for fall seeding ONLY. Spring seedings are subject to higher temperatures and greater chance of drought than fall seedings. However, success can be attained using this method with early spring seedings in March and April, with daily morning watering throughout the spring to maintain soil moisture.

METHOD 4: Hydro-Seeding

The fine fescue grasses in the No Mow Lawn Mix can be successfully seeded using a hydro-seeder if desired. There are two basic methods of hydroseeding:

a) Mix the seed with water only, and “shoot” the mixture onto a prepared seedbed of loose, weed-free soil. Hydromulch can then be applied separately in a second pass after the seed has been applied mixed with water only. The recommended seeding rate of 5 pounds per 1000 square feet (220 pounds per acre) can be used when using this two step method.

b) Mix the seed with water and hydromulch, and “shoot” this mixture onto the prepared seedbed in a single pass. Due to the fact that much of the grass seed will be suspended in the hydromulch and is not in close contact with the soil, a certain percentage of seedlings will not become successfully established. The seeding rate using this method should be increased to seven to eight pounds per 1000 sq.ft. (300-350 lbs. per acre) to account for this phenomenon.

STEP 4: POST PLANTING MAINTENANCE

Although No Mow plantings are low maintenance compared to other lawns, a some management is required to ensure successful establishment and growth.

Watering

Watering is essential during the first one to two months, increasing germination rates and seedling survival. Seeds should be watered every other morning for 15 to 30 minutes during the first four to six weeks after planting. This is especially important if planting on dry soils, or in late spring when temperatures are higher. Once established, the grass should be watered during dry periods. Occasional thorough soakings are better than frequent, light sprinklings. Deep soakings encourages deep root growth, and makes your turf more drought resistant.

Fertilizing and Weed Control

Fertilizing is not recommended for No Mow fescue turf, and should be applied sparingly, if at all. If you must, fertilize in early spring or late summer. Use a slow-release, balanced fertilizer with equal portions nitrogen, phosphorus, and potassium. Do not use high levels of nitrogen fertilizer on your No Mow turf. This is far worse than no fertilizer at all.

If desired, your No Mow Lawn can be treated with the weed control and lawn care products that are labeled for use on fine fescue grasses. Always follow the directions when using herbicides and other lawn care products. These chemicals and fertilizers should be used sparingly, of at all.

Mowing

It is not recommended that you mow your No Mow Lawn closer than 3.5 inches. Close mowing will eventually damage the roots and weaken the turf. Fescue grasses often produce seed heads up to two feet tall in early to mid-June. To maintain a more manicured appearance, mow at four inches when the seed heads appear. This is usually the only mowing that will be required, unless a more manicured look is desired.

If you require a more “cropped lawn” look, occasional mowing will be necessary, but far less frequently than with other lawn mixtures. Mow once a month at a height of 3.5 inches, starting in spring and continuing throughout the growing season. Never remove more than the top one third of the leafy growth. Do not mow your No Mow turf to a short height late in the season, after it has been allowed to grow to its full natural height. This will scalp the lawn, severely harming the grass and creating an unsightly appearance.

Your No Mow Lawn will form a soft, four to six inch tall flowing carpet of grass. In fall, leaves should be raked and removed to prevent them from smothering the lawn. An option to raking is to mow with a mulching mower after all the leaves have dropped. This shreds the leaves and encourages decomposition over winter. The nutrients from the mulched leaves are all the fertilizer your No Mow Lawn should need!
Cynwyd Heritage Trail Meadow Management Annual Task Schedule

<table>
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<tr>
<th>Quarter</th>
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<tr>
<td><strong>1st Quarter</strong></td>
<td><strong>Meadow Mowing</strong></td>
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<tr>
<td>(January – March)</td>
<td>1. Late winter /early spring when soil is dry or frozen</td>
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<td>2. Mow to a height of 8 – 12 inches</td>
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<td><strong>Control invasive plants</strong></td>
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<td>1. Apply basal bark herbicide treatment to woody plants (if needed)</td>
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<td>2. Treat any known patches of mile-a-minute and Japanese stiltgrass with pre-emergent herbicide in March (check PSU fact sheets for best timing)</td>
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<td><strong>2nd Quarter</strong></td>
<td><strong>Meadow Monitoring</strong></td>
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<tr>
<td>(April – June)</td>
<td>1. Check meadows monthly for any potential problems</td>
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<td><strong>Overseeding &amp; plug planting</strong></td>
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<td>1. Overseed any bare areas by broadcasting seed into prepared soil bed (April – May)</td>
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<td>2. Prepare and plant desired herbaceous plugs (April – mid-May); plugs can be planted later if they can be watered</td>
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<td>3. See pages 185 – 190 in the Stewardship Handbook for list of native species suitable for various site conditions</td>
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<td><strong>Control invasive plants</strong></td>
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<td>1. Control Canada thistle with herbicide(preferred) or mowing before it goes to seed(late May – early June)</td>
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<td>2. Control mile-a-minute by hand pulling and bagging small patches before June or spot treat with post-emergent herbicide as soon as detected</td>
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<td>3. Japanese stiltgrass can be treated with a pre-emergent herbicide through May; check label for best timing, and treated with a post-emergent herbicide June through August</td>
</tr>
<tr>
<td><strong>3rd Quarter</strong></td>
<td><strong>Meadow Monitoring</strong></td>
</tr>
<tr>
<td>(July – September)</td>
<td>1. Check meadows monthly for any potential problems</td>
</tr>
<tr>
<td></td>
<td><strong>Control invasive plants</strong></td>
</tr>
<tr>
<td></td>
<td>1. Control woody plants by</td>
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<tr>
<td></td>
<td>a. Digging or pulling up</td>
</tr>
<tr>
<td></td>
<td>b. Spot mowing</td>
</tr>
<tr>
<td></td>
<td>c. Herbicide treatment</td>
</tr>
<tr>
<td></td>
<td>i. Foliar application for young plants (July – August)</td>
</tr>
<tr>
<td></td>
<td>ii. Cut stump (July – September)</td>
</tr>
<tr>
<td></td>
<td>iii. Basal bark (year round)</td>
</tr>
<tr>
<td></td>
<td>2. Control mile-a-minute by spot treating with post-emergent herbicide as soon as detected</td>
</tr>
<tr>
<td></td>
<td>3. Japanese stiltgrass can be treated with a post emergent herbicide June through August</td>
</tr>
<tr>
<td></td>
<td>4. Look for and treat purple loosestrife in wet meadow with an approved post-emergent herbicide (July – August)</td>
</tr>
<tr>
<td></td>
<td>5. Control Canada thistle with herbicide application (September)</td>
</tr>
</tbody>
</table>
## Cynwyd Heritage Trail Meadow Management Annual Task Schedule

| 4th Quarter (October – December) | **Meadow Monitoring**<br>1. Check meadows monthly for any potential problems<br><br>**Control invasive plants**<br>1. Control woody plants by<br>   a. Digging or pulling up<br>   b. Spot mowing<br>   c. Herbicide treatment<br>     i. Basal bark (year round)<br>2. Control Canada thistle with herbicide application (early October)<br><br>**Over seeding**<br>1. Overseed any bare areas by broadcasting seed into prepared soil bed (late fall after a few good frosts)<br>2. See pages 185 – 190 in the Stewardship Handbook for list of native species suitable for various site conditions |
As Green Dog members, you and your canine friend can walk the trails proudly with an exclusive Natural Lands Trust Green Dog leash—a symbol to all that you and your dog love the outdoors, are committed to protecting wildlife, and respect other preserve visitors. Thank you!

**Green Dog Membership Benefits**
- 6-foot Natural Lands Trust Green Dog leash
- Invitations to exclusive members-only events; discounts on public programs
- Annual calendar featuring highlights of the preserves
- Natural Lands magazine, the biannual newsletter of Natural Lands Trust
- Natural Lands Trust Member window decal
- Thank-you gifts as noted below

**Green Dog Membership Levels**
- **Conservation Partners** $70 (leash)
- **Sustainer** $120 (leash + baseball cap)
- **Patron** $270 (leash + ceramic mug)
- **Steward** $520 (leash + canvas shopping tote)

**Payment Information**
- Name of your Green Dog
- Payment Information
  - Attached is my check, payable to Natural Lands Trust
  - Please charge $ to my:
    - Visa
    - Mastercard
    - Discover
    - American Express
- Name of cardholder
- Signature
- Please do not send thank-you gifts
- I would like my gift to be anonymous
- Matching Gift: My company will match my gift

**Mail**
Natural Lands Trust, Hildacy Farm Preserve
1031 Palmers Mill Road, Media, PA 19063

**Online**
natlands.org/greendog

**Call**
610-353-5587 x243

**Like us!**
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This preserve is owned and managed by Natural Lands Trust.

As Green Dog members, you and your canine friend can walk the trails proudly with an exclusive Natural Lands Trust Green Dog leash—a symbol to all that you and your dog love the outdoors, are committed to protecting wildlife, and respect other preserve visitors. Thank you!

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**Like us!**
facebook.com/NatLands
You and your dog set an important example.

Be nature’s best friend.

Leash your dog at all times

Keeping your dog on a leash keeps people, other dogs, and wildlife safe.

Important Reasons to Leash your Dog

Safety
Not every dog is friendly and it isn’t always appropriate for dogs to meet unfettered on a trail—it could be old age, illness, new training, or just a bad day. Always ask before letting your dog approach another dog and be respectful if the owner declines. Additionally, ticks are abundant in meadows and woods throughout the region and your dog’s best bet for avoiding Lyme disease is staying on the mowed trails.

Natural Resources
Though it may seem harmless to let your dog run free and play in the woods, fields, and wetlands, try looking at it from a Bluebird’s point of view. An unleashed dog can disturb feeding, mating, nesting, and rearing young—not just for Bluebirds but for many other wildlife species, some of which are rare or endangered as well. Please obey posted areas of sensitive habitat that could be disturbed by a dog.

People
Even though she’s wonderful, other visitors may not want to get to know your dog. The preserves are here for everyone to enjoy. Some visitors may not feel welcome if they are concerned about being approached by an off-leash dog.

Pick up poop

Dog poop smells bad and looks unsightly along the trail. It also increases the nitrogen in the soil making it harder for native plants to survive. Please pack a pick-up bag or use those provided at trailheads, clean up after your dog, and dispose of the waste in a trash receptacle either at the preserve or at home.

Natural Lands Trust preserves are home...

to scores of wild plants and animals, and a source of peace and beauty for all who visit them. We welcome you and your pet and ask that you follow some simple guidelines to protect wildlife and show respect for other preserve visitors.

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**MEDIA ALERT** **CALENDAR LISTING**

FOR IMMEDIATE RELEASE
February 22, 2015
Add Contact info

Calling All Volunteers:
Help Get the Cynwyd Heritage Trail Ready for Spring

WHAT: As temperatures rise and the region thaws, our thoughts turn to warm days spent walking or riding on the Cynwyd Heritage Trail. You can help make sure the trail is ready by joining us for a post-winter clean up day!

We’ll clear downed limbs and branches, pick up trash, and do some trimming along the trail and in the surrounding area. Coffee and donuts will be provided to jump start the morning.

WHEN: Saturday, March 21st, 9:00 am to 1:00 pm

WHERE: Insert meeting location and directions

WHO: This event is suitable for adults and kids ages 8 and up. Great opportunity for students needing to fulfill community service requirements and for school and church groups, scouts, and community organizations.

HOW: Pre-registration is encouraged. Visit [www.cynwydtrail.org/volunteer](http://www.cynwydtrail.org/volunteer) for more information and to sign-up.

- Bring a filled water bottle.
- Wear sturdy, closed-toe shoes and long pants. Dress warmly.
- Tools will be provided. Bring work gloves if you have them; they will also be available to borrow.

ABOUT: Add information about the trail, as well as, the Friends and Township if desired.

###
Distribution List for Announcements of Volunteer Opportunities

<table>
<thead>
<tr>
<th>First</th>
<th>Last</th>
<th>Position</th>
<th>Outlet</th>
<th>Email Address</th>
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</thead>
<tbody>
<tr>
<td>Kathy</td>
<td>Boccella</td>
<td>Main Line Reporter</td>
<td><em>Inquirer</em></td>
<td><a href="mailto:kboccella@phillynews.com">kboccella@phillynews.com</a></td>
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<td>calendar editor</td>
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<td>Murray</td>
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<td>DeStefano</td>
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<tr>
<td>Amy</td>
<td>Winnemore</td>
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<td>awinнем<a href="mailto:ore@newsofdelawarecounty.com">ore@newsofdelawarecounty.com</a></td>
</tr>
<tr>
<td>Margie</td>
<td>Royal</td>
<td>editor - calendar of events</td>
<td><em>County Press</em> papers</td>
<td><a href="mailto:mroyal@delconewsnetwork.com">mroyal@delconewsnetwork.com</a></td>
</tr>
<tr>
<td>Mary</td>
<td>Carr</td>
<td>community event listings</td>
<td><em>News of Delaware County</em></td>
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<tr>
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<td>Atkins</td>
<td>editor - features and community news</td>
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<td><a href="mailto:jatkins@delcotimes.com">jatkins@delcotimes.com</a></td>
</tr>
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<td>Gruenwald</td>
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</tr>
<tr>
<td>Carolyn</td>
<td>Davis</td>
<td>MontCo Reporter</td>
<td><em>Inquirer</em></td>
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<td>Cornell</td>
<td>editor</td>
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<td><a href="mailto:acornell@thereporteronline.com">acornell@thereporteronline.com</a></td>
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<tr>
<td>Stan</td>
<td>Huskey</td>
<td></td>
<td><em>Times Herald</em></td>
<td><a href="mailto:shusky@timesherald.com">shusky@timesherald.com</a></td>
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<tr>
<td>Margaret</td>
<td>Gibbons</td>
<td></td>
<td><em>Intelligencer</em></td>
<td><a href="mailto:mgibbons@phillyburbs.com">mgibbons@phillyburbs.com</a></td>
</tr>
</tbody>
</table>
Online Resources

- [www.philly.com/philly/calendar/submit/](http://www.philly.com/philly/calendar/submit/)
- VolunteerMatch.com
- Meetup.com, including:
  - [www.meetup.com/getoutphilly/](http://www.meetup.com/getoutphilly/)
- Patch.com (Narberth-Bala; Ardmore-Merion-Wynnewood; Bryn Mawr-Gladwyne)
<table>
<thead>
<tr>
<th>Task</th>
<th>Date (work day or ongoing)</th>
<th>Number of volunteers needed</th>
<th>Special skills and information needed</th>
<th>Planting materials required (e.g., trees, shrubs, mulch, etc.)</th>
<th>Funding amount and status</th>
<th>Tools needed</th>
<th>Project lead</th>
<th>Township P&amp;R role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect small branches felled by winter storms, general trail clean up</td>
<td>Work day - After final snowfall (March 21, 2015 or early April if needed)</td>
<td>As many as can be recruited and managed</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Work gloves, loppers, garbage bags</td>
<td>TBD</td>
<td>Agree on location(s) where branches can be piled prior to pick-up. Remove collected branches.</td>
</tr>
<tr>
<td>Trim swale grasses</td>
<td>Work day - March 21, 2015</td>
<td>Dependent on number of line trimmers available</td>
<td>Operate line trimmer</td>
<td>None</td>
<td>None</td>
<td>Line trimmers, appropriate footwear, work gloves, eye protection, ear plugs</td>
<td></td>
<td>Determine how trimmed material is disposed of</td>
</tr>
<tr>
<td>Check for and collect felled branches on trail; report large branches blocking trail to Township for removal</td>
<td>Weekly</td>
<td>Task can be shared among 2-3 volunteers who walk the trail routinely</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Work gloves, loppers</td>
<td></td>
<td>Agree on location(s) where branches can be piled prior to pick-up. Remove collected branches.</td>
</tr>
<tr>
<td>Monitor and address graffiti; paint over graffiti on concrete walls and fencing; notify Township of all other graffiti and vandalism</td>
<td>Monthly</td>
<td>Task can be shared among 2-3 volunteers who walk the trail routinely</td>
<td>Ability to carry supplies to location. Clear understanding of those situations in which she/he is authorized to paint</td>
<td>None</td>
<td>Cost of paint and related supplies.</td>
<td>Paint, brushes, rollers, pans, rags, drop cloth. (Optional: wagon for moving supplies)</td>
<td></td>
<td>Track and respond to reports of graffiti on surfaces which volunteers are not authorized to paint.</td>
</tr>
<tr>
<td>Monitor split rail fencing for rotting or broken</td>
<td>After final snowfall</td>
<td>3-5 (can be completed on)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Tape or spray paint to mark broken</td>
<td></td>
<td>Determine how problematic</td>
</tr>
</tbody>
</table>
Cynwyd Heritage Trail Public Workshop
6:00 – 7:30 pm

6:00 Welcome and Introduction
- Scott Zelov, Commissioner
- Chris Leswing, Lower Merion Township
- Rick Tralies, Natural Lands Trust

6:15 Dot Exercise: Three Important Topics to Address

6:30 Map Exercise: Tell Us How You Use the Trail

7:15 One Big Idea and Adjourn

Tonight's Goals
1. Build on the public input previously collected during Phase I planning.
2. Dot Exercise: Prioritize for the Trail's Future
3. Map Exercise: Capture Existing Behaviors, Patterns and Place Based Recommendations.
4. One Big Idea: Encourage Outside the Box Thinking.
5. Collect Information for Creating the Survey.

Dot Exercise: What are the priorities?
1. Improve Stormwater Management and Reduce Erosion
2. Improve Wildlife Habitat
3. Provide Educational Opportunities such as Guides, Activities and Tours
4. Provide Information about Trail Etiquette
5. Enhance Cleanup of Debris, Litter and Graffiti
6. Provide More Programs and Facilities for the General Public
7. Provide More Programs and Facilities for Children
8. Provide More Programs and Facilities for Aging Adults
9. Enhance Access to the Trail from My Home
10. Create and Implement Dog Protocols
11. Enhance Connections to Public Transportation
12. Provide Art on the Trail
13. Continue Beautification of the Trail
14. Emphasize Native vs. Invasive Plant Species
15. Create and Formalize Gathering Spaces
16. Enhance Communications about Trail Events and News

Map Exercise Introduction
Map Exercise: Question # 1

How are you using the trail?
How have you seen others using the trail?

Map Exercise: Question # 2

Where do you access the trail?
Where do you see others accessing the trail?
Where are you going? And When?

Map Exercise: Question # 3

Do you feel unsafe or uncomfortable anywhere on the trail?
Why?

Map Exercise: Question # 4

Where do you see wildlife on the trail?
What animals do you see?

Map Exercise: Question # 5

What is your favorite place on the trail?
And why?

Map Exercise: Question # 6

What new opportunities exist for enhancing places along the trail?
Map Exercise: Question # 7

What else should we know?

Dot Exercise Conclusions

So, what are the priorities?

Map Exercise Conclusion

ONE BIG IDEA!
Dot Priority Exercise

Sixteen priorities for the future of the trail were presented to the participants. They were asked to choose the priorities they believe to be most important. Each participant was given three sticker dots and asked to place the dots next to the priorities they choose. They were permitted to spread the three dots across three different priorities or place multiple dots next to one priority. Each priority and the corresponding number of sticker dot votes received are listed below in order of most votes to least.

1. Improve Stormwater Management and Reduce Erosion - 18
2. Continue Beautification of the Trail – 18
3. Improve Wildlife Habitat - 14
4. Emphasize Native vs. Invasive Plant Species - 13
5. Create and Formalize Gathering Spaces - 8
6. Provide Educational Opportunities such as Guides, Activities and Tours - 8
7. Provide More Programs and Facilities for the General Public - 7
8. Create and Implement Dog Protocols - 7
9. Provide Information about Trail Etiquette - 6
10. Provide Art on the Trail - 6
11. Enhance Cleanup of Debris, Litter and Graffiti - 5
12. Enhance Connections to Public Transportation - 5
13. Provide More Programs and Facilities for Aging Adults - 4
14. Provide More Programs and Facilities for Children - 1
15. Enhance Communications about Trail Events and News - 1
16. Enhance Access to the Trail from My Home - 1

The following suggestions were written on the sheets by attendees and received no other votes:

17. It is the Cynwyd Heritage Trail – need to enhance historic resources!
18. Dog park

Map Exercise

1. How are you using the trail?
   - Cycling
   - Walking/Hiking
   - Dog walking/ Dog socializing
   - Painting
   - Talking to Neighbors
   - Cross Country Skiing
Photography  
Yoga/ Group Exercise  
Climbing  
Bird Watching  
Exploring & Collecting  
Commuting to Train/ Work  
Enjoying View to Manayunk  
Escape/ Quiet/ Listening/ Seeing  
Segway  
Nap on Benches  
Tricycles/ Scooters  
Rollerblades  
Running  
Skating/ Skateboarding

Strollering/ Family Walking  
People Watching  
Picnics  
Snowshoeing  
Stargazing  
Pedestrian Access to Surrounding Sites  
Unicycling  
Reading  
Kids Playing in Vine Creek  
Community Service  
Wheelchair Use  
Plant Identification

2. Where do you access the trail? Where do you see others accessing the trail? Where are you going? And when? **See Map Composite for Results**

3. Do you feel unsafe or uncomfortable anywhere on the trail? Why? **See Map Composite for Results**

4. Where do you see wildlife on the trail? What animals do you see? **See Map Composite for Locations**

   - Foxes
   - Snakes
   - Fish
   - Crayfish
   - Raptors (Various species)
   - Groundhogs
   - Chipmunks
   - Mice
   - Moles
   - Turkeys
   - Deer
   - Raccoons
   - Squirrels
   - Songbirds (Approximately 25 species)

5. What is your favorite place on the trail? **See Map Composite for Locations**

6. What new opportunities exist for enhancing places along the trail? **See Composite Map for Locations and Ideas**
7. What else should we know? See Composite Map for Additional Information

- More water stations
- More Wayfinding Signage
- More Trash Cans
- Dog Issues: Leashes & Cleanup
- Cycling Etiquette
- Consistent Branding
- Consistent Plant Palettes
- Traditional Teen Hangout

ONE BIG IDEA

At the conclusion of the public workshop, NLT asked the workshop participants to provide us with one big idea for the trail. Outside the box thinking was encouraged. The responses are summarized below, categorized by the three concepts developed by Studio Bryan Hanes during Phase I planning. Where similar or duplicate responses were submitted, they have been combined and noted with the number of individual submissions noted in parenthesis. Submissions outside of the three concepts, or those which could apply regardless of the concept, have been listed under “Miscellaneous.”

Experiential Park

1. Provision of gathering areas, including game tables, picnic areas, trash cans, gazebo or pavilion, band box or stage, shaded areas, potentially at Barmouth (7);
2. Pollinator programs and native plantings for butterflies, birds, including fields of native berries (5);
3. Create the suburban/ Bala highline with an experience through a lush, bold, flowering landscape that can be planted and maintained by community resources (2);
4. Regional Demonstration site for restoration through innovative or unusual techniques;
5. Removal of vines from trees for more light and healthier trees;
6. Dog Park next to tennis courts – a great space for it, close to residences and plenty big enough, FOCHT has cleared most of it;
7. Parking at Barmouth (More?);
8. Cable car from viaduct across river to old closed restaurant or other destination;
9. Stream bank stabilization demonstration project;
10. Connecting the activity on the trail to the economic development of “downtown” Bala Cynwyd - Explore ways to make it a destination;
11. Zip line;
12. Plant 10,000 sunflowers;

13. More slides, especially at Mama’s Pizza;

14. Large, free parking area with pavilion;

15. Formalize winter activities: impromptu activities when it snows, temporary night lighting, hot chocolate and cider sales, snowman contests, ice sculpture festival;

16. Owl and Bluebird boxes along the trail.

**Fitness Park**

1. Establish bike rentals at Belmont and Rockhill Road;

2. Include trail as part of Walk for the Cure;

3. Continue the trail to the east, as Rail with Trail, into Fairmount Park and Schuylkill River West bike route;

4. Formalize winter activities: don’t plow, provide signs explaining winter use so pedestrians don’t walk on the trail, rent cross country skis.

**Cultural Park**

1. Art in the Park/ Performance Venue- Music/ Arts festival w/ venues at the train station, Barmouth Parking area and Manayunk vista;

2. Goat Oriented Programming;

3. Corner of Rockhill Road & Belmont Ave (old gas station site) put in parking, snack shop or restaurant;

4. Pursue local, state and regional designations or recognitions of the CHT for its natural, historical, recreational and cultural significance, such as PHS, Audubon, etc.

**Miscellaneous**

1. Acquire the lot behind Mama’s Pizza to provide parking for users who don’t live in close proximity to the trail and for other uses complimentary to enhancement of the Barmouth Station public gathering space (2);

2. No new taxes!

3. High density housing near trail in Bala and at Belmont & Rockhill intersection = more trail users and supporters;
4. Continue to keep community involved;

5. Solar panels for lights and power;

6. Deaden sound of Schuylkill Expressway;

7. Manayunk Bridge: Connection to the world;

8. Allow the high schools to take ownership of sections of the trail and plan their own events like battle of the bands, plays, races, etc.;

9. Give WLHC an alcohol permit for use on the trail;

10. Plan for 1 year, 5 years, 10 years, etc.;

11. Safer passage by way of elevated pedestrian bridge over Conshohocken State Road at the Cynwyd Station. Many neighbors access the trail from Bala Avenue near the war memorial. This type of access to the trail would be terrific;

12. Acquire the lot behind Mama’s Pizza to provide parking for users who don’t live in close proximity to the trail and for other uses complimentary to enhancement of the Barmouth Station public gathering space.
Cynwyd Heritage Trail
Key Person Interview
8/22/14
Summary Notes

On August 22nd, 2014, Oliver Bass and Rick Tralies of Natural Lands Trust interviewed Lindsay Taylor, Director of Parks and Recreation, Lower Merion Township. Oliver and Rick asked questions regarding the current state of volunteerism focused on the trail as well as opportunities for expanding volunteer efforts across the Township. Much of the meeting followed a free flowing, conversational format. In many cases, earlier questions were revisited. A summary of the discussion follows organized by topic.

SUMMARY

The conversation was opened by asking for Lindsay’s general opinion of the work being done by volunteers on the Cynwyd Heritage Trail (CHT).

- Lindsay stated that NOTHING is happening right now regarding volunteer work;
- The Friends of the Cynwyd Heritage Trail (FOCHT) has been unresponsive to the township’s attempts to contact them;
- FOCHT’s planting projects have been left untended;
- The plantings may be being used as pawns to push the township into maintaining them;
- Lindsay has heard some of this third hand.
- Lindsay believes part of the issue may be that the trail was given to FOCHT, it wasn’t something they fought to acquire;
- They want their fences and bridges, but aren’t interested in the work days;
- Lindsay has asked for plans for the workdays, but hasn’t received any. Sometimes the work is counterproductive to long term maintenance.

NLT asked about volunteerism across the Township, including other “Friends of” groups.

- Lindsay stated that ongoing programming and education is needed;
- Their volunteer program is a lead up to eventually, possibly hiring a volunteer coordinator. However, the program may need to be in dire shape in order to hire someone;
- The Township wants more help from volunteers, including in-office help. But they haven’t gotten it.
- Two other official “Friends of” groups exist: The Friends of Linwood Park and the Friends of Merion Botanical Park;
- The Friends of Linwood Park wants no involvement from the Township, but they do a good job maintaining the park. Sometimes the personalities can be a bit prickly. They ask when they need something, like mulch.
- The Board of the Merion Botanical Park is very intelligent, but they all have their own pet projects.
- A few other very small, unofficial organizations exist:
  - General Wayne Park: Helen Peachy & Husband;
Friends of PennWynne Park: Shelby Sparrow - Focused on cleanup, but wants to help with sensory garden;
Smaller groups tend to traffic islands, etc;
One man takes care of the Austin Memorial at Airdale and Old Lancaster Avenue.

Ted Goldsworth handles the graffiti issue on his own. The township has armed him with a can of paint. He’s a special person. This is the kind of person the township needs to find.

NLT asked what Lindsay’s vision would be for volunteer help if they could start from scratch.

Lindsay discussed the Philadelphia Parks Alliance, an organization dedicated to all the parks in Philadelphia, rather than just one;
Lindsay wondered if a park alliance would be possible in Lower Merion Township. NLT didn’t have any similar precedents. Oliver noted that NLT’s Force of Nature works in part because it is not place based, but is carried out over all of our preserves. Lindsay noted that Allentown also has an alliance-like organization;
Lindsay wanted to create an alliance of friends groups, in order to allow them to help each other. An example would be that the FOLP divides their perennials every so often, and could give the extras to the other groups. They could also coordinate bulk purchases and plant sales;
The goals of the alliance would be to share ideas, resources and meet similar people;
The alliance could meet seasonally to map out plans for each season.

NLT asked about potential volunteer pools and volunteer organization.

Lower Merion Conservancy (LMC) and Bridlewild Trails Association could be helpful. LMC is currently focused on William Penn’s water quality initiative. These could be a foundation of volunteers to build upon;
The Township held a volunteer meeting/clearinghouse to try to connect the different volunteer groups;
It was intended to be a regularly scheduled event, but the first one devolved into complaints and demands;
The volunteer groups are also suspicious of the Township;
Now they try to just keep the volunteer calendar populated with events.

NLT asked how the goals for the CHT align with the long term volunteer goals. NLT then presented the idea of the FOCHT purely as a fundraising organization.

Lindsay liked the idea of FOCHT as a fundraising organization, but cautioned that FOCHT would need to buy in to how the funds were spent;
These decisions could also become political. She cited an example of potentially hiring a landscaper to help maintain the trail, but the BOC stated that it was the Township’s responsibility.

NLT asked who could be potential volunteer leaders if FOCHT becomes a fundraising group.

Lindsay stated that a few of the BOC members are adamantly against hiring a volunteer coordinator, although they see volunteers as a way to reduce office costs;
Some social opportunities would be necessary to encourage volunteers to come forward;
• They would like to keep up the presence of historical interpretation on the trail;
• The café should be considered as any other neighbor to the trail.

NLT asked what specifically the township would like to see the volunteers doing.
• Lindsay would like to see the volunteers carry out the maintenance plan, but knows that they can’t do all of it;
• They could be taking care of the ornamental trees, clearing the check dams and clearing the inlets.
• Inlets and check dams are important, as the trail really is a stormwater management system;
• They could be taking care of the projects that have already been implemented.
• Plantings mean less mowing, but MORE pulling of weeds by hand, mulching, etc;
• NLT suggested empowering everyday visitors, non-volunteers, to do little things like clearing inlets or pulling invasive plants when they visit the trail;
• Volunteers could pick up trash and dog waste, but those really aren’t major issues on the trail.
• The most recent, big complaint was about a pile of debris that sat for a while, but P&R didn’t know it was there.
Summary Notes

On July 22nd, 2014, Oliver Bass and Rick Tralies of Natural Lands Trust interviewed Dave DeAngelis, Parks Supervisor, Department of Parks and Recreation, Lower Merion Township. Oliver and Rick asked questions regarding the current state of volunteerism focused on the trail as well as opportunities for expanding volunteer efforts. Much of the meeting followed a free flowing, conversational format. A summary of the discussion follows.

SUMMARY

The conversation was opened by asking Dave’s general opinion of the work being done by volunteers on the Cynwyd Trail.

- Dave has accepted that FOCHT will only do the plantings;
- But he thinks FOCHT could also:
  - Assist with basic quality of life - basic maintenance;
  - Litter, dog waster, small cleanup;
  - Blow brush off trail.
- Dave noted that a couple people do fight invasive plant species.

When asked about workdays and volunteer labor in general, Dave noted:

- Money comes easier than time and labor;
- Workdays are devoted to the major planting projects;
- Needs to be acknowledged that the trail costs money to maintain;
- Volunteers can't do it all.

When asked about other friends groups within the township, Dave stated:

- Linwood Park is smaller, but in an area where people have less land;
- Different concept - trail vs. park
  - The trail is exponentially larger than Linwood Park;
  - Movement on the trail;
  - Linwood is more like a garden, a space that is still;
  - Chris Leswing and his wife (Kate) are forces there;
- Both friends groups work contrary to township at times

NLT asked about the structure of the Friends of Linwood Park:

- Dave was unsure whether Linwood has a board, meetings or charter;
- Friends of Linwood Park do all the regular maintenance;
- Communications are often strained between the friends group, the township and parks.
- Parks has made offers to help that have been rebuked.
NLT asked about the relationship between the Township and the FOCHT:
- Township has not been able to successfully implement a philosophy on how to manage friends and events;
- No staff at weekend events and no overtime has been the current policy;
- FOCHT gets some resources that others don’t- trailers and tools;

NLT asked whether there had ever been an effort to organize volunteers across the township and align the multiple friends groups:
- A volunteer summit was convened at one point by Kate and the Lower Merion Conservancy, but some misinformation was spread and the idea never caught on.
- There is a trailer calendar meant to help streamline use of the volunteer tool trailer.

NLT asked about how public works and the friends groups could work together:
- As an example, Dave discussed piles of branches- he thinks the friends don’t even need to dispose of the piles, but they do need consistency and communication with parks for coordination of pickup;
- Brush, 8’ length on curb would be adequate for truck pickup;
- Pruning and brush clearing needs to be part of plan- some of the work is counterproductive;
- Reduce hand picking- public works could use a fork lift to transport waste materials, but that needs to be organized and communicated;
- Public works could even drop a dumpster on the site Friday for weekend use by the FOCHT, and then pick it up Monday- but that needs to be coordinated.

Tools for volunteers were discussed:
- CH trailer was purchased with grants;
- Originally for the trail, but it is now used for other sites;
- There is also a fixed trailer at the Barmouth trailhead- Dave stays out of it, but it is probably light on pruning tools right now;
- Dave provides tools and has suggested funds for tools with line item tracking;
- Less than $1,000 a year;
- Prison crew uses the tools too;
- Tries to keep inventory, but it is tough.

NLT asked whether Dave knew of any citizens who could potentially be volunteer leaders:
- Gen. Wayne Park- husband and wife could be leaders;
- Lower Merion Conservancy- hot and cold- unless it directly benefits their organizational objectives money;
- Bridlewild- the organization is primarily interested in maintaining their own trail network/infrastructure which was initially built around horses;
- Jim Mckee – STC/boy scouts
  - Landscape business
o Arborist
o Has had scouts at CHT

**NLT asked about future volunteer leadership from within FOCHT:**
- FOCHT- 60% social- there is more work than they want;
- Photo op, some care, the effort peters out and goes bust, but then they gear up for workday;
- Their monthly work day is already filled with maintaining their plantings.

**NLT asked what the most important thing to do is going forward:**
- Just steer more to operations, less aesthetic;
- Function- get trailheads maintained and stable, then think about expanding;
- Do things in phases- not to be rushed;
- Establish existing sites;
- Maintain for functions;
- Set up work and storage areas;
- Start small;
- Dave – comparing CHT to highline is not feasible;
- CHT also gets more attention than other trails/parks;
- Volunteer event app and list of needs/tools, etc.;
- Need to hire volunteer coordinator, either as staff or on as needed basis for larger events
- Tool rental, etc.

**Rick and Dave discussed a maintenance issue of trailside mowing:**
- Roadside mower with arm
- Could be union issue with highway div.
- Rough cutting
- Tow behind 48-50” flail mower and brush hog
- Growth regulator?
- Pre emergent for knot weed
Cynwyd Trail

Key Person Interview

7/23/14

Summary Notes

On July 23rd, 2014, Oliver Bass and Rick Tralies of Natural Lands Trust interviewed Chris Leswing, Assistant Director Building & Planning, Lower Merion Township. Oliver and Rick asked questions regarding the current state of volunteerism focused on the trail as well as opportunities for expanding volunteer efforts. Much of the meeting followed a free flowing, conversational format. A summary of the discussion follows.

SUMMARY

The conversation was opened by asking Chris for his general opinion of the state of the Cynwyd Heritage Trail in regards to volunteerism:

- The trail has the potential to be a bigger project than has been realized to date and could ultimately included smaller more highly designed spaces and activity points within the larger trail. The trail purposely was designed to be a better project than other trails in the area (use of a landscape architect rather than an engineer), including the Radnor Trail;
- The trail is really fine as it is- people use it and love it. If the ultimate vision isn’t realized the is as success as it is;
- But it could be even better, as Lower Merion holds itself to a higher standard, but it will take leadership and vision to realize
- He sees other friends groups in the area going above and beyond;
- There has been some resistance to working together- between the township and FOCHT and between FOCHT and the township. The two side s are not approaching their partnership with a common purpose;
- Highline- has a culture of government and friends working together same with Friends of the Walkway over the Hudson or dozens of friends groups in Philadelphia;
- Friends of Linwood Park- succeeding in maintenance and development while being wildly organic in terms of programming. FOLP have used space to build ‘community’ around the park and to adapt the space to the wants and needs of the people who use the park.

NLT asked Chris for a brief history of the FOCHT, as he was a part of their formation:

- FOCHT started by the elected officials, it was not grassroots. Members generally selected for advocacy and political skills not for their ability to build community or develop a public space. The board ‘looks good on paper’, but is not skilled for implementing the mission of the organization;
- FOCHT effectively worked for advocacy- diverting resources towards the trail and building public support for project. FOCHT was critical in getting the trail built;
• Community support identified with the CHT was and is an important factor in township’s ability to attract money/resources from DCNR, DCED and PHS;
• FOCHT has never really acted as a true friends group, the fundamental problem is that much of the FOCHT leadership is not excited about the things that a friends group should do...maintenance and programming. They have reluctantly undertaken these tasks. Many board members have no idea how to serve on a board and will require training and mentorship to be effective civic participants;
• Recently FOCHT hasn’t been champions for improvement, just for ownership.
• Chris and the current leadership of FOCHT are having some difficulties in communicating-Chris is concerned that the motivations some board members are not in the best interests of the group and ultimately the trail.

Chris advised keeping the plan simple, per Dave and Lindsay’s directions. NLT asked what is necessary to keep the trail as it is while incorporating simple improvements.
• Simple doesn’t mean vanilla. Simple means appropriately designing the space so that it can be easily maintained.
• There are currently three established trailheads (Cynwyd Station, BC Park & Barmouth)- and a fourth at Rock Hill which needs improvement and a future mini trailhead at the bridge.
• The trailheads should be landscaped for high impact/low maintenance.
• Cynwyd Station:
  o Single cutting per year;
  o Weeding needs policing, cycle through during work days;
  o Mulching
  o Planting of bulbs to “finish” the landscape.
  o Resources- coordinate people to pull the weeds- experience
• Barmouth Trailhead needs more landscape structure and a water and electrical source.
• All of the trailheads need to be fully planted
• They need bulbs, to brighten spring- daffodils
• Routine maintenance:
  o Blow off path- dirt, debris
  o FOCHT should have blowers
  o Weed whacking edge/swale
  o Weeding-pretty evident amongst grasses, etc.
• Manayunk bridge
  o Is basically designed as a highway overpass;
  o The design has a very industrial feel;
  o This area NEEDS a/the friends group to support it and beautify it -add landscaping, signage art and decorative gates.

NLT asked what tasks volunteers could be doing:
• Do annual ‘sweep’- pick up debris, leaves, branches;
• Simplify- if you pile it, take it out- to dump? FOCHT could pay for disposal; (problem with piles not being picked up in a timely manner or completely picked up) Ultimately FOCHT needs to own debris removal for their workdays.
• When trees are planted ongoing maintenance should be considered as their responsibility as well;
• Friends need access to professional supplies- pickup truck, landscape tools and equipment .FOCHT can purchase but township can advise on what supplies are needed, how best to acquire the supplies and how to best store the supplies;
• Friends could be contracting with a landscaper to lead workdays;

**NLT asked about workdays and recruiting:**
• Worked with synagogues, schools including Lower Merion High School, and people required to do community service;
• Small contingent of FOCHT comes to workdays- but these people are different from most of the FOCHT membership. However FOCHT membership is very open that they are too busy to work themselves but they will contribute towards someone else providing a higher level of maintenance and development;
• There is a good supply of volunteers available. FOCHT needs to treat this as a resource. Instead of hiring a landscape company to do the work, hire a landscape crew to lead/support volunteers on workdays service...string weedwackers, remove debris from site, organize work plan etc...

**NLT asked about identifying potential future volunteer leaders?**
• CHT is a park for the City Avenue apartment complexes, there could be more volunteers there;
• LMT needs professional volunteer coordinator, because coordinating volunteers is beyond the scope of current staff (volunteer coordinator position is included in the open space and parks and recreation plans);
• FOCHT needs direction from township towards what tasks need to be undertaken.
• FOCHT needs a couple of passionate people who want to lead and make the trail something more than it is. This will hopefully emerge over time. The trail has good bones. It can always be further developed over time.

**NLT suggested that training could include ‘what management is’. NLT also discussed the idea of a steering committee devoted to the trail.**
• Chris suggested a smaller committee, as larger joint meetings are difficult;
• The friends should report to and communicate with Lindsay Taylor;
• The arrangement could be kept informal, but needs to be managed.
Summary of Meeting with Barrett Dunigan

Summary Prepared: June 23, 2014

On June 17th, Rick Tralies, Oliver Bass and Debbie Beer of Natural Lands Trust met with Barrett Dunigan, President of the Friends of the Cynwyd Heritage Trail to discuss trail related topics such as long term planning, maintenance and interaction with Lower Merion Township. A summary of the discussion follows, with comments arranged by topic.

**Background** – Barrett was asked to tell us about FOCHT, including his role and experience as President, as well his time in other offices and as a member.

- The FOCHT has a 17 member board;
- The organization averages over $70 per member in donations and has an operating fund of approximately $XX,XXX;
- They’ve never had a long term plan for their activities;
- They have a workday committee, but may rely too heavily on Chris Leswing to lead workdays;
- They want to focus on the future and identify projects, but are unsure on how to move on them;

**Structure of the FOCHT** – Barrett was asked about the organization of the FOCHT and how they carry out their functions.

- The FOCHT has committees including the workday committee, a fundraising committee and a communications committee;
- The communications committee has made great strides of late and their website is well done with very good graphics;
- They do not have a PR person and have struggled with outreach to the media.
- They engage the public through facebook, twitter and email blasts.

**Projects** – Barrett was asked for his thoughts on how the FOCHT carries out projects and what he sees them accomplishing in the future.

- One future project could be to tell the story of the trail with signage;
- Expansion of existing planting projects at Barmouth, Cynwyd Station and Basin Plantings;
• He noted that the Township has had some struggles with maintaining the trail; FOCHT would like to continue planting, and is happy to maintain the improvements that they install.
• He doesn’t think they have enough volunteers to take on additional maintenance responsibilities;
• FOCHT has had difficulty organizing volunteers around planting projects, due to a lack of upfront documentation- for example; they’ve had difficulty to estimating how many volunteers are needed to carry out a tree planting when they don’t know how many trees they’ll be planting. He would like the opportunity to see landscape plans prior to project installation.
• Barrett mentioned the idea of a “do’s and don’ts” for the backyard areas, as well as a garden competition.

Long Term Vision- Barrett was asked how he sees the FOCHT affecting the trail over the long term.

• Barrett said he’d like to see the FOCHT continue to identify projects, do the projects, and connect them to create a fabric of improvements along the trail.
• He would like to see an FOCHT office at Barmouth, where many of their operations are centered. They could also use the West Laurel Hill Cemetery as an overflow parking area.
• He sees the trail as an important link the Circuit (the regional trail network);

Capacity – NLT staff asked Barrett for his thoughts on FOCHT’s current capacity and their capacity to continue to take on more responsibility.

• FOCHT can handle what they are doing now and can grow their capacity as well;
• They currently budget $XX,000 per year for plantings, but could stretch that money if it was needed for basic maintenance of weeding and mulching.
• He believes they have at least a 10 year engagement period with the current group of FOCHT volunteers and members;
• They’ve considered bidding out some work that they typically do on workdays, but haven’t needed to as of yet.
• They have a work day committee made up of five people that meets roughly once a month or as needed. They also communicate by email when necessary.
• The workdays are filled with volunteers from Lower Merion High School’s “Build On” program (20-30), as well as youth with community service obligations (15 +/-).

Relationship with the Township - Barrett was asked for his thoughts about how projects get done and how the FOCHT interacts with the Township.
• The FOCHT trusts Chris Leswing as the voice of the township;
• FOCHT would welcome meetings and more interaction with additional Township staff.
• Some general discussion arose amongst the group about the formation of a larger “Friends of” Committee, in which representatives from the different friends groups across the township could work together, potentially to coordinate events and place orders for plant materials and other items together.

Opportunities – NLT staff asked what could be done to help the Friends achieve their goals.

• Provide a long term plan;
• Build their workday leadership capacity;
• Improve structure and communication with the Township.
• Barrett stated that there are no limits on what this Friends group can do. They can do more than just plantings and can fundraise for services they can’t provide themselves.

Issues – NLT staff asked what major issues Barrett sees on the trail- discussion followed.

• Barrett cited dogs off leash and speeding cyclists as the two most prevalent issues.
• A discussion followed about Force of Nature and Leave No Trace. We talked further about instilling a stewardship ethic amongst the FOCHT and empowering them in the role of trail ambassadors.

Aesthetics – NLT staff asked Barrett what sort of aesthetic he thought the FOCHT envisioned for the trail.

• Different members would have different opinions.
• Many of the FOCHT would accept a more naturalized look, but would still want to see weed and invasive plant removal.

Volunteerism – NLT staff asked where FOCHT has shortcomings which could be addressed through training or education.

• FOCHT does not have anyone with grant writing experience. They’ve relied on Chris Leswing for that in the past.
• They need better volunteer tracking for work hours. Debbie noted that often volunteer time spent can be used as a match for grant funds, so it is important to track those hours.
• Barrett stated that FOCHT wants to do more volunteer recognition.
• FOCHT does not always know what they are permitted to do.
Key Person Interview
July, 2014
Summary Notes

Attendees:  Rick Tralies, Natural Lands Trust
           Mandie Cantlin, East Bradford, Assistant Manager

SUMMARY:  Rick spoke to Mandie Cantlin, of East Bradford Township by phone. East Bradford is a somewhat rural township in Chester County with a few different friends groups and an abundance of open space. Their feedback was valuable as it provided contrasting views of those provided in the interview with Radnor Township.

How did the Friends Group form?

- 2007- first, 5 year 2012
- Sunoco/Harmony Hill- 250 acres
  - Tree harvest for paper and dumping
  - Act II Remediation
  - Dam and dilapidated bridge
- Property was used by mountain bikers and dirt bikes
  - No one wanted to own the land
  - NLT didn’t want it if mountain bikes would be permitted
- The mountain bike community rallied around the project-
  - Township did trail sustainable plan
  - West Chester cycling and Chester County Trail Club came forward to try to keep it open to mountain bikes
  - BOS- 5 year trial to see if friends would hold up
  - Lots of IMBA (International Mountain Bike Association) training- crew leaders
  - Finally have stable trails
  - Group has been great
  - They maintain 7 miles of trail

How does the township communicate with Friends? Meetings?

- Need one central person to coordinate, especially waivers and crew check lists, emergency procedures
- Some training has helped some language and understanding each other

Does Public Works help?

- Usually through Mandie, usually only drainage related issues
- It was an abused property to begin with, so much work is needed
• Public works also helps on big projects- with Mandie and the Township engineer

**How do Friends present projects?**

• Started with sustainable plan as a guide- closing, rerouting trails, etc.
• New ideas, new dirt trail, they bring it to Mandie, she brings to BOS, unless it’s something small or doesn’t deviate from goals

**Does BOS/P&R, other committees or commissions have involvement?**

• Not with this group
• Open Space, Park & Rec, and Tails Committees exist, but don’t work with this friends group on this project.

**Do Friends do fundraising?**

• Not really, groups have provided funds but not actively pursuing outside donations
• The trail run raises funds for the property as well

**How are the workdays organized?**

• Mandie schedules with crew leaders- discusses priorities with crew leaders
• One day/month- for 3 to 4 hours
• Group email list
• Big emails and social media, waivers- no work group
• Wants more safety
• IMBA based
• Mandie tries to be present for some jobs but some of her own times, may hire someone for a job
• Has trusted crew leaders

**How is work checked? Follow-up? Ongoing Maintenance?**

• Follow-up is mostly trust now, but previously had to do visits, more training on front end helped
• Set expectations high up front
• P&R doesn’t deal with follow up
• The Tails committee is more involved
• Mostly Mandie’s time

• It’s important to have staff level person with interest in safety, liability, etc.
• Once had IMBA flag a tricky trail
Cynwyd Trail

Key Person Interview

July 17th 2014

Summary Notes

Attendees: Rick Tralies, Natural Lands Trust
John Nagle, Radnor Township, Board of Commissioners

SUMMARY: Radnor Township is a neighboring community with similar amenities, opportunities, issues and trends, which also faces similar difficulties. Radnor also has “Friends of” groups, which supplement the work of the township. Their feedback on how they handle some issues is valuable as they are a comparable community.

What Friends Groups exist and how did they form?

- Friends of Radnor Trails
- The Township had a trails commission which disbanded, Friends of Radnor Trails then was born
- FORT prepared RFP’s.
- Trail got built
- Parks and recreation created a sub-committee for trails, which includes the Radnor Conservancy and FORT members
- They also use college students for recreational programming
- Cleanup groups including girl scouts
- Brooke Farm Trail- agreement with PENNDOT which maintains 80’

How does the Township communicate with Friends? Meetings?

- P&R subcommittee interacts with volunteers

How does Friends Present Projects?

- They go to the director of recreation programming, then to P&R board and the township manager
- Also with Public Works

Are the BOC/other departments involved in decisions or approvals?

- No, but public works is.

How is work checked after installation and follow-up ongoing maintained and ensured?

- Township maintains the main trail, but FORT is responsible for other smaller projects
- Unsure how they check up on things.

How are workdays scheduled/organized?
• Public works involved as needed
• Always someone from P&R there

Do Friends do fundraising?

• Not much
• Radnor Conservancy makes donations

Problems? Or additional advice?

• The key is integration- there is only one trails group
• P&R tries to do events to raise awareness
• Email chain for support and very interested community group
• Grow relationships
• The Township has had to turn FORT down on some ideas
• They’ve made changes on some projects due to neighbor concerns
• The township has challenged them to raise money
• They’ve established FORT park
• Public education is most important, RE: crime and safety
### Potential Funders for Cynwyd Trail Projects

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<td>751 Righters Mill Rd.</td>
<td>Narberth PA</td>
<td>19072</td>
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<td>City</td>
<td>State</td>
<td>ZIP Code</td>
<td>Telephone</td>
<td>E-mail</td>
<td>Assets</td>
<td>Giving</td>
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<td>Frenkel Family Foundation</td>
<td>Alla Pasternack, Secy.-Treas.</td>
<td>Leon Frenkel</td>
<td>1600 Flat Rock Rd.</td>
<td>Narberth</td>
<td>PA</td>
<td>19072</td>
<td>(610) 667-4397</td>
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<td>All Children's Health Care Foundation</td>
<td>Karen Gilchrist</td>
<td>Karen Gilchrist</td>
<td>960 Swede St.</td>
<td>Wynnewood</td>
<td>PA</td>
<td>19096</td>
<td>(610) 329-5500</td>
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<td>27,431,416</td>
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<td>K Ten Kids</td>
<td>Nancy Peronneau, Exec.</td>
<td>Nancy Peronneau</td>
<td>308 E. Lancaster Ave., Ste. 235</td>
<td>Wynnewood</td>
<td>PA</td>
<td>19096</td>
<td>(610) 635-6281</td>
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<td>Paul E. Kelly Foundation</td>
<td>Paul E. Kelly</td>
<td>Paul E. Kelly</td>
<td>822 Montgomery Ave., Ste. 201</td>
<td>Narberth</td>
<td>PA</td>
<td>19072</td>
<td>(610) 222-1212</td>
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