

Master Plan Amendment

Township of Manalapan
Monmouth County, NJ

Trail Plan

June 2009

Prepared by **TM**
ASSOCIATES

Master Plan Amendment Trail Plan

Township of Manalapan
Monmouth County, New Jersey

Prepared for:

The Manalapan Township Planning Board and
The Manalapan Township Environmental Commission

June, 2009

Prepared by:



ASSOCIATES

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Middletown, NJ 07748

A handwritten signature in black ink, appearing to read 'Richard S. Cramer'. The signature is written in a cursive style with a horizontal line underneath.

Richard S. Cramer, PP, AICP
NJ Professional Planner
License No.: 2207

Adopted by the Manalapan Township Planning Board on July 23, 2009

This Plan was prepared with the assistance of a Smart Growth Planning Grant from the Association of New Jersey Environmental Commissions

This original of this document has been signed and sealed in accordance with Law.

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MANALAPAN TOWNSHIP PLANNING BOARD

RESOLUTION OF THE MANALAPAN TOWNSHIP PLANNING BOARD AMENDING THE MASTER PLAN AS IT RELATES TO THE MANALAPAN TRAILS PLAN

WHEREAS, a regular session of the Manalapan Township Planning Board ("Planning Board") was duly constituted and held on July 23, 2009, at which time a quorum was present; and

WHEREAS, pursuant to the New Jersey Municipal Land Use Law, the Planning Board has the authority to amend the Master Plan of the Township; and

WHEREAS, the Planning Board has reviewed a report from its Planner recommending that the Master Plan be amended as it relates to the Manalapan Trails Plan; and

WHEREAS, said proposed amendment was presented at the Public Meeting of the Planning Board of July 23, 2009 with an opportunity for public comment, and which, if any, are attached hereto and incorporated herein in their entirety; and

WHEREAS, the Planning Board reviewed the proposal amendment to the Master Plan, received any comment from the Planning Board's Engineer, Planner, and Attorney, as well as any public comment, and discussed the proposed amendment and thereafter voted affirmatively to adopt the proposed amendment; and

NOW, THEREFORE, BE IT RESOLVED that the Planning Board of the Township of Manalapan hereby adopts to amendment to the Manalapan Trails Plan in the Township Master Plan presented to the Planning Board (a copy of which is attached hereto and incorporated herein) at its regular meeting of July 23, 2009.


In the matter of resolution
of the Manalapan Township Planning Board
Amending the Master Plan as it
Relates to the Manalapan Trails Plan

Offered by: G. COSCIA

Seconded by: H. LAZAR

ROLL CALL	YES	NO	ABSTAIN	ABSENT	INELIGIBLE
Aaronson	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coscia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Cohen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pine	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lazar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barrack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Klauber	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hogan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
McNaboe (Alt. 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Musich (Alt. 2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I hereby certify that the foregoing Resolution was adopted by the Planning Board of the Township of Manalapan at its meeting of July 23, 2009.



, Secretary

STATE OF NEW JERSEY :

SS.

COUNTY OF MONMOUTH:

I hereby certify that on July 23, 2009, _____, personally came before me and acknowledged under oath, to my satisfaction, that she: (a) is the Secretary of the Manalapan Township Planning Board; and (b) signed the Resolution as her act and deed.

Daniel J. McCarthy, Esq.
Attorney at Law of New Jersey

Executive Summary

This Trail Plan was prepared by the Environmental Commission of Manalapan Township in collaboration with the Township's Transportation Committee. The Environmental Commission has built on prior planning efforts and a planning process that actively engaged Township residents. Upon adoption by the Planning Board, the Trail Plan will supplement the circulation element and the open space, recreation, and conservation element of the Township Master Plan.

The Trail Plan presents a vision for the development of a comprehensive network of trails that will become a defining element of the Township. The trails will be part of the Township circulation and recreation system and provide access to the Township's environmental and cultural features, and link residential areas, parks, schools, libraries, and community facilities.

The plan proposes three pilot projects to provide the initial expansion of Manalapan's trail system. These pilot projects will provide approximately four miles of new trails for the Township residents and visitors to use and enjoy.

In addition, the long-term planning vision is to expand the trail network throughout the Township by coordinating with local, County, and State initiatives for trail development and circulation improvements. The Trail Plan includes concepts for trails and bike paths throughout the Township.

As part of the overall circulation plan for the Township, the Trail Plan will be most effective if it is implemented in conjunction with the development of complete streets. To that end, the plan proposes concepts for complete streets to include on-street and off-street trail and bike path improvements to connect and integrate trails and bike paths with the street and sidewalk system of the Township.

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Introduction

The Environmental Commission of Manalapan Township in collaboration with the Township's Transportation Committee has prepared the Manalapan Trail Plan to promote the development of a trail system to meet the recreational and circulation needs of the Township. Upon adoption by the Planning Board, the Trail Plan will amend the Township Master Plan to supplement the Circulation Element and the Open Space, Recreation, and Conservation Element of the Township Master Plan. In developing the Trail Plan, the Environmental Commission has built on prior local, County, and State planning efforts and engaged Township residents.

The Plan presents a vision and a course of action to locate, build, operate, and maintain a network of trails for the benefit and enjoyment of pedestrians, bicyclists, equestrians, and users of other non-motorized transportation modes. The goal is to provide trails both as a recreational amenity and as a circulation improvement to access the Township's environmental and cultural features, and as links to residential areas, parks, schools, libraries, and community facilities.

The proposed trail network will serve the recreation and transportation needs of residents and visitors, and will be a defining element of a community that strives to be sustainable, energy-efficient, and supportive of green design. It will be located in both the suburban and rural areas of Manalapan, and include on- and off-road elements.

Funding for this Trail Plan was provided by the Association of New Jersey Environmental Commissions (ANJEC) and by the Manalapan Township Committee. In addition, numerous volunteers generously

provided their time and valuable input to help shape the planning recommendations presented in this plan.

Purpose

The purpose of the Manalapan Trail Plan is to promote, coordinate, and guide the development of a system of multi-use trails for non-motorized transportation and recreation in Manalapan. The plan considers the important aspects of trail development, including location and design.

Additionally, the Trail Plan is intended to be action-oriented. As such, it proposes three pilot projects, which are intended to provide an initial phase for the expansion and development of Manalapan's trail system.

Overview of Manalapan

Manalapan is a community with both suburban and rural areas. It covers an area of 30.85 square miles, and is situated in western Monmouth County. Important environmental and cultural features within the Township include: Monmouth Battlefield National Landmark; Monmouth Battlefield State Park; Quail Hill Scout Reservation; scenic roads; historic sites; battle routes; preserved farmland; stream corridors; parkland and open space; preserved golf courses; and, wildlife habitat areas.

Planning Process

Manalapan maintains an ongoing planning process to address the circulation and recreation needs of Township residents.

Foundations

The foundations of Manalapan's efforts to establish a trail network are first evidenced

in the Circulation Element of the Township's 1991 Master Plan, which recommended interconnecting the sidewalk network with a system of greenways that had been planned by Monmouth County. Further evidence is provided by the 1999 Open Space, Recreation and Conservation Master Plan Element, which proposed the use of funding from the Green Acres program of the New Jersey Department of Environmental Protection (NJDEP) to not only expand the Township's existing network of public and private open spaces, but also to develop greenway and trail connections between Monmouth Battlefield State Park, residential areas, and the remainder of the Township's open space network.

Actions

With the planning foundations for a trail system having been set in place, the Township then studied potential trail developments and alignments with the goal of interconnecting the municipal Recreation Center with Monmouth Battlefield State Park. Additionally, the Township's Transportation Committee developed a schematic map of possible trails and bicycle routes throughout the community.

Since the initial studies were made, concrete actions have been taken to facilitate the development of trails within the Township. A prime example is found in the fact that the Township's Planning Board has, when approving residential developments in areas adjoining Monmouth Battlefield State Park, required that developers provide and construct linking trails leading to the Park from the Renaissance Development south of Craig Road and from the developments at Battleground Country Club, the Meadows, and the Four Seasons on Millhurst Road.

2009 Trail Plan

This Trail Plan expands the Township's planning efforts to develop a system of multi-use trails that provide for non-motorized access to Manalapan's environmental and cultural features and circulation within the Township. It was made possible when, in 2008, Manalapan's Environmental Commission secured a grant from ANJEC to engage the community in the creation of a schematic plan for a Township-wide trail system that would identify three pilot projects for implementation.

In preparing this Trail Plan, the Environmental Commission solicited the active participation of the general public and welcomed the involvement of the: Manalapan Township Transportation Committee; Crossroads of the American Revolution Natural Heritage Association; Monmouth County Planning Board; Middlesex County Planning Board; New Jersey Office of Smart Growth; NJDEP; State Historic Preservation Office; NJ Transit; New Jersey Department of Transportation (NJDOT); and, ANJEC.

A venue for public participation was provided by the Environmental Commission when, after reviewing and mapping the Township's existing and already-proposed trails, it sponsored a community visioning workshop and charette. The workshop and charette were open to the general public, and held at the Manalapan Township Senior Center on November 18, 2008. The event included a presentation on trail planning, breakout sessions to identify needs and concepts, and a reconvening of the breakout groups to present their findings.



Photo 1: Breakout groups at the November 18, 2008 community visioning workshop and charette provided valuable information to the Environmental Commission.

The Environmental Commission then met on February 18, 2009, and reviewed the public input and results of the workshop and charette that had been held on November 18, 2008. At this meeting, the Commission identified follow-up actions, trail concepts, and pilot projects for inclusion in this Trail Plan.

Vision Statement

The year is 2020, and Manalapan's residents and visitors enjoy a network of multi-use trails that is an integral part of the Township's public infrastructure.

The Township's community trails and pathways are well marked and well maintained. They provide easy access to the Township's environmental and cultural features, and link them with residential areas, parks, schools, libraries, and community facilities.

The multi-use trail network provides a popular venue not only for outdoor recreation, but also for education and interpretation of the Township's history and environment. It is used by people of all ages and abilities, and recognized by the

community as an important component of the transportation system. The network includes both on- and off-road elements to facilitate convenient connections throughout the Township.

A Township organization of community-based volunteers and advocates helps to maintain the trails, and promotes their use and improvement. Through their work, the network is recognized as one of Manalapan's most desirable amenities and has widespread community support.

Trail Planning Initiatives

Community trail planning is both a local and regional issue. Because of the Township's important role in the American Revolution, trail and pathway planning in Manalapan involves a major National Landmark.

As such, the scope of planning for existing and proposed trails in Manalapan Township includes an examination of activity at other levels of government, from the national to the local level. Accordingly, major initiatives of the United States, New Jersey, Monmouth County, and Manalapan Township governments are discussed below.

National Initiatives

In August 2002, the National Park Service completed the *Crossroads of the American Revolution in New Jersey: Special Resource Study, National Heritage Area Feasibility Study and Environmental Assessment*. Following the Study, the United States Congress passed legislation (PL 109-338) in October 2006, which established the Crossroads of the American Revolution National Heritage Area. The federally-funded Crossroads Association is

responsible for the management of the National Heritage Area (NHA).

Manalapan is one of the Monmouth County municipalities located within the NHA, and Monmouth Battlefield State Park is listed one of the essential sites of the NHA. Unlike a national park, which is owned and managed by the National Park Service in its entirety, an NHA offers a framework for partnerships and collaboration within a region of thematically-related, locally-managed sites.

The NHA comprises 213 municipalities and all, or parts, of 14 of New Jersey's 21 counties. It stretches from Bergen and Passaic counties in the North to Camden and Gloucester counties in the South, and includes 13 National Historic Landmarks and more than 250 other sites and districts listed on the State or National registers of historic places. A sampling of specific sites that are located within in the NHA includes: Morristown National Historical Park; Monmouth Battlefield State Park; Princeton Battlefield State Park; Washington's Crossing State Park; New Bridge Landing in Bergen County; and, the Old Barracks in Trenton. The NHA also includes numerous open space linkages and trails.

State Initiatives

Among New Jersey's earliest trail planning initiatives is the 1974 passage of the New Jersey Trails System Act, which created the framework for the NJDEP-based New Jersey Trails Program. The main objective of the New Jersey Trails Program is to develop a statewide network of trails known as the New Jersey Trails System. The New Jersey Trails Council, an advisory body consisting of private citizens with interests in different types of trail use, representatives from conservation and

recreation organizations, and officials from diverse state agencies, assists the New Jersey Trails Program with this task. Since the United State Congress' passage of the Recreational Trails Program Act in 1993, the New Jersey Trails Program has also been charged with the administration of grants that provide for trail development and restoration, as well as education about the natural and cultural resources found along trails.

In January 2008, the NJDEP and the NJDOT issued the New Jersey Trails Plan Update (Update). The Update builds on prior plans published in 1982 and 1996, but does not include an inventory of existing trails or evaluate trails for inclusion in the New Jersey Trails System (NJTS).

The Update does, however, review key issues and findings for trail development in New Jersey. Among the issues identified in the plan are: trail funding; maintenance and operations; shared use of trails; access for people with sensory and mobility impairments; rights-of-way; information needs; and, trail use promotion.

The Update also provides valuable information on the types of activities trail users most frequently participate in, including: walking (46 percent); bicycling (22 percent), and hiking (18 percent). It also indicates that New Jersey's increasingly-dense and aging population will likely cause increase demand for trail use in urban and suburban areas.

Finally, the Update identifies public health benefits associated with trail use, and concludes that that they should be part of the State's public infrastructure and provide a connecting fabric for communities.

County Initiatives

The Monmouth County Park manages a comprehensive open space and park network of 14,288 acres. Within Manalapan, the County owns and operates the Pine Brook Golf Course, and it has preserved through easement purchase the Boy Scouts of America Quail Hill Scout Reservation.

The County's park system includes a total of 1,668 acres that are located within greenways. These include the: Crosswicks Creek Greenway (1231 acres); Henry Hudson Trail (17 acres); Manasquan River Greenway (335 acres); Metedeconk River Greenway (83 acres); and, the Union Transportation Trail (2 acres).

While none of Monmouth County's existing greenways and trails are located within Manalapan Township, the County 2006 Open Space Plan has proposed the expansion of the County's greenway system to include two greenways within Manalapan Township. The greenways proposed by the County Plan (the Manalapan R.O.W. Greenway and the Manalapan Brook Greenway) are mapped in Appendix A and have been included as part of the Township Master Plan since 1991.

Township Initiatives

The Manalapan Township Planning Board adopted an Open Space, Recreation and Conservation Master Plan Element in October 1999. The 1999 Plan establishes an aggressive agenda of open space preservation, and sets the goal of developing a network of greenways and trails within the Township. Specifically, it calls for: a system of greenways that links public parks and conserves the natural environment, rural landscape, and rich

heritage of the Township; and, a system of multi-use trails that interconnect residential areas and community facilities, as well as park and recreation sites.

In addition to the above, it is noted that the 1999 Open Space, Recreation and Conservation Master Plan Element includes an Action Plan with specific measures that are intended to stimulate the development of greenways and trails within the Township. Among the key actions included in the 1999 Update are the: leveraging of State and federal funds to cover the costs of greenways, trails, bikeways and other recreational amenities; participation in State efforts to establish a greenway from Washington Crossing State Park in Mercer and Hunterdon counties to Monmouth Battlefield State Park in Manalapan; and, the development of a standard conservation easement for public access to greenways where trail construction is anticipated or required.

Existing and Proposed Trails¹

There are existing trails within Manalapan Township. These include: trails within Monmouth Battlefield State Park, Manalapan Recreation Center, Thompson Grove Park, and Quail Hill Scout Reservation; a limited number of linking trails to Monmouth Battlefield State Park; and a paved bike path along a stretch of Millhurst Road.

There are several proposed trails within the Township that pre-date this Trail Plan. These include: linking trails from Quail Hill Scout Reservation and from the Manalapan Recreation Center to Monmouth Battlefield State Park. In

¹ This section discusses trails that have been proposed, but not constructed, before this plan was drafted. It does not discuss trails that are proposed by this plan.

addition, the County Open Space Plan proposes two greenways, both of which would lead from the border with Monroe Township in Middlesex County to Charleston Springs County Golf Course in Millstone Township.

The constructed and proposed trails that have resulted from existing planning initiatives are mapped in Appendix A.

Trail Planning Concepts

When planning a trail system, it is important to pay attention to the needs and expectations of trail users; the trail's visual appeal and design; and the trail's upkeep. The following section provides an overview of basic trail planning concepts to guide the planning and development of trails within Manalapan Township.

High Quality Experience

As a starting point, it is important to consider the elements that lead to a high quality experience. Examples of such elements include: the trail's visual appeal; pleasantness of its location; presence of interconnections with other trails, residential areas, and community facilities; sufficient trail length; accessibility for users with limited mobility; and, the availability of special features, such as educational opportunities, benches, shelters, and similar amenities. When planning trails, it is important to maximize the availability of these elements in order to provide a high-quality experience.

Trail User

It is also important to consider the needs and physical ability of the trail user. For example, the elderly and disabled will typically have different levels of ability than the remainder of the population. By

giving consideration to the needs and physical ability of all trail users, use and success of the trail system will be maximized.

In addition to the above, it is noted that accommodating a broad cross section of trail users of all ages and abilities—be they walkers, hikers, bikers, skaters, equestrians, skiers, or wildlife observers—will also help to maximize a trail system's use and success. Connectivity, tread width, tread surface, and amenities (discussed below) are among the most significant elements of trail design that can increase trail use.

Connectivity

Trail connectivity refers to the linkages a trail provides from a given point to another. When planning trails, it is important to consider possible connections between trails and neighborhoods, business districts, parks, community facilities, and natural and historic environments. By providing such connections, the trail can provide a route to a destination.

Trail Type

Trail type, or function, will affect the actual trail design. The basic trail types are greenways, destination trails, linking trails, and nature trails.

Greenways

Greenways are long, linear open spaces that provide a setting for nature conservation and/or recreation. They often contain trails and link parks. The corridors of streams and rivers, and utility easements lend themselves to greenway development and the inclusion of recreational trails for walkers, bicyclists, and equestrians.

Destination Trails

Destination trails provide users with an enhanced recreational experience, and are, therefore, destinations in their own right. They emphasize harmony with the environment, and are often located within greenways, natural areas, parkways, or historic parks.

Linking Trails

Linking trails facilitate connections within the community. They provide for safe, non-motorized passage between residential and commercial areas, parks, community facilities, and natural and historic environments. Linking trails may be located within roadway right-of-ways and utility easements. Linking trails emphasize connectivity and mobility to accommodate a wide variety of uses.



Photo 2: *Linking trails emphasize connectivity and mobility. This emphasis is accentuated by providing connections to residential neighborhoods.*

Nature Trails

Nature trails provide the user with opportunities to experience the natural environment. They are located within natural areas, open space, or greenways, and are often intended to provide an educational experience through the use of interpretive signage. They are unpaved and typically surfaced with natural soils, turf, crushed stone, or other permeable material. Additionally, the tread width of nature trails may be no more than a footpath.



Photo 3: Nature trails provide the user with opportunities to interact with the natural environment.

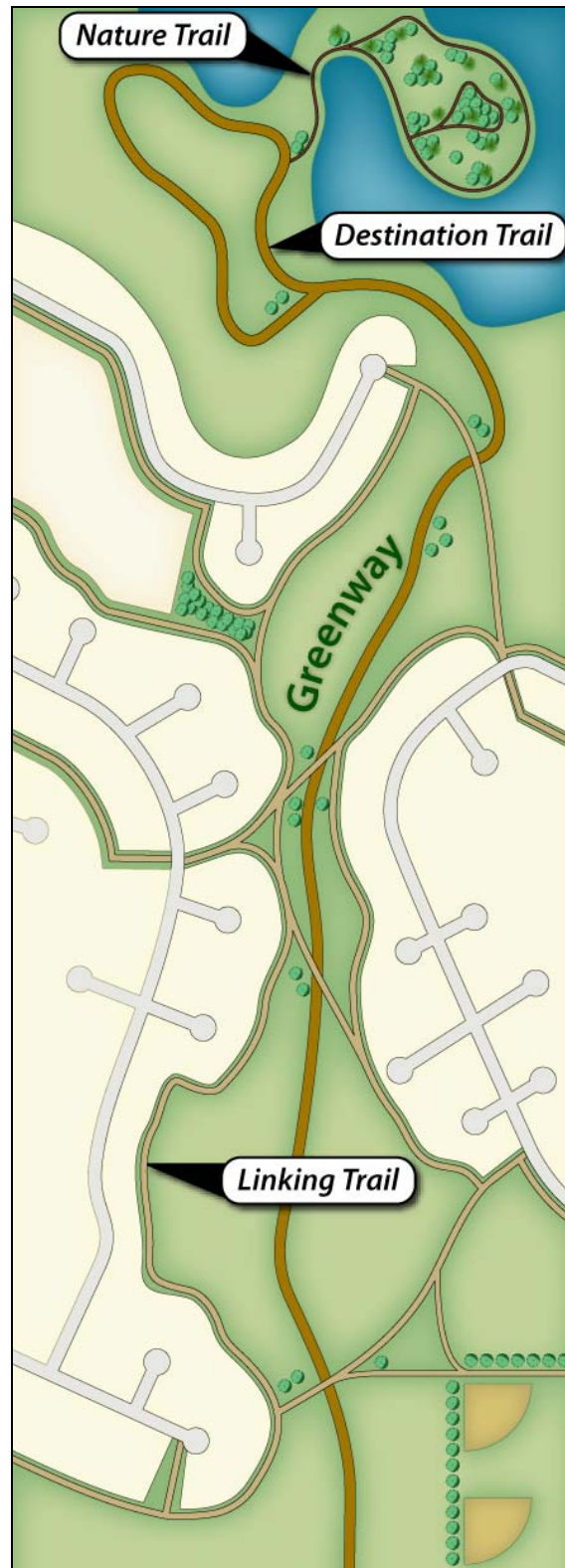


Figure 1: Illustration of trail types. This figure is illustrative only and does not represent existing or planned conditions.

Trail Design

Trail use and function are key issues in trail design. Important considerations are: the trail user; the trailhead; tread width; tread surface; trail signage; and, trail amenities. These topics are addressed below.

Trail User

Trail design must take into account the needs and physical ability of the users of the trail. The trail may be designed for a variety of users, such as casual walkers, bicyclists, skaters, equestrians, cross-country skiers, hikers, and wildlife enthusiasts. Trail design should recognize the needs and physical ability of the user, including the elderly and the disabled.

Trailhead

The trailhead is a point of public access, at which a trail starts. When designing trailheads, it is important that they be located at convenient, easily-found points. They should provide a large-format map and signage that includes: the name of the trail; the level of difficulty; length and estimated time to completion; permitted activities; available connections; and, an illustration of the trail marker that users will see along the route. The map and signage provided at the trailhead should be made of durable materials that resist fading, water damage, and vandalism.

In certain cases, and particularly in the case of destination trails, it may also be appropriate to provide conveniences such as restrooms, and parking areas. Additional conveniences (picnic tables, etc.) may be appropriate depending upon trail features and context.

Tread Width

Tread width refers to the width of the trail, and varies based on the type of trail planned.

Destination Trails: In the case of destination trails, a tread width of ten to twelve feet is appropriate. Such a width is sufficient to accommodate a high level of use and permit bidirectional passage for a range of users, including, but not limited to: pedestrians; bicyclists; and equestrians.

Linking Trails: A tread width of eight to ten feet is appropriate for linking trails. In certain high-traffic areas, however, a tread width of ten to twelve feet may be appropriate. As in the case of destination trails, the tread width of linking trails should be wide enough to accommodate bidirectional passage.

Nature Trails: As previously indicated, nature trails are designed for enjoyment of the natural environment. In order to minimize their impact on the environment while still allowing passage of pedestrians and other users of non-motorized transport, a tread width of four to eight feet is appropriate.

While a low tread width may not be sufficient to accommodate a bidirectional flow of traffic in all cases, the speed at which users travel on nature trails tends to be lower than on destination and linking trails. Nonetheless, in cases where the provided tread width is less than six feet, it is appropriate to restrict the trail's use to pedestrians only.



Photo 4: When tread width is less than six feet, it is appropriate to restrict the trail's use to pedestrians only.

Tread Surface

Tread surface refers to the materials comprising the trail's surface. Suitable materials include, but may not be limited to: pervious concrete pavement; traditional asphalt or concrete pavement; crushed stone aggregate; natural soils; mulch; turf; and, in the case of wetland environments where construction of a boardwalk may be appropriate, wooden or composite planks.

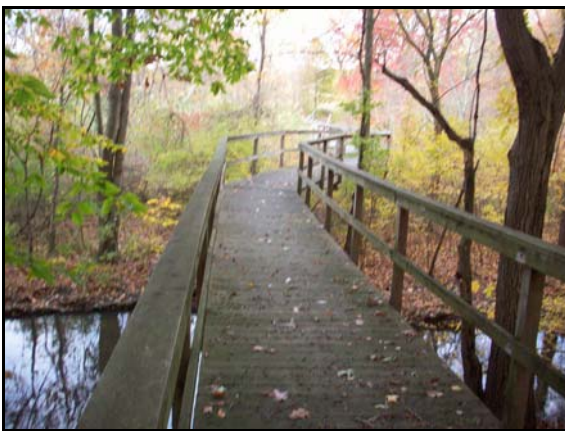


Photo 5: Boardwalks may be appropriate in certain wetland environments.

Destination and Linking Trails: For destination and linking trails, smooth-surfaced materials should be used. Such materials accommodate a broad cross

section of trail users of all ages and abilities.

Additionally, the impact of destination and linking trails on the environment should be minimized by the use of pervious materials. The advantage of pervious materials is that they permit groundwater infiltration, thereby mitigating an increase in stormwater runoff.

Nature Trails: In order to provide maximum visual integration with the environment and facilitate groundwater infiltration, nature trails typically have a natural tread surface, such as soils, mulch, or turf. As previously indicated, the construction of a boardwalk may be appropriate in certain wetland environments.



Photo 6: Nature trails, such as the Thompson Grove Park Nature Trail, should always have a natural tread surface.

Trail Signage

Trail signage serves a number of important functions. Most importantly, it helps a user to identify which trail the user is on and conveys information about trail characteristics. As such, proper signage is an important part of trail design.

Signage at the trailhead should include: the name of the trail; a large-format map; the

level of difficulty; length and estimated time to completion; permitted activities; an illustration of the trail marker that users will see along the route; and, information on connections. Trail signage should contain a minimal amount of text by making extensive use of icons and pictograms.

This information should be supplemented by trail markers located at regular intervals along the route. These markers should contain the name of the trail, and distance and time to completion.

In addition to the above, it is noted that interpretative signage should be provided where significant natural and cultural features are present. This is particularly relevant for nature and destination trails.

All signage should be made of durable materials that resist fading, water damage, and vandalism.

Trail Amenities

Trail amenities have a significant impact on a user's overall experience, and may include: benches; picnic areas; drinking fountains; washroom facilities; animal-proof refuse containers; observation areas; and kiosks, among others.

When planning trails, it is important to provide appropriate amenities. The appropriateness of a particular amenity will be determined by the function, type, and anticipated use of the trail.

Benches are an important part of all trails and should be provided as appropriate to make the trail experience restful and relaxing for users of all abilities. Animal-proof refuse containers are also an important amenity for all trails, and should be placed in locations that are easily

accessible for trash collection and maintenance services.

Trail Maintenance

The proper maintenance and upkeep of Manalapan's trails will ensure the public's continued use, safety, and enjoyment. As such, trail maintenance is an integral part of the trail planning process.

The maintenance required for a specific trail will be determined by trail type, tread surface, and amenities. Consequently, it is the recommendation of this Trail Plan that a maintenance plan be written for the trail system in Manalapan Township.

A trail's future maintenance needs must also be considered during the design process. For instance, trails should be designed to be accessible to maintenance vehicles. Additionally, benches and other amenities should be designed to be low maintenance. By giving forethought to maintenance in the design process, a trail's future maintenance requirements can be simplified.

Community Input

In preparing this Trail Plan, the Environmental Commission sponsored a community visioning workshop and charette on November 18, 2008. This event attracted approximately 30 participants and provided the Environmental Commission with a means to involve the community in the trail planning process. The community's input is summarized below.

New Trails

The public generated ideas for new trails at the community visioning workshop and charette. Ideas included a trail around the pond and athletic fields in Holiday Park, as

well as an inter-municipal trail from the Manalapan Recreation Center to, and around, Weamaconk Lake in Englishtown. Suggestions were also made for linking trails leading from the commuter parking lot on Franklin Lane to adjacent residential areas via an access point on Willow Grove Way.

Other suggestions for new trails included: a linking trail from Oakland Mills Park to Thompson Grove Park; a linking trail from Manalapan Recreation Center to Monmouth Battlefield State Park; a nature trail from Monmouth County Library leading into the Wynnkoop Bird Sanctuary; and, a nature trail along Manalapan Brook.

In addition to the above, the visioning workshop and charette yielded other, more general suggestions. These included suggestions to provide more: trails suitable for use by pedestrians and bicyclists; trails on and through State-owned property; linking trails from schools, parks, and other community facilities; and, parking at trailheads. A suggestion to construct a playground for young children at Thompson Grove Park, with the intent of increasing trail use in the Park, was also made.

Finally, the public voiced concerns over the design of new trails. Namely, they indicated that the use of permeable tread surfaces should be encouraged so that groundwater infiltration is not impaired. The public also noted that tread surfaces should be fast draining so that muddy conditions do not arise.

Signs and Communication

The November 18, 2008 community visioning workshop and charette yielded several comments regarding the need for improved signage and communication.

Among the public comments were that signs are needed: to direct people from Tennent Church across Freehold–Englishtown Road (County Route 522) and further to the visitor’s center at Monmouth Battlefield State Park; on Main Street to identify the equestrian trail that leads into, and within, Monmouth Battlefield State Park; and, to identify parking areas for trails.

The public also expressed opinions on the appearance of signage. It was put forth that trail signage should maximize the use of icons to minimize the need for text. The public also indicated that signage should have a standard appearance among all trails, and that signs should be made of wood or other natural materials.

Finally, the public noted that a website with general information and maps for each of Manalapan’s trails should be created.

Comprehensive Trail Plan

With the suggestions and information that were gleaned from the November 18, 2008 community visioning workshop and charette, the Township prepared a comprehensive trail plan for Manalapan Township.

The comprehensive trail plan includes trail concepts, bike path concepts and three pilot projects for initial implementation. The pilot projects are a direct result of the Environmental Commission’s community outreach efforts, and are intended to provide forward momentum for the development of trails within the Township.

The overall trail plan, which includes trail concepts and pilot projects, is mapped in Appendix A.

Trail Concepts

As shown on the Trail Plan map in Appendix A, Manalapan conceptualizes development of a system that provides new trails, or extends and interconnects existing trails, to provide the following trails:

1. Milford Brook to the Franklin Lane Parking Lot
2. Milford Brook to Locust Grove Park
3. Wynkoop Bird Sanctuary Library Trail
- 3A. High School to Thomas Drive Connector
4. Municipal Complex to Monmouth Battlefield State Park
5. Manalapan Recreation Center Trails
6. MEMS - Wemrock Brook School Connector
7. Manalapan Recreation Center to Monmouth Battlefield State Park
8. Thompson Grove Park Trail
- 8A. Thompson Grove Park to Sweetmans Lane
9. Thompson Grove Park to Oakland Mills Park
10. Oakland Mills Park Trail
11. Monmouth Battlefield State Park Connector
12. Quail Hill Englishtown Trail
13. Holiday Park Trail
14. Knob Hill – Quail Hill – JCP&L Greenway Connectors

The trail concepts proposed above by the Trail Plan will integrate with trails and bike paths proposed or generated by other initiatives. These include the Battle of Monmouth Trail, which is a route followed by the Boy Scouts of America that connects historic sites from the Quail Hill Scout Reservation, through Englishtown, to the Monmouth Battlefield; the proposed County greenways along the Manalapan Brook and the JCP&L right-of-way;

existing trails and bike paths that have already been developed within the Township and Monmouth Battlefield State Park, and other proposed trails.

Bike Path Concepts

The trail concepts shown on the Trail Plan in Appendix A are primarily, but not exclusively, off-street from existing public streets and roads. The Trail Plan in Appendix A also identifies the following bike path concepts.

- Craig Road / Symmes Drive to Route 9
- Kinney Road / Gravel Hill Road to Wemrock Road
- Oakland Mills Road /Tennent Road/ Woodward Road to Milford Brook Park
- Quail Hill Scout Reservation to Manalapan Recreation Center
- Manalapan Recreation Center to Lafayette Mills School
- Thompson Grove Road

The bike path concepts in Manalapan have been informed by the Monmouth County Scenic Roadway Plan and the Monmouth County Bicycling Map. Although the Henry Hudson Trail, Turkey Swamp Park, and Charleston Springs are major County parks that lie outside Manalapan Township, the Township bike path concepts anticipate future linkages to those County facilities. Creating a continuous marked bike path from Manalapan to those facilities will require the coordination and cooperation of the County and adjoining municipalities.

The Township bike paths are primarily on-street and within existing public streets and road rights-of-way. These bike paths should be marked with the appropriate striping and signage as bike lanes and bike routes. Where needed or desirable to

facilitate bicycle use and safety, projects undertaken by the County, the municipality, or the State that widen or reconstruct existing roads, streets, and intersections should incorporate bike lanes into the roadway design.

Where appropriate, the on-street bike path concepts and the off-street trails may be designed to interconnect to provide multi-use trail linkages.

Complete Streets

The Trail Plan is part of the overall circulation plan for the Township and it will be most effective if it is implemented in conjunction with the development of complete streets.

Complete streets are designed and operated so they work for all users—pedestrians, bicyclists, motorists and transit riders of all ages and abilities. The Township should promote complete street policies by working with transportation planners and engineers at the State, County, and local level to consistently design and alter the right-of-way width and provide improvements with all users in mind.

Pilot Projects

In order to provide forward momentum in the development of Manalapan Township's network of community trails and pathways, this Trail Plan proposes three pilot projects. Each of these projects is discussed below.

Pilot Project 1: Nature Trail for Wynnkoop Bird Sanctuary

For Pilot Project 1, the Trail Plan proposes the construction of an unpaved nature trail leading from the parking lot behind the Monmouth County Library on Craig Road,

into the municipally-owned Wynnkoop Bird Sanctuary. The proposed trail would form a loop in the Sanctuary and return to the library site.

Construction of Pilot Project 1 would enable users to experience a forested wetland habitat. It would have a total length of about 3,178 feet (1,347 of which would be located in wetlands) and cross unnamed tributaries of the Tephahemus Brook. Its estimated preliminary cost is approximately \$71,900^{2, 3}. Implementation of the project will require the cooperation of Monmouth County. Actual final cost will depend on the final design of the trail and State permit costs.

Because of wetlands, the Township should anticipate that Pilot Project 1 would require a General Permit 17 from the NJDEP. General Permit 17 permits the construction of paved and unpaved trail surfaces within wetlands or wetland buffers.

Schematic mapping of Pilot Project 1 is provided in Appendix B. Appendix E provides a breakdown of the preliminary cost estimate.

Pilot Project 2: Trails for Milford Brook Park

Pilot Project 2 would result in a total of approximately 7,247 linear feet of unpaved trail surface. Entering from the stub street at Birch Drive, a total of 4,220 feet would form a loop within Milford Brook Park. The remaining 3,027 feet would provide interconnections with the municipal park-and-ride lot on Franklin Lane, as well as

² Assumes unpaved tread surface and boardwalk crossings of waterways. Both tread surface and boardwalk would be eight feet in width.

³ Costs will vary depending upon final trail design and stream crossings.

adjacent residential areas via an access point on Taylor Mills Road.

Construction of Pilot Project 2 would require crossing the Milford Brook and an unnamed tributary. The preliminary estimated preliminary cost is approximately \$79,400^{4, 5}. Actual final cost will depend on the final design of the trail and State permit costs.

Approximately 4,608 linear feet of the planned trail length would be within wetland areas. Because of wetlands, the Township should anticipate that Pilot Project 2 require a General Permit 17 from the NJDEP.

Schematic mapping of Pilot Project 2 is provided in Appendix C. Appendix E provides the breakdown of the preliminary cost estimate.

***Pilot Project 3:
Trails for Thompson Grove
and Oakland Mills Parks***

Pilot Project 3 consists of a series of four unpaved trail segments with a combined length of 11,900 feet. The trail would lead from Sweetmans Lane (County Route 527) along the western periphery of Millhurst Pond into Thompson Grove Park.

The trail would then extend through Thompson Grove Park, connect to existing park trails, and then extend along the Manalapan Brook toward Oakland Mills Park and then cross the Manalapan Brook to interconnect with a proposed trail within Oakland Mills Park. The Oakland Mills Park trail would form a loop in Oakland Mills Park and extend out to Oak Mills

Road and to Beagle Drive. Because segments of the trail lie outside lands controlled by Manalapan Township, the Township will need to acquire right-of-way in fee or by easement to complete all the trail segments.

It is estimated that the total construction costs for Pilot Project 3, excluding land acquisition costs, would be about \$134,800^{6, 7}.

Because segments of the trail would cross wetland areas, the Township should anticipate the need for a General Permit 17 from the NJDEP. Actual final cost will depend on the final design of the trail, State permit costs, and land acquisition costs.

Schematic mapping of Pilot Project 3 is provided in Appendix D. Appendix E provides a breakdown of the preliminary cost estimate.

Funding Sources

A key source of funding for trail development is the Municipal Open Space Tax, which has been assessed at a rate of \$0.02 per \$100.00 since 2001.

There is also a range of funding sources for trail construction at both the County and State levels.

For instance, Monmouth County has a match and reimbursement program, which provides a 50 percent match for trail development and reimburses municipalities for their share of costs as projects are

⁴ Assumes unpaved tread surface and boardwalk crossings of waterways. Both tread surface and boardwalk would be eight feet in width.

⁵ Costs will vary depending upon final trail design and stream crossings.

⁶ Assumes paved tread surface and boardwalk crossings of waterways. Both tread surface and boardwalk would be eight feet in length.

⁷ Actual costs will vary depending upon final trail design.

completed. The County cost share limit is \$250,000 per project.

The Office of Natural Lands Management of the NJDEP's Division of Parks and Forestry also funds trail development through monies received from the United States Government under SAFETEA-LU⁸. These monies are distributed to municipalities and non-profit organizations by means of an annual grant program, and typically provide up to \$25,000 exclusively for non-motorized trail development and facilities. Additional NJDEP-funding may also be available through the Green Acres Program.

NJDOT is another source of funding for trail development. Through its federally-funded Transportation Enhancements Program, the NJDOT provides generous grants for a range of projects, including the provision of facilities for pedestrians and bicycles. The NJDOT's Bikeways Program may also be a source of funding when trails are designed to accommodate bicyclists. Additional information on NJDOT funding opportunities is available through the Department's Division of Local Aid and Economic Development.

Plan Implementation

This is an action-oriented plan that will guide the development of Manalapan's comprehensive trail system.

Implementation of the pilot projects will require further Township action to select and pursue the construction of one or more of the pilot projects as part of the Township program of capital improvements.

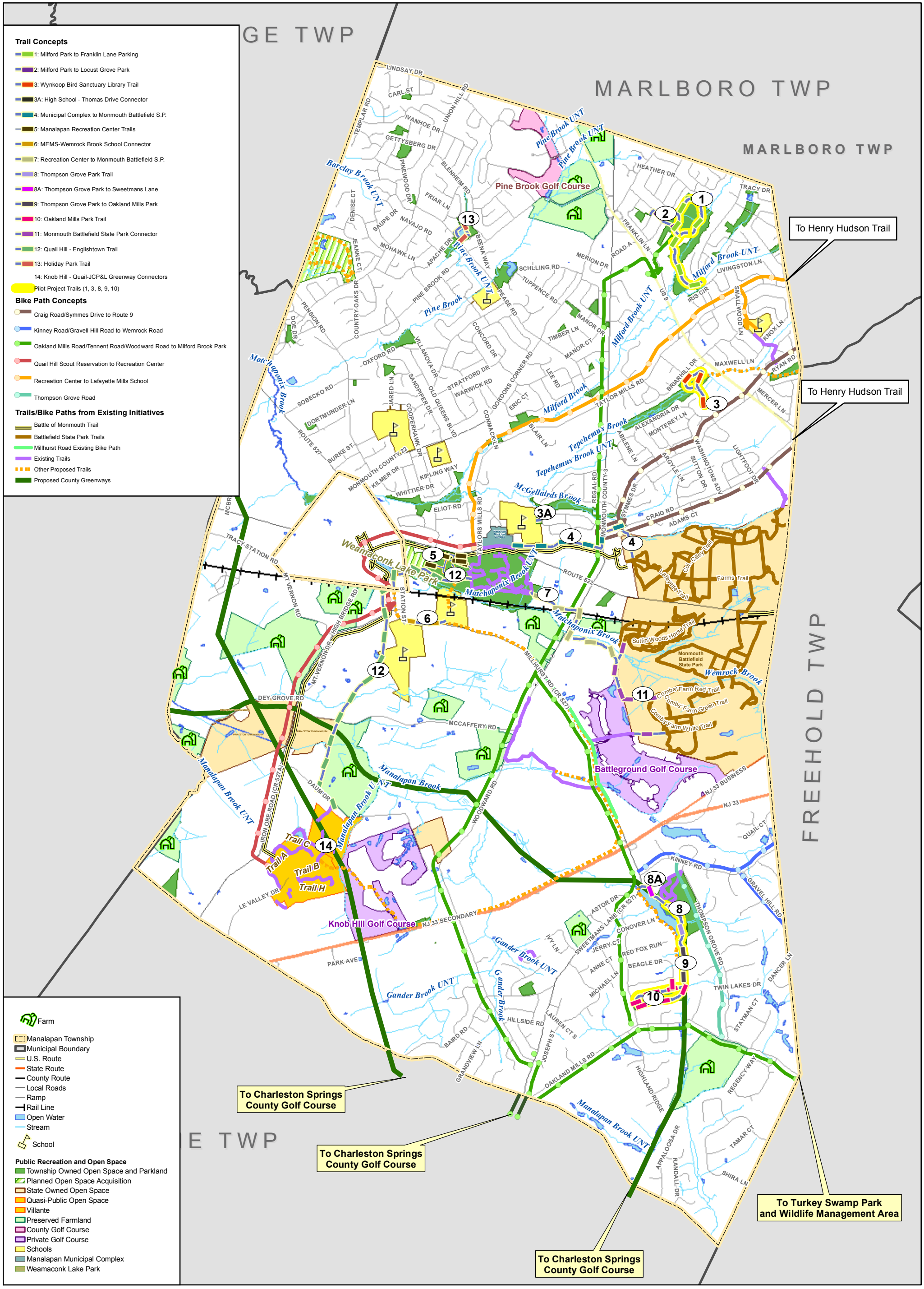
Implementation of the other concepts for trails and bike paths shown in the Trail Plan

map in Appendix A will, depending upon the particular concept, be initiated as a further local capital improvement or should be implemented in conjunction with State or County capital improvement planning and implementation for projects within Manalapan affecting State or County facilities.

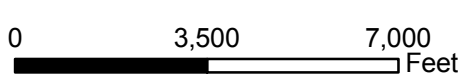
Where opportunities for trail implementation arise from private development, the Township should evaluate the development design and public improvements to require design and improvements that are compatible with and that implement the Township Trail Plan.

⁸ Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

**Appendix A:
Trail Plan**



T&M ASSOCIATES
 11 Tindall Road
 Middletown, NJ 07748-2792
 Phone: 732-671-6400
 Fax: 732-671-7365



Prepared by: ARR, June 10, 2009
 Source: NJDEP - Municipal Boundary, State Open Space, Stream, ROSI; NJDOT - 2007 Roads; Monmouth County GIS - 2003 Aerials, County Parks, Municipal Greenways, County Greenways
 File Path: H:\MNPB\00280\GIS\Projects\MNPB280_TrailsPlan_for_Report.mxd

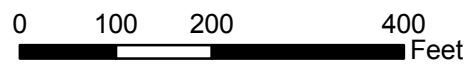
Trail Plan Manalapan Township Monmouth County, New Jersey

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Appendix B: Pilot Project 1



T&M 11 Tindall Road
 Middletown, NJ 07748-2792
 Phone: 732-671-6400
 ASSOCIATES Fax: 732-671-7365



-  3: Wynkoop Bird Sanctuary Library Trail
-  Township Owned Open Space and Parkland
-  Freshwater Wetlands
-  Open Water
-  Stream

Pilot Project: Wynkoop Bird Sanctuary Library Trail
Manalapan Township
Monmouth County, New Jersey

Prepared by: STK, May 1, 2009
 Source: NJDEP - 2007 Aerials; NJDOT - 2007 Roads; Monmouth
 County GIS - 2003 Aerials, Open Space, Open Water, Stream
 File Path: H:\MNPB\00280\GIS\Projects\MNPB280_Wynkoop.mxd



NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Appendix C: Pilot Project 2




T&M 11 Tindall Road
 Middletown, NJ 07748-2792
 Phone: 732-671-6400
 ASSOCIATES Fax: 732-671-7365
 0 175 350 700
 Feet

- Township Owned Open Space and Parkland
- State Owned
- County Owned
- Township Owned
- 1: Milford Brook Park to Franklin Lane Parking Lot
- Freshwater Wetlands
- Open Water
- Stream

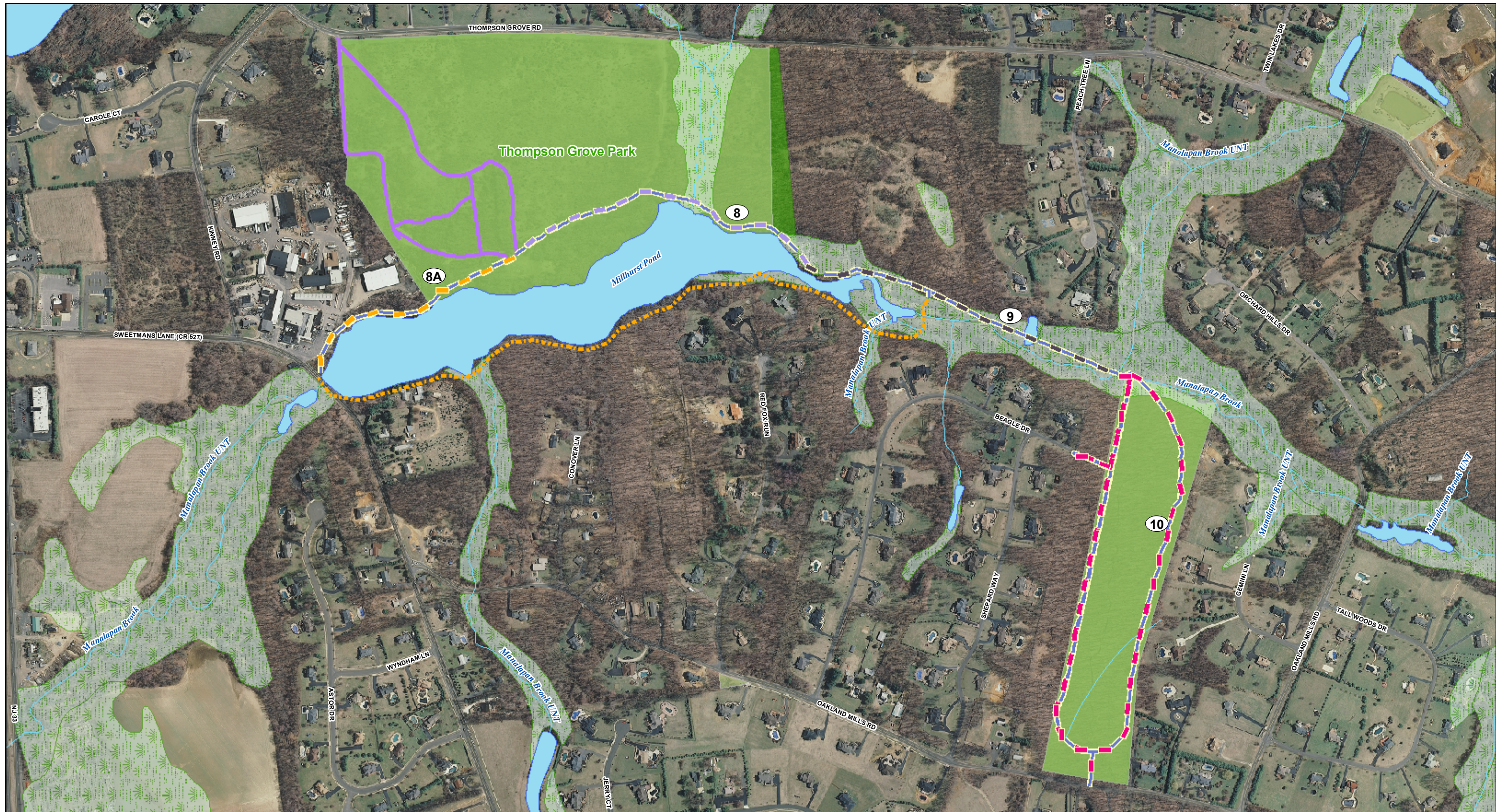
Pilot Project: Milford Brook Park
Manalapan Township
Monmouth County, New Jersey

Prepared by: STK, May 5, 2009
 Source: NJDEP - 2007 Aerials; NJDOT - 2007 Roads; Monmouth County GIS - 2003 Aerials, Open Space, Open Water, Stream
 File Path: H:\MNPB\00280\GIS\Projects\MNPB280_MilfordBrookPark.mxd

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



Appendix D: Pilot Project 3



T&M 11 Tindall Road
 Middletown, NJ 07748-2792
 Phone: 732-671-6400
 ASSOCIATES Fax: 732-671-7365
 0 250 500 1,000
 Feet

- — — — — 8: Thompson Grove Park Trail
- — — — — 8A: Thompson Grove Park to Sweetmans Lane
- — — — — 9: Thompson Grove Park to Oakland Mills Park
- — — — — 10: Oakland Mills Park Trail
- — — — — Existing Trails
- - - - - Other Proposed Trails
- Township Owned Open Space and Parkland

- Parcel Ownership**
- State Owned
 - County Owned
 - Township Owned
 - Freshwater Wetlands
 - Open Water
 - Stream

Pilot Project: Thompson Grove & Oakland Mills Parks
Manalapan Township
Monmouth County, New Jersey

Prepared by: STK, May 6, 2009
 Source: NJDEP - 2007 Aerials; NJDOT - 2007 Roads; Monmouth County GIS - 2003 Aerials, Open Space, Open Water, Stream
 File Path: H:\MNPB\00280\GIS\Projects\MNPB280_ThompsonGrovePark.mxd

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Appendix E: Calculation of Trail Cost Estimates

					Total Cost
1	Total Trail Length (Unpaved Trail):	2878	>	Cost @ \$7,500/Mile =	\$ 4,087.54
	Total Boardwalk Length (8-Foot Wide Boardwalk):	300	>	Cost @ \$128.00/Foot =	\$ 38,400.00
	Soft Cost (Estimate of Permitting, Administrative, Other)	N/A	>	Estimated Soft Costs =	\$ 15,000.00
	25% Contingency	N/A	>	25% of Trail and Boardwalk Costs =	\$ 14,371.89
					\$ 71,859.43
2	Total Trail Length (Unpaved Trail):	7097	>	Cost @ \$7,500/Mile =	\$ 10,080.97
	Total Boardwalk Length (8-Foot Wide Boardwalk):	300	>	Cost @ \$128.00/Foot =	\$ 38,400.00
	Soft Cost (Estimate of Permitting, Administrative, Other)	N/A	>	Estimated Soft Costs =	\$ 15,000.00
	25% Contingency	N/A	>	25% of Trail and Boardwalk Costs =	\$ 15,870.24
					\$ 79,351.21
3	Total Trail Length (Unpaved Trail):	11300	>	Cost @ \$7,500/Mile =	\$ 16,050.72
	Total Boardwalk Length (8-Foot Wide Boardwalk):	600	>	Cost @ \$128.00/Foot =	\$ 76,800.00
	Soft Cost (Estimate of Permitting, Administrative, Other)	N/A	>	Estimated Soft Costs =	\$ 15,000.00
	25% Contingency	N/A	>	25% of Trail and Boardwalk Costs =	\$ 26,962.68
					\$ 134,813.41

Prepared by:



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