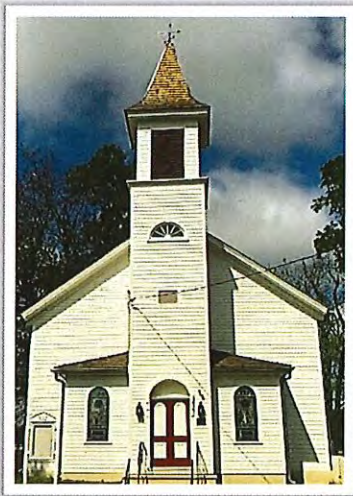


# MASTER PLAN

## Millstone Township, Monmouth County, New Jersey

### November 2017





# MASTER PLAN

Township of Millstone

Monmouth County, New Jersey

Adopted November 8, 2017

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The original of this report was signed and  
sealed in accordance with N.J.S.A. 45:14A-12

A handwritten signature in black ink that reads 'Fred Heyer'. The signature is written in a cursive, flowing style.

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Fred Heyer, P.P. #3581, AICP, CUD, LEED- AP ND, CNUa

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## INTRODUCTION

### **Millstone Township's Unique** Attributes and Regional Significance

Millstone Township is unique among the municipalities in New Jersey for the many and varied consequences that the condition of its land, water, and environment have for the rest of the State.

- **Millstone's land area spans four of the State's Watershed Management Areas.**
- These Watershed Management Areas also correspond to seven watershed sub basins. The drainage from these sub basins affects nearly **25% of the State's surface water.**
- The headwaters of several Rivers are located in Millstone, requiring extensive stream corridor protection.
- Twenty one percent of Millstone's **land area** contains wetlands, and Millstone Township is noted for its topographic features, containing some of the highest hills in the central New Jersey area of Monmouth, Mercer, and Ocean Counties. This combination of wetland area and high elevation means that land in the Township is vital to trapping water and preventing flooding in other downstream municipalities.
- Millstone contains prime agricultural soils, and 31.1% of its land area is occupied by farms. Food grown in the Township is vital to supporting local and state food systems, and contributes to public health by expanding access to fresh foods.

Multiple levels of government have considered the environmental resources present in the Township, and the impact that its lands, waters, topography, and recharge areas have for the health of the State and the County.

- The State Development and Redevelopment Plan classifies Millstone as within Planning Area 4-B, which is **the location of most of New Jersey's prime farmland, where large** contiguous masses of cultivated or open agricultural lands continue to sustain farming and other related agricultural and tourism-related economic activities.
- The State Plan describes PA-4B areas as the greensward for the larger region. These areas are not currently, nor are they intended to be, urban or suburban in nature. They are to be preserved as agricultural areas, ensuring continued economic diversity within New Jersey.

- The most recent Monmouth County Master Plan (2016) echoes the State's land classification of Millstone. The County Plan establishes a regional land use planning system called the Monmouth County Framework for Public Investment. The entirety of Millstone Township is located in either the Limited Growth Investment Area or the Priority Preservation Investment Area.
- The Limited Growth Investment Area is located outside of existing or programmed sewer service areas intended for low-density residential uses, compatible rural patterns, and supportive commercial uses. Large-scale growth should be discouraged in these locations with an emphasis on the conservation and preservation of rural and environmentally sensitive lands.
- In the Priority Preservation Investment Area, investment in land preservation, agricultural development and retention, historic preservation, environmental protection and stewardship is preferred and encouraged. The use of land conservation methods, techniques, and best management practices is supported.

Given its critical importance for the health of the region and of the entire state of New Jersey, which has been recognized repeatedly by multiple levels of government, Millstone Township is completely committed at the local level to prioritizing, first and foremost, the care and preservation of its environment, natural features, and rural heritage.

The decisions that communities make about land use and development (where, how intensely, and with what design it can occur) directly affect the health of a watershed. In the words of the NJDEP, "urbanization....changes how water flows in the watershed and what flows in the water."<sup>1</sup>

Adding development and its associated impervious surfaces and utility infrastructure changes the natural flow, pathways, volume and speed of water and runoff as it transitions from precipitation to ground or surface water. Ultimately, these effects can cause drastic changes to natural water features, such as an erosion of stream beds, and the ability of the ground to absorb water. Human uses of land also contribute pollutants to the watershed, coating impervious surface or open space with contaminants or litter that are carried into flowing water and runoff during precipitation events.

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<sup>1</sup> NJDEP Watershed Restoration, Watershed Information, accessed 3/29/2016.



With its unique geographic position of containing land in four separate watershed management areas, Millstone takes the responsibility of environmental stewardship seriously in the face of development pressure, and intends to pursue development patterns and development regulations that mitigate the harmful effects of development on natural features.

As will be shown in the sections and elements that follow, the Township's Master Plan establishes policies and recommendations that go above and beyond typical considerations of the environment enacted in many municipalities. The Township has a myriad of land development regulations related to environmental preservation and land conservation. There are active citizen-led committees that pursue an open space and farmland preservation program which is continually adding to the Township's inventory of preserved and protected lands. The residents of the Township continue to show their support for these endeavors by voting to increase funding for land preservation. The body of the Master Plan will demonstrate this commitment to preserving Millstone's unique environment, a vital proposition for the health of the entire State.

### Purpose of the Township Master Plan

The New Jersey Municipal Land Use Law (40:55D-1 et seq.) requires the periodic review and updating of municipal master plans. The New Jersey Municipal Land Use Law requires that the Township maintain an ongoing planning process and periodically review its Master Plan and development regulations, evaluate success in achieving Township planning objectives, and recommend changes, where appropriate, to the Township plan and development code and Township programs. A reexamination must be undertaken at least once every ten years.

In accordance with this mandate as well as recognition of the many changes that have occurred within the Township of Millstone since the preparation of the 1995 Master Plan and amendments thereto, the Township embarked upon the preparation of a new comprehensive Master Plan in 2002. Due to its continued rapid growth since 2002, an update to the Master Plan is now required as a means of setting land development policies that achieve a balance between growth and development of the community and the conservation of its open spaces, farmland, and rural character.

Millstone is a rural community occupying an environmentally sensitive headwaters area for one quarter of New Jersey's twenty major watersheds. The Township is experiencing significant population growth and development pressure. From 1990 to 2000, the Township population grew 77% and the number of housing units increased 64%. This growth trend continued between 2000 and 2010 at a much slower pace, when Township population increased by 18% and the number of housing units increased by 23%. Since the mid 1990's, the Township has initiated a series of significant land use changes to limit the negative impacts associated with development. However, continued growth pressure further threatens the rural character of the community and places increased demands on the community's infrastructure including schools, roads, recreation and emergency services.

**For this Plan Update, the Township's** main focus is the consideration of the health of its natural systems in the face of continued development pressure. The Master Plan is being comprehensively updated to give consideration to the Township's capacity for further development and to the local planning recommendations for land use, circulation, utilities, community facilities, conservation, recreation and farmland preservation in light of the New Jersey State Plan and other changes in planning assumptions that emphasize community environmental health, sustainability, and resiliency. This Township Master Plan update addresses its relationship to the State Development and Redevelopment Plan, the Monmouth county Plan, and the plans of adjoining municipalities.

In March 2001, The State Planning Commission adopted a new State Development and Redevelopment Plan. The State Plan places the entirety of Millstone Township in the Rural Environmentally Sensitive Planning Area (PA-4B). The intent of the State Plan is to maintain PA-4B areas as large, contiguous swaths of farms, open space, and natural lands in order to ensure that portions of the state remain intact as preserved natural areas for environmental protection, and/or in active agricultural usage to preserve local food sources and agricultural industries. There have also been recent, ongoing changes to the Monmouth County Plan for the protection of scenic roadways and the preservation of farmland in Millstone. At the same, the State has fundamentally shifted its direction on water quality management planning to emphasize the protection of water resource on a watershed basis by evaluating environmental resource capacity.

The Planning Board initiated the Master Plan process in December of 2016 by soliciting comments from community organizations and agencies. On October 11, 2017, The Planning Board held an open public meeting and invited comment from the general public on planning issues within Millstone. Input from the public hearing has been incorporated into the body of the Master Plan.

The Master Plan presented here is organized into two sections. The first section contains Background Studies that are an important part of the Millstone Township Master Plan Program. The studies provide a description and analysis of the Township population, existing land uses, natural resources, and infrastructure constraints. Data summarized in the Background Studies section have been utilized in developing the Township Master Plan and provide historical and current data for reference purposes. The second section presents the elements of the Master Plan that contain the recommendations for maintaining and developing the community. These elements include land use, circulation, community facilities, open space, recreation, historic preservation, economic development, utilities, and recycling. **The Township's Affordable Housing and Fair Share Plan** and its Farmland Preservation Plan are adopted as separate documents.

#### A Community Vision for Environmental and Agricultural Preservation

##### *Existing Community Character*

As described above, the Township Master Plan is the principal policy document for guiding local land use and development. The concept of land use in a community planning context refers to a **community's chosen approach to integrating** its natural lands with the needs of human settlement (also known as the built environment).

On an ongoing basis, communities make policy decisions that shape the built environment, including those that pertain to:



- The arrangement of development patterns across space;
- The relative locations of residential, commercial, industrial, and public land uses;
- The character and structure of utility and roadway networks;
- The preservation of natural lands; and
- The implementation of policies overlaying these spatial arrangements that affect economic development, community aesthetics, sustainability, and resiliency.

The particular choices made regarding these dimensions of development at the local level aggregate over time, **and manifest a community's unique and identifiable characteristics**. In Millstone, the linkages between natural and built systems and their impact on community character are well understood. There is a clear sense of the qualities that give Millstone its unique sense of place among Township residents, government, and stakeholder groups.

**Millstone's** unique identity is tied to the following significant characteristics:

1. Millstone is a community with a deep commitment to its agricultural history and culture.

Today in 2017, **farmland occupies approximately 31 percent of the Township's total land area.**<sup>2</sup> The Township shows its commitment to preserving its agricultural heritage into the future by energetically pursuing farmland preservation, with the result that there are currently 36 permanently preserved farmland parcels, totaling 1,253 acres of land.<sup>3</sup>

Township residents have shown their commitment to rural preservation by forming a local Agricultural Advisory Council and an Open Space and Farmland Preservation Council. Residents also voted to enact a dedicated tax of five cents per hundred dollars of assessed valuation to support farmland and open space preservation.

2. Millstone is geographically situated in a regionally-recognized environmentally sensitive area of New Jersey.

**Millstone's status as an environmentally sensitive area** was officially recognized in the State of New Jersey's 2001 State Development and Redevelopment Plan (SDRP). The SDRP classifies all non-park land within Millstone as belonging to Planning Area 4B: Rural Environmentally Sensitive, which is intended to be preserved as areas where a viable agricultural industry can thrive amongst environmentally sensitive features.

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<sup>2</sup> Based on MOD IV Assessment Data.

<sup>3</sup> Based on 2017 Monmouth County Farmland Preservation Data cross-referenced with MOD IV Parcel Data.

The Township is situated on a major drainage divide that separates the Raritan River Drainage Basin, the Delaware River Drainage Basin, and the Atlantic Coastal Basin, and is also the location of the headwaters of several rivers.

Approximately 47.7% of the Township is forest and / or wetlands areas.<sup>4</sup> These vegetated areas provide vital ecosystems services such as flood infiltration, groundwater filtering, and carbon sequestration. Preserving Millstone as a Township with large continuous areas of open space and forested features assists Monmouth County as a whole, with Millstone acting as a greensward that is an important counterbalance to intense development elsewhere in the region.

3. **Millstone's special aesthetic and feel comes from its bucolic, rural** atmosphere

The Township's identity is embodied in its natural features, which are prized by the community, and which attract residents looking to live within this particular setting. The Township preserves its aesthetic by actively implementing development regulations that permit continued growth, but require considerations for open space dedication and environmental preservation. As will be detailed later in this Plan, the Township's land development regulations and development review process, in which many different types of committees and commissions participate, all act together to protect existing community character.

Maintaining its unique sense of place is, however, challenging, given the attractiveness of the community and the development pressures that come along with its desirability. Millstone is situated in proximity to both the New York and Philadelphia and faces growth pressure from the suburban expansion of both metropolitan areas. The Township endeavors to meet its affordable housing obligations, but seeks to do so in a way that provides an expended array of housing options without compromising its natural environment or rural character.

In keeping with the Township's classification as a Rural, Environmentally Sensitive community, there is no public water or sewer infrastructure within the Township. The Township is facing pressure, particularly at its border areas, for the extension of sewer service across Township lines. However, the Township continues to meet these pressures with policies against irresponsible, inefficient sprawling development.

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<sup>4</sup> Based on 2012 NJDEP Land Use / Land Cover datasets.

### *Community Vision Statement*

A Community's Vision statement expresses a desired future state toward which the community is striving, and against which policy decisions can be made. In any decision making process, the Township can reference this vision statement, and ask questions such as *is this action consistent with our vision for the future?*, or *how will this decision impact our ability to realize our community vision?* Given its focus on land preservation, Millstone's vision statement is as follows:

In 2027, Millstone is a thriving agricultural community, unique and identifiable by the extensive areas of farmland, open space, and environmentally sensitive features that have been preserved for future generations to use and enjoy. These natural, agricultural and environmental features give Millstone its rural aesthetic, which is highly valued by both residents and visitors alike. Millstone maintains **these unique qualities by emphasizing "green" infrastructure over "grey"** infrastructure. The Township accommodates development, but manages its location, intensity, and character through growth management techniques that preserve natural and rural areas from the extension of inefficient infrastructure systems and overdevelopment.

### *Path for Getting There*

Given the Township's focus on environmental preservation and maintenance of its rural characteristic, this Master Plan takes Green Infrastructure approach to community planning. At its most fundamental level, Green Infrastructure is **defined as a community's multifunctional open-space network**. In recent decades, planners and landscape architects have built upon the concept as a way to think about planning and development that structures municipal growth on the basis of inherent "green" infrastructure systems rather than installed "grey" infrastructure systems. "Grey" infrastructure refers to the engineered solutions that dominated community development in the latter half of the 20<sup>th</sup> century, such as sewer systems, paved wastewater conveyance, and vast networks of roadways and impervious surfaces.

In a Green Infrastructure approach, a community fits future development plans to the carrying capacity of the land, rather than overwhelming or fighting natural systems to install more development that can be accommodated without significant alteration of the natural environment. The process starts from a point of identifying and connecting **an area's most valuable natural assets** before growth and development begin, promoting both conservation and smart growth goals.



The landscape approach to Green Infrastructure elevates the status of the ecosystem services provided by natural features that benefit human settlement. Ecosystem services include the following categories and specific examples of natural processes:

- Provisioning services, such as food and water production,
- Regulating services, such as improved air and water quality, flood control, or groundwater filtration,
- Supporting services, such as nutrient cycling and crop pollination, and
- Cultural services, such as recreation, health, and spiritual inspiration.

Where ecosystem services are valued, so too are the underlying land scape, open space, hydraulic, and vegetational systems that provide these services. It follows that the landscape approach to Green Infrastructure:

“conceives of landscape as an integrated whole, as the ‘scene’ across the land that encapsulates the adaptation and manipulation of natural form and processes for the purpose of human habitation. A landscape approach to Green Infrastructure entails a design vision that translates planning strategy into physical reality while heeding the ecological and cultural characteristics of a particular locale.”<sup>5</sup>

Green Infrastructure planning goes beyond positive impacts on physical environmental outcomes such as clean air and water quality, extending to considerations of how environmental features establish community identity.

In Millstone, the community clearly defines itself in terms of the qualities of its natural environment. A strong land ethic permeates the Township, no doubt tied to its pervasive agricultural tradition through which community members are constantly conscious of their interaction with the land and its sustaining qualities. Each element of this Master Plan develops goals, objectives, and recommendations in accordance with the Green Infrastructure approach, emphasizing the ways in which the Township plans to protect its natural resource networks to foster positive environmental, economic and social benefits.

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<sup>5</sup> David C. Rouse and Ignacio Bunster-Ossa. American Planning Association Planning Advisory Service Report Number 571: *Green Infrastructure: A Landscape Approach*." 2013.



# *BACKGROUND STUDIES*

## REGIONAL SETTING

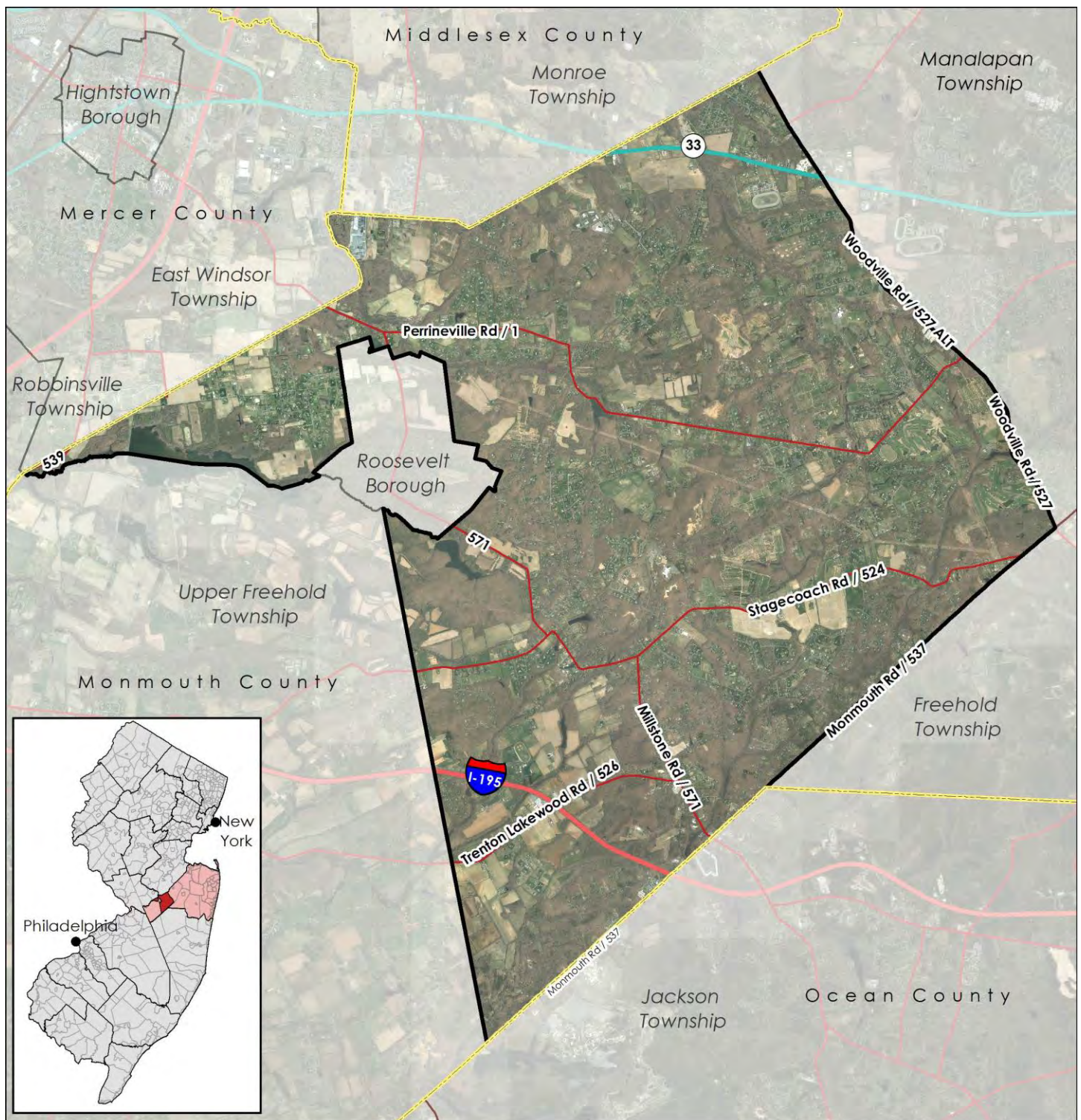
### Geographic Location

Millstone Township is a rural community geographically situated in the heart of central New Jersey, in the western portion of Monmouth County. It contains approximately 37.4 square miles of land and open water. Millstone is almost equidistant from both New York City and Philadelphia, situated between the two metropolitan regions. The Township experiences tremendous growth pressure resulting from the suburban expansion of both the Philadelphia and New York metropolitan area, but has to date successfully maintained its rural character.

The Township is environmentally significant because it is situated on a major drainage divide which separates the Raritan River Drainage Basin, the Delaware River Drainage Basin and the Atlantic Coastal Basin. Other environmentally sensitive features include extensive freshwater wetlands, prime agricultural soils, steep sloped hills, and exceptional water quality. Maintaining a balance to preserve these natural and indigenous qualities while providing for planned growth is one of the greatest challenges facing the community today.

Surrounding communities face similar issues. Millstone shares a common border with four counties (Ocean, Burlington, Mercer and Middlesex) and eight municipalities (Freehold Township, Jackson Township, Upper Freehold Township, Roosevelt Borough, Washington Township, West Windsor Township, Monroe Township and Manalapan Township). Millstone's impact on the region stretches beyond its neighboring communities. With seven watershed sub basins, drainage within Millstone effects nearly twenty-five (25) percent of the State surface water. Because of its unique location at the headwaters of several central New Jersey rivers, development within the Township can have far reaching impacts on all downstream communities. Other environmentally sensitive features include extensive freshwater wetlands, prime agricultural soils, and steep slopes.

Striking a balance between preserving vital natural features and ecosystem functions and providing for planned growth is the chief community planning challenge in Millstone given its environmentally sensitive setting.



Millstone Township  
Master Plan 2017

### Location and Regional Context

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#### Major Roads

- Interstate
- US Highways
- NJ Highways
- County Routes

- Millstone Township
- Monmouth County
- County Borders

0 0.5 1 2 Miles ▲ NORTH

Sources: Administrative boundaries from NJDEP (2013). Roads from NJDOT 2005.

Map produced 1/16/2017. S/Millstone/Master Plan Update 2016/intro and existing conditions/ location and regional context

## Regional Environmental Context

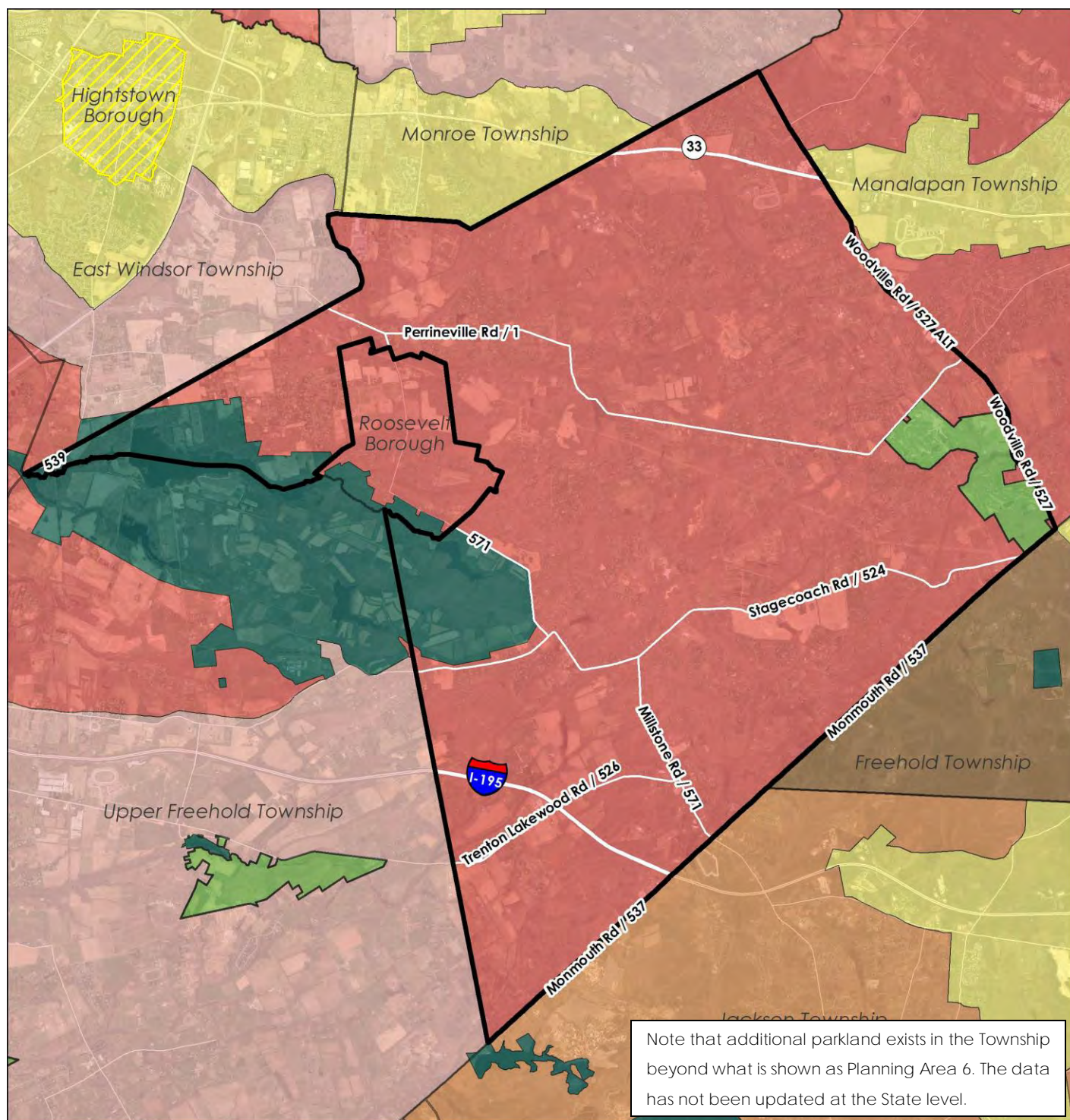
Millstone's status as an area with environmentally sensitive lands is recognized in the State of New Jersey's 2001 State Development and Redevelopment Plan (SDRP), which characterizes almost all of the land within Millstone as belonging to Planning Area 4B – Rural Environmentally Sensitive land. The only other planning areas present in Millstone are State Park and County Park areas. There are currently no designated State Plan Centers in Millstone. Nearby Centers are located in Hightstown Borough, Cranbury Township, Allentown Borough, Englishtown Borough, Freehold Borough, and Robbinsville Township.

According to its text, the State Plan describes PA-4B as the location of most of New Jersey's prime farmland, where large contiguous masses of cultivated or open agricultural lands continue to sustain farming and other related agricultural and tourism-related economic activities. While Town, Village, and Hamlet Centers provide small nodes of concentrated development within PA-4B, the Plan states that in general, PA-4B areas serve as the greensward for the larger region and are not currently nor are they intended to be urban or suburban in nature. They are to be preserved as agricultural areas, ensuring continued economic diversity within New Jersey. In the Rural Planning Area, the State Plan's intention is to:

1. Maintain the Environs as large contiguous areas of farmland and other lands;
2. Revitalize cities and towns;
3. Accommodate growth in Centers;
4. Promote a viable agricultural industry;
5. Protect the character of existing, stable communities; and
6. Confine programmed sewers and public water services to Centers.

The Master Plan Elements that follow seek to preserve many existing conditions within Millstone Township while pursuing sustainability, development, economic, open space, recreation, farmland preservation, and many other activities that align local goals with state- and county-level objectives for this rural and environmentally sensitive portion of New Jersey.





Millstone Township  
Master Plan 2017

### State SDRP Planning Areas

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#### SDRP Planning Area

- |                                 |                             |
|---------------------------------|-----------------------------|
| SUBURBAN (PA2)                  | FRINGE (PA3)                |
| RURAL (PA4)                     | RURAL ENV. SENSITIVE (PA4B) |
| ENVIRONMENTALLY SENSITIVE (PA5) | COUNTY PARK (PA6)           |
| STATE PARK (PA8)                | SDRP Center                 |

0 0.5 1 2 Miles  
NORTH

Sources: Administrative boundaries from NJDEP (2013). Roads from NJDOT 2005.

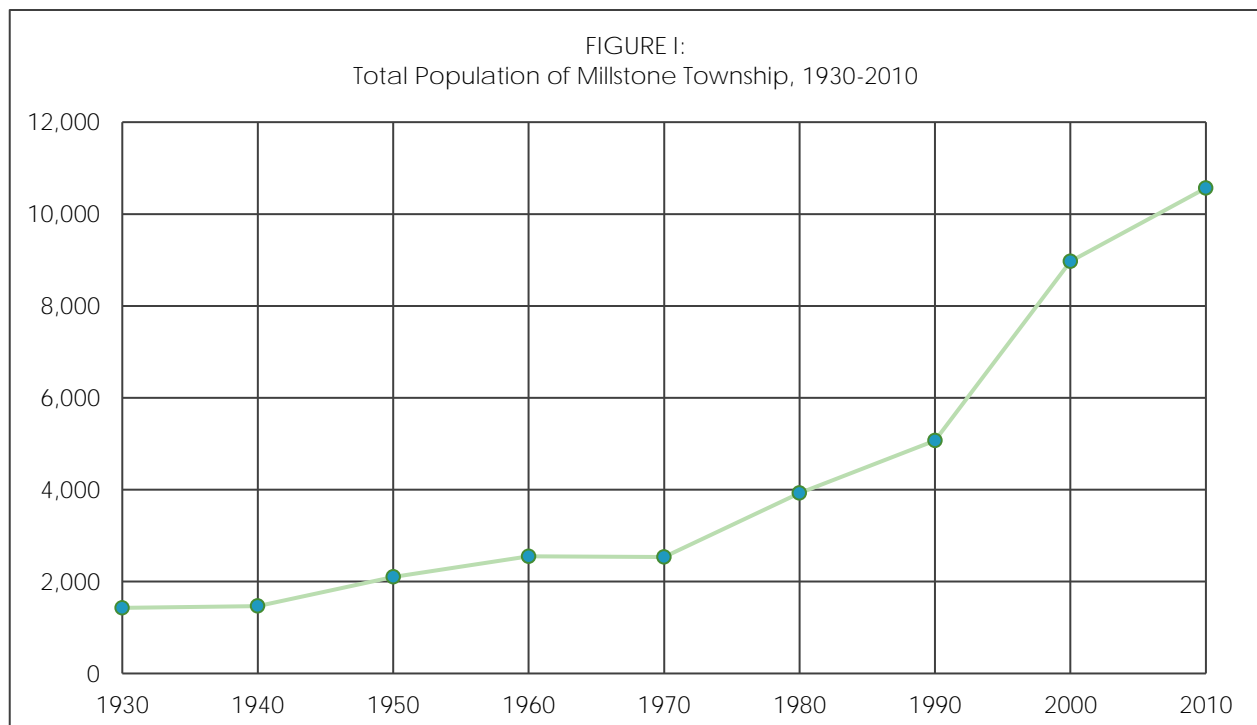
Map produced 1/17/2017. S/Millstone/Master Plan Update 2016/intro and existing conditions/SDRP

## POPULATION

### Background

When Millstone Township was formed on February 28, 1844, the Township population was estimated to be approximately 1,500 residents. In 1850 when the first official U.S. Census was taken in Millstone the population was 1,676. The population increased to a peak of 2,804 in 1865. From 1865 to 1920, the population declined to a low of 1,405 in 1920. Between 1920 and 1990, the population increased to 5,069 with a slight decline from 2,550 in 1960 to 2,535 in 1970. Between 1970 and 1980 the population increased 55 percent to 3,926 and from 1980 to 1990 the population increased 29 percent to 5,069. The largest single increase in population occurred between 1990 and 2000, from 5,069 to 8,970, an increase of 3,901, or 77%. It took nearly one hundred and twenty years for the population of the Township to double from 1,676 in 1850 to 3,926 in 1980 and only twenty years to almost double from 3,926 in 1980 to 8,970 in 2000.

In 2010, the recorded population of Millstone was 10,566 residents. This figure represents an 18% increase over the 8,970 residents reported in the 2000 Census. This change represents a continuation of historical population growth in the Township, but at a slower pace than the previous ten-year period between 1990 and 2000.





Today Millstone represents 2.3% of the total population of Monmouth County. Similar to trends within the Township, the populations of both Monmouth County and New Jersey have increased significantly since the 1850 Census. In 1850 the population in Monmouth County was only 30,313, small by today's standards. By 2000, the population of Monmouth County had increased over twenty-fold to 615,301. In 1850 the population of New Jersey was 489,555 and by 2000 had increased to 8,414,350, over seventeen times the 1850 population. Population data for the period 1850 to 2000 are presented in Table 1 for Millstone, Monmouth County and the State of New Jersey.

TABLE 1: Population Change in Millstone as compared to Monmouth County and New Jersey						
	Millstone		Monmouth County		New Jersey	
Year	Total	Percent Change	Total	Percent Change	Total	Percent Change
1850	1,676		30,313		489,555	
1860	2,356	40.6%	39,346	29.8%	672,035	37.3%
1870	2,087	-11.4%	46,195	17.4%	906,039	34.8%
1880	2,080	-0.3%	55,538	20.2%	1,131,116	24.8%
1890	1,782	-14.3%	69,128	24.5%	1,444,933	27.7%
1900	1,509	-15.3%	82,057	18.7%	1,883,669	30.4%
1910	1,461	-3.2%	94,734	15.4%	2,537,167	34.7%
1920	1,405	-3.8%	104,925	10.8%	3,155,900	24.4%
1930	1,428	1.6%	147,209	40.3%	4,041,334	28.1%
1940*	1,466	2.7%	161,238	9.5%	4,160,165	2.9%
1950	2,100	43.2%	225,327	39.7%	4,835,329	16.2%
1960	2,550	21.4%	334,401	48.4%	6,066,782	25.5%
1970	2,535	-0.6%	461,849	38.1%	7,171,112	18.2%
1980	3,926	54.9%	503,173	8.9%	7,365,011	2.7%
1990	5,069	29.1%	553,124	9.9%	7,730,188	5.0%
2000	8,970	77.0%	615,301	11.2%	8,414,350	8.9%
2010	10,566	17.8%	630,380	2.4%	8,791,894	4.5%

\* The Borough of Roosevelt was created from Millstone in 1937

Table 2 below displays a snapshot of the Township's other demographic characteristics as compared to that of Monmouth County and the State of New Jersey.

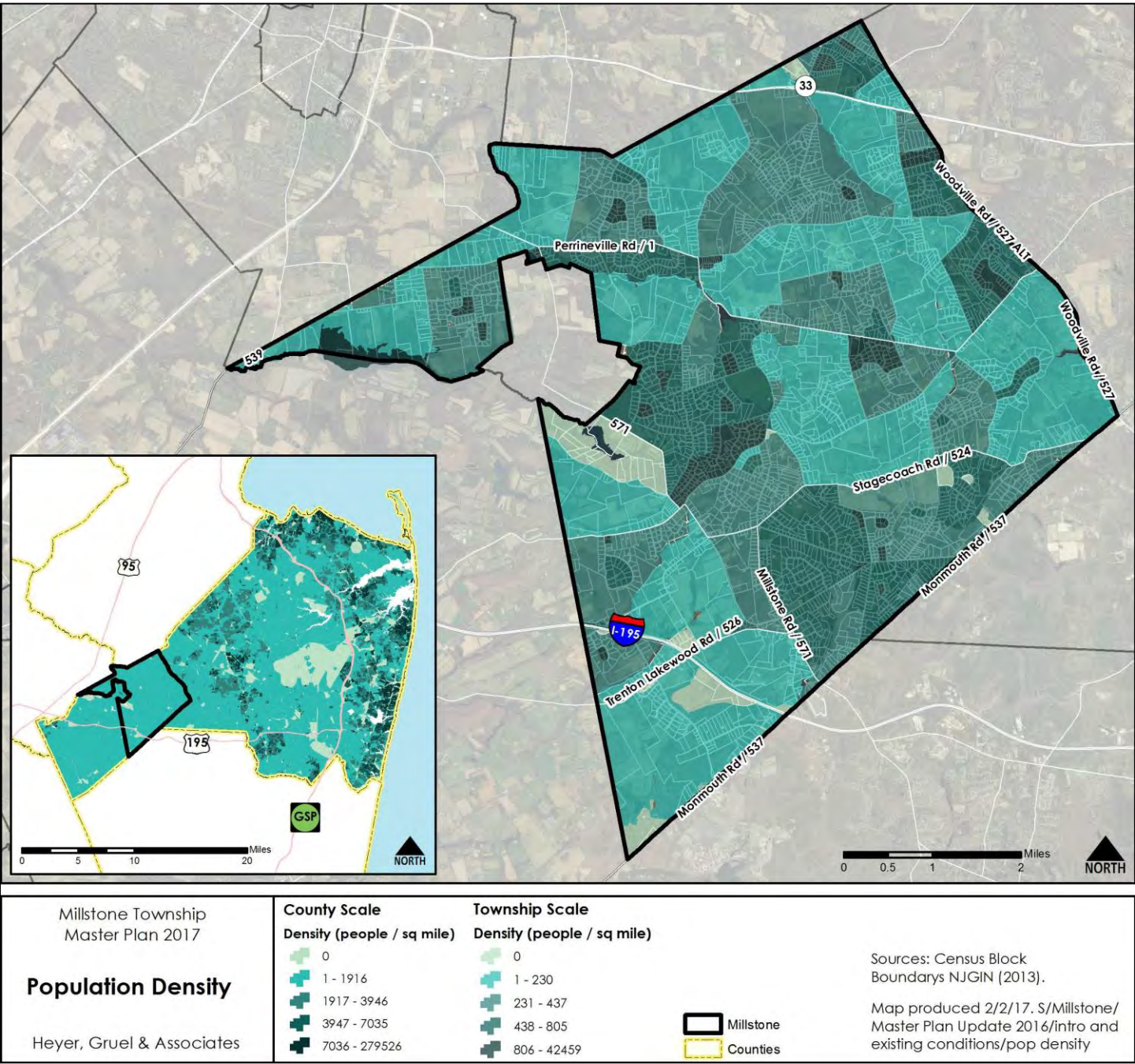
TABLE 2: Demographic Snapshot of Millstone Township compared to other Jurisdictions				
	Millstone 2000	Millstone 2010	Monmouth County 2010	New Jersey 2010
Population	8,970	10,566	630,380	8,791,894
Median Age	37.1	42.6	41.3	39.0
Households	2,708	3,301	233,983	3,214,360
Average Household Size	3.28	3.20	2.66	2.68
Housing Units	2,797	3,434	258,410	3,553,562
Home Ownership Rate	95.5%	94.1%	74.9%	65.4%
Vacancy Rate	3.2%	3.9%	9.5%	9.5%
	2000	2014 est.	2014 est.	2014 est.
Median Household Income	\$94,561	\$140,038	\$85,605	\$72,062
Per Capita Income	\$37,285	\$54,612	\$43,548	\$36,359
Poverty Rate	3.8%	2.9%	7.4%	10.7%
Unemployment Rate (NJDLWD)	-	5.2%	6.0%	6.6%

### Population Density

In 1980, the population density, or number of persons per square mile, in Millstone was 105. By 2000, the population density more than doubled to 240. During that same period of time, Monmouth County also experienced an increase in population density from 1,067 in 1980 to 1305 in 2000. By comparison, the population density for New Jersey was 986 in 1980 and 1,191 in 2000.

Despite these absolute increases, Millstone's density remains comparatively low to the rest of Monmouth County, as expected for such a rural and environmentally sensitive area. Within the Township, high density areas are distributed throughout, predominately located along major roads such as Route 571, Perrineville Road, Route 537, and Route 33. Map 3 shows variations in density across the Township by Census Tract.

Map 3. Population Density in Millstone and Monmouth County



## Population Projections

Development in Monmouth County continues to be strong and it remains one of the fastest growing counties in New Jersey. Regional growth pressure is not expected to diminish in the near future. As a result, Millstone Township can expect to receive some of the increased housing demand experienced by both the region and the State.

This Master Plan is meant to assist Millstone Township in planning for projected increases in population, households, and employment; in understanding the infrastructure needed to accommodate these jobs, houses, and people; and in providing adequate capacity for anticipated growth. Toward that end, projections of population, households, and employment through the year 2045 (the limit of available data) are reported below in Table 3.

TABLE 3: Population, Employment, and Household Projections to 2045								
	2010 (Census)	2015 (NJTPA)	2020 (NJTPA)	2025 (NJTPA)	2030 (NJTPA)	2035 (NJTPA)	2040 (NJTPA)	2045 (NJTPA)
Population	10,566	10,639	10,772	10,909	11,114	11,458	11,687	12,090
Households	3,301	3,363	3,574	3,743	3,882	4,006	4,060	4,179
Jobs	1,346	1,771	1,927	1,928	1,931	2,099	2,293	2,557

These projections are provided by the North Jersey Transportation Planning Authority (NJTPA). According to their estimates, Millstone's population will increase by 1,524 people to 12,090 in 2045, a 14% change over 2010 values. The number of households is predicted to grow by 878, an increase of 27%. Job growth is anticipated to yield an additional 1,211 jobs, amounting to an increase of 90%.

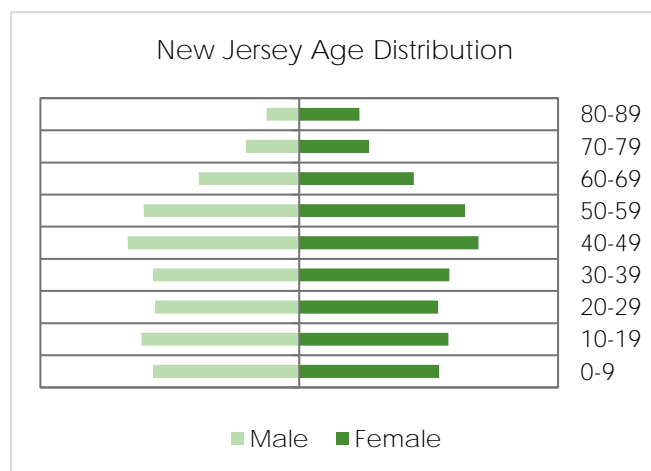
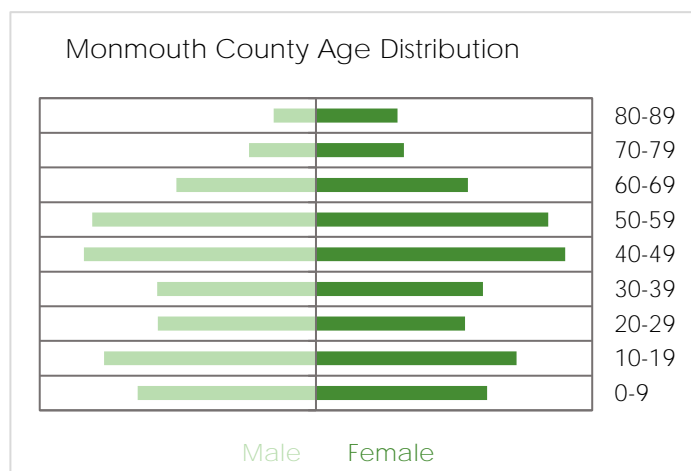
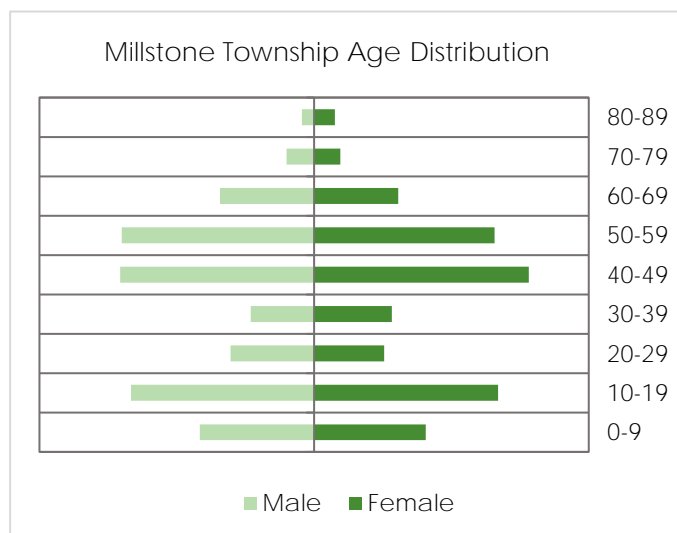
If these figures are correct, Millstone Township will need to meet the challenge of providing for additional housing, public facilities, and economic development while preserving sensitive natural features and defining rural character.

## Age Distribution

The age structure of the Township is similar to that of Monmouth County. In Millstone, the cohorts with the most members are the middle-aged groups of 40-49 and 50-59. While there is a substantial senior population, it is actually outweighed by younger age cohorts in the 0-9 and 10-19 age range.

Monmouth County's age distribution is smoother than that of the Township, with less drastic changes between cohorts. The County has a relatively larger share of individuals ages 10-39 than the Township. The age distribution of New Jersey as a whole is much smoother than the County and the Township, with relatively similar proportions in all categories below age 40. At all levels, the 10-49 and 50-59 cohorts have the most members.

FIGURE 2:  
Population Age Pyramids for  
Millstone, Monmouth County, and  
New Jersey (Census 2010)



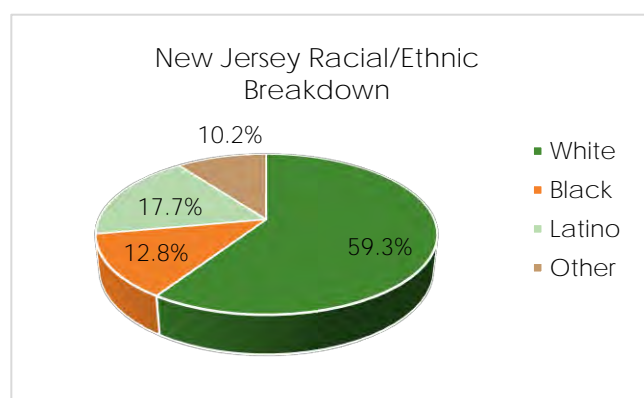
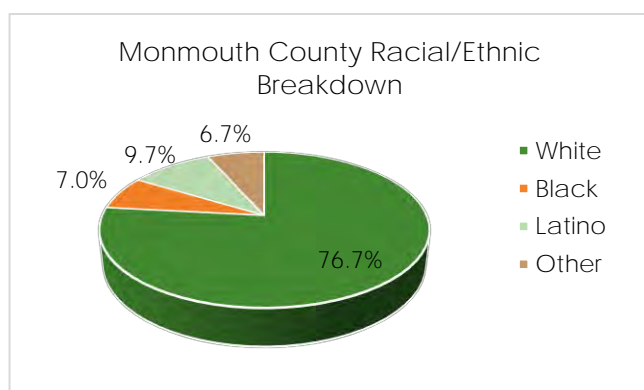
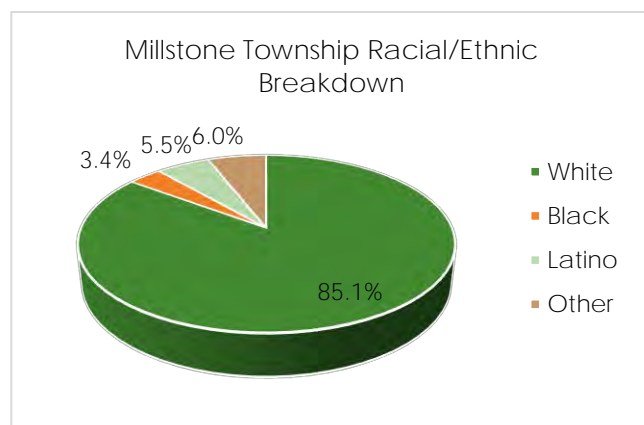


### Racial Composition

As of 2010, Millstone's racial / ethnic distribution is relatively uniform. The vast majority of the population (85.1%) identifies as white. Latino is the next largest ethnic group (aside from other), at 5.5% of the population. African American individuals make up 3.4% of the population.

Monmouth County shows slightly more diversity with an overall similar demographic makeup. Three-quarters of the population (76.7%) identifies as white, with comparatively larger percentages of latino and black populations (9.7 and 7%, respectively). The Township and County are quite different from the state as a whole, in which over a third of the population is not white.

FIGURE 3:  
Racial Composition of Millstone,  
Monmouth County, and New  
Jersey (Census 2010)



### Households and Housing Units

The U.S. Census defines a household as the person or persons occupying a housing unit. Between 1980 and 1990, the total number of persons in households increased while the number of persons per household declined in both Millstone and Monmouth County. In 1980, Millstone had 3,740 persons in households and the number of persons per household was 3.26.

By 1990, the persons living in households had increased to 4,945 while the number of persons per household had declined to 3.14. The person per household figure again increased between 1990 and 2000 to 3.28, slightly above 1980 number. By 2000, there were 8,870 persons living in households in Millstone Township. Monmouth County had 493,733 persons living in households in 1980 and 541,950 in 1990. The number of persons per household declined in Monmouth County from 2.90 in 1980 to 2.74 in 1990. By 2000, the persons per household had declined even further to 2.70.

In 2010, the Census found that there are approximately 3,301 households in Millstone, which constitutes 1.4% of all households located in Monmouth County. Average household size in Millstone is 3.2 persons is significantly higher than the average household size in Monmouth County (2.66 persons) and the State overall (2.68 persons).

As of 2010, there are 3,434 housing units in the Township, a 23% increase from 2000. Homeownership rates are very high in Millstone. At 94.1%, the Township's rate is significantly higher than that of Monmouth County (74.9%), and 28 percentage points higher than that of the State. Vacancy rates in the Township are low (3.9% of total housing stock) as compared to Monmouth County (9.5%). Most categorized vacancies represent houses currently for sale. This trend is a departure from the County, where most vacancies are seasonal homes occupied for a portion of the year. Almost all homes in the Township (7.5%) are single-family detached homes, a difference from the County, in which only two-thirds of dwelling units are single-family detached homes. Data pertaining to household population and housing unit type are presented in Tables 4 and 5.

TABLE 4: Housing Occupancy Data (2010)		
	Millstone	Monmouth County
Total Housing Units	3,434	258,410
Occupied	3,301	233,983
Vacant Housing Units	133	24,427
Percent Vacant	3.9%	9.5%
Vacancy Status		
For Rent	9.0%	2.0%
Rented, not occupied	0.0%	0.1%
For Sale Only	27.8%	1.1%
Sold, not occupied	8.3%	0.3%
For Seasonal, Recreational or Occasional Use	15.8%	4.3%
Other Vacant	39.1%	1.6%

TABLE 5: Housing Unit Types 2014 estimates		
Type of Unit	Millstone	Monmouth County
Single detached	97.5%	66.4%
Single attached	0.5%	7.6%
2 units	0.4%	3.4%
3 or 4 units	0.0%	3.4%
5 to 9 units	0.0%	4.1%
10 or more units	0.0%	13.9%
Mobile home	1.6%	1.1%



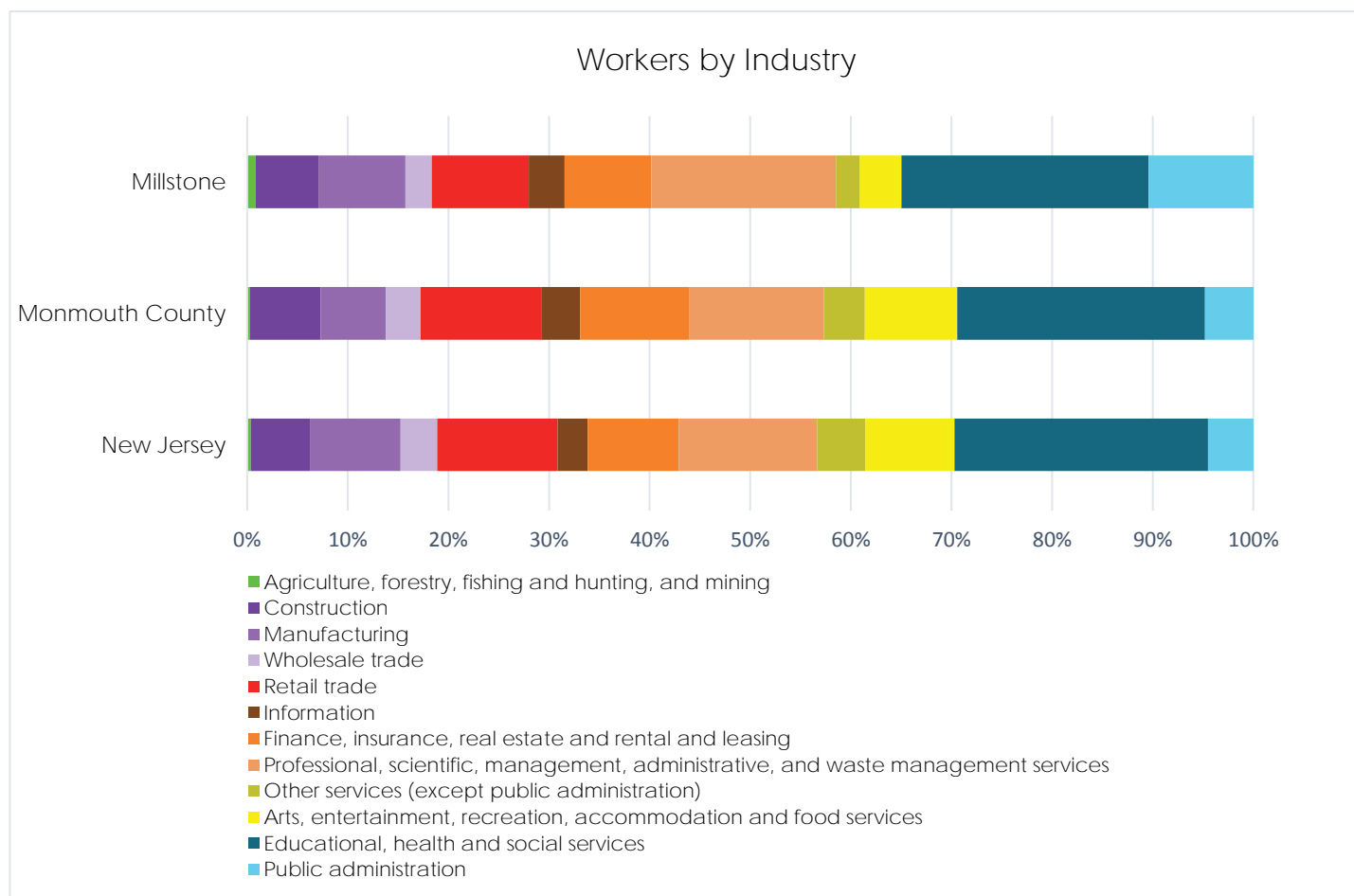
### Income and Employment

Median household income in Millstone is estimated at \$140,038, which is significantly higher than the County's median household income (\$85,605). This figure is almost double the estimated State median income (\$72,062). Per capita income measures follow a similar pattern. The 2010-2014 American Community Survey 5-year dataset estimates the poverty rate in Millstone (2.9%) to be significantly lower than both the County (7.4%) and State (10.7%) rates. However, Millstone's unemployment rate (5.2%) is more in line with County and State trends, with unemployment estimated at 6.0% and 6.6%, respectively.

In 2014, the American Community Survey estimated that there were 5,226 employed residents in Millstone Township. The three largest private industry sectors employing Millstone Township residents were: (1) education, health and social services; (2) professional, scientific, management, administrative, and waste management services; and (3) retail trade. Compared to the County and State, Millstone has comparatively more residents working in the agricultural and manufacturing industries, and comparatively fewer residents employed in the wholesale trade, other services, and arts, entertainment, recreation, accommodation and food services fields. Employment characteristics for 2014 are presented in Figure 4.

The employment characteristics reflect a mobile population employed mostly outside the Township. The distribution of employment characteristics is expected to remain the same due to the character of the rural residential development in the Township.

FIGURE 4: A Comparison of Workers by Industry for Millstone, Monmouth County, and New Jersey



## EXISTING LAND USE

### Overall Categorization

The Existing Land Use Map of Millstone Township (see Map 4) shows the current land use on each parcel of land within the Township as classified by tax assessment property class. The map provides a reference for planning and guiding future development by type and at locations which are consistent with the goals and objectives of the Township. Through review and updating, the Millstone Township Existing Land Use Map can be a valuable reference for Township officials in considering future decisions on zoning, land development proposals and improvement of public facilities. Finally, the Millstone Township Existing Land Use Map provides a pictorial view of the Township at a given point in time, thus becoming a historical reference of land use development in Millstone Township.

There is a variety of land use in the Township of Millstone. Previously, farmlands comprised the largest use in the Township. In the 2002 Master Plan, farmland accounted for approximately 43.8% of land in the Township (including both farm regular and farm qualified lands). For the first time, however, the analysis of the most current assessment data shows that residential properties have overtaken farmland as the most predominate land use in the Township, occupying 34.5% of total land area. The emergence of residential use as the most predominate land category represents a significant shift since the last Master Plan update. Today, farmland categories occupy 31.3% of total land area.

Overall, approximately 42.9% of Township land area (10,262 acres) can be classified as developed. The developed land use categories include residential, commercial/office, industrial, improved farmland, church and charitable, cemeteries, schools, other community facilities, and roadway rights-of-way. Undeveloped land includes private vacant parcels, qualified farmland, Township Park and Open Space land, County Park and Open Space land, State Park and Open Space land. These areas account for approximately 13,648.2 acres or 57.1% of total land area. Specific land uses are described below.

Table 6 provides additional breakdown of the land use categories by acreage and by percentage of land by major category and subcategory. Each major category also contains the proportion of total land area.

MAP 4. Existing Land Use in Millstone Township, 2017

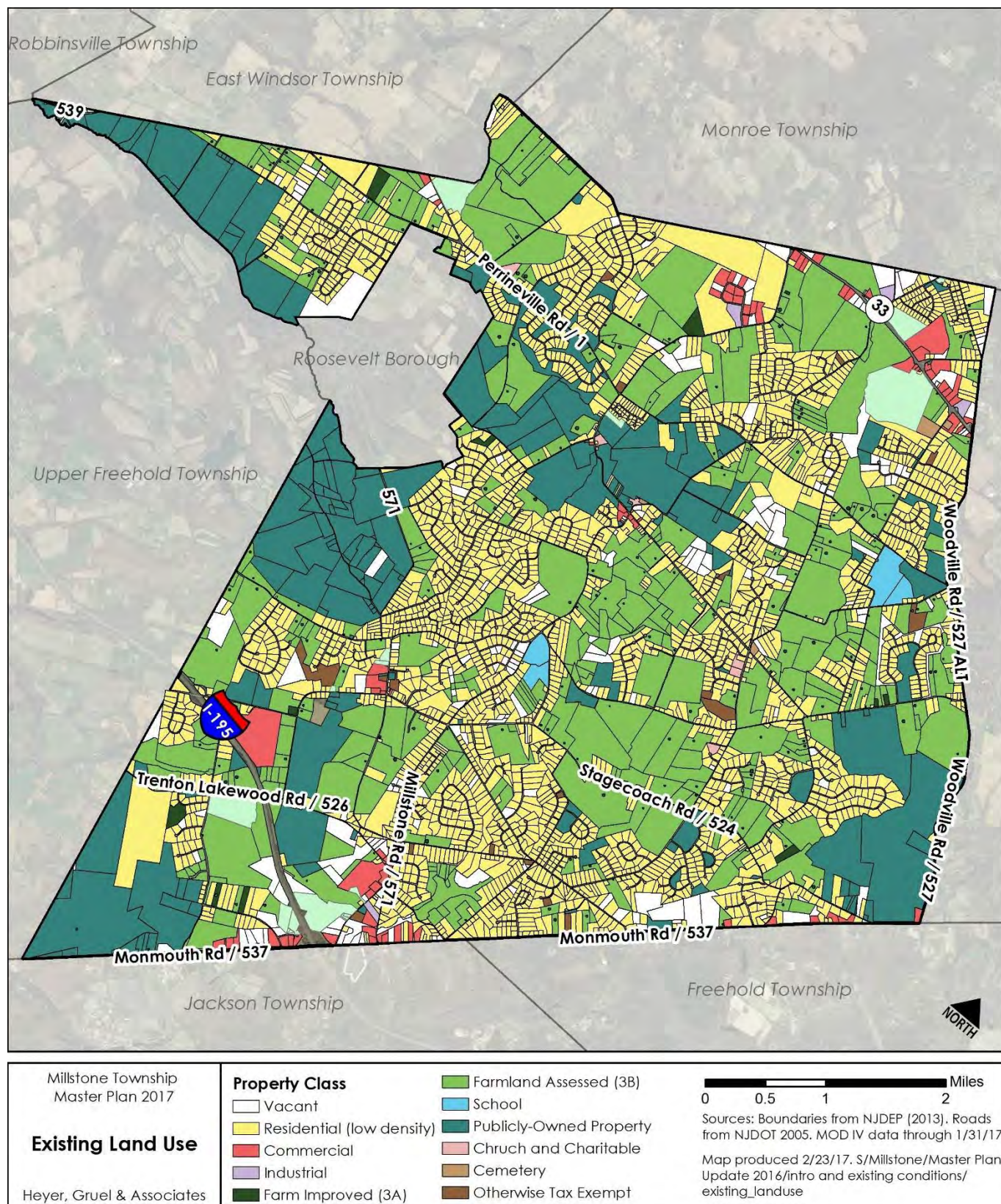




TABLE 6: Millstone Township Existing Land Use Distribution					
Developed Land	Land Use Type	Property Class	Total Acres	% of Total Developed Land	% of Total Land Area
	Residential	2, 15F (DV/TDV), and 15C (tax lien)	8,223.8	80.1%	34.4%
	Multi-family Affordable Residential	15C	17.4	0.2%	0.1%
	Farm Improved	3A	244.6	2.4%	1.0%
	Commercial	4A	451.9	4.4%	1.9%
	Industrial	4B	24.8	0.2%	0.1%
	Church/Charitable	15D	34.6	0.3%	0.1%
	Cemetery	15E	28.2	0.3%	0.1%
	Community Facilities	15C / 15F	25.7	0.3%	0.1%
	School	15A	120.9	1.2%	0.5%
	Roads and Right of Ways (un-parceled area)		1,089.9	10.6%	4.6%
	Total Developed Land Area		10,261.8	100.0%	42.9%
Undeveloped Land	Land Use Type	Property Class	Total Acres	% of Total Undeveloped Land	% of Total Land Area
	Vacant Private	1	1,180.3	8.6%	4.9%
	Farmland Assessed	3B	7,240.3	53.0%	30.3%
	Township Parks and Open Space	15C / 15F	799.3	5.9%	3.3%
	County Parks and Open Space	15C	1,775.5	13.0%	7.4%
	State Open Space (Assunpink Wildlife Area and few DOT properties)	15C	2,652.8	19.4%	11.1%
	Total Undeveloped Land Area		13,648.2	100.0%	57.1%

## Developed Land

### Residential

There are an estimated 8,226.3 acres of developed residential land in Millstone which accounts for 80.3% of the developed land in the Township and 34.5% of Millstone's total land area. Residential land is dispersed throughout the Township and consists of single-family residences on lots ranging from 20,000 square feet up to several acres with most of the single family residential developments on two and three acre lots. In accordance with State and regional affordable housing goals, the Township has also partnered with non-profit housing entities to establish 3 affordable housing developments that total to 17.4 acres of developed land. Map 5 demonstrates the location of recent residential development in the Township as compared to existing residential land uses.

### Farm Improved

Farm improved accounts for approximately 244.6 acres in Millstone Township, or 2.4% of developed land and 1% of total land area. The term farm improved is used for lots created to differential between the portion of a farm dedicated to active agricultural production versus the portion occupied by homesteads and other accessory farm facilities such as barns or silos. The land containing improved structures is classified as a "3A" property for tax assessment purposes, and is usually around one acre in size.

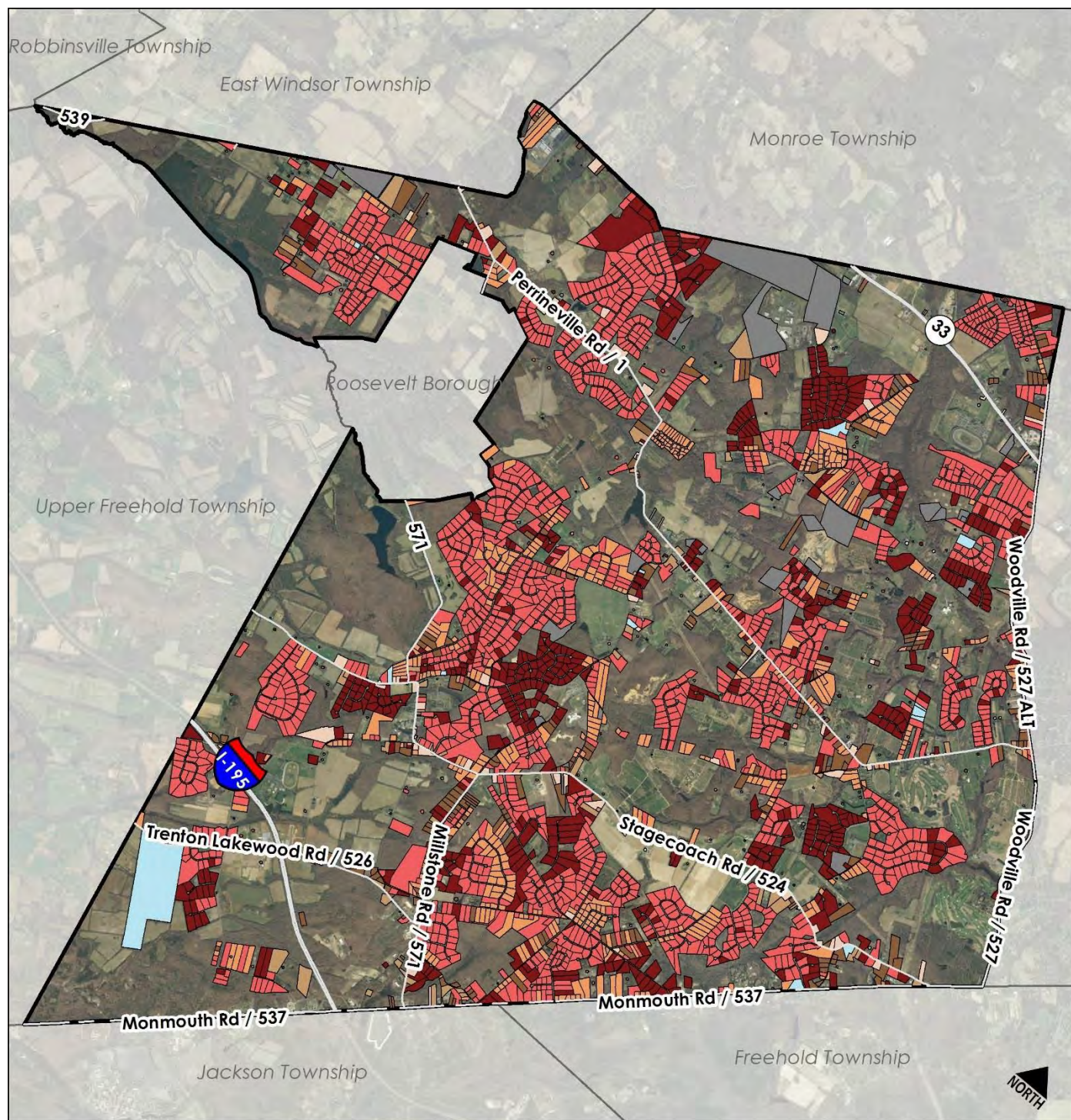
### Commercial/Office

Commercial and office land in Millstone comprises 451 acres, equivalent to 4.4% of the developed land and 1.9% of Millstone's total land area. Commercial and office uses in Millstone are primarily located along State Highway 33 in the northern portion of the Township and Monmouth Road along the southern Township border. Other areas of commercial/office use are found within several of the smaller historic settlement areas including Perrineville, Clarksburg and Carrs Tavern.

### Houses of Worship, Charitable Organizations and Cemeteries

Houses of Worship include churches, synagogues, and chapels. Along with cemeteries, they account for approximately 62.8 acres of land in the Township (less than one percent of total developed land).

MAP 5: Residential Properties by Date Developed



Millstone Township  
Master Plan 2017

### Residential Properties by Year Built

Heyer, Gruel & Associates

#### Year Built

1750-1889	1970-1984
1900-1929	1985-1999
1930-1949	2000-2016
1950-1969	Unrecorded

0 0.5 1 2 Miles

Sources: Boundaries from NJDEP (2013). Roads from NJDOT 2005. MOD IV data through 1/31/17.

Map produced 2/27/17. S:/Millstone/Master Plan Update 2016/intro and existing conditions/year\_built

### Industrial

Industrial development in Millstone Township is limited. Industrial uses account for only 24.8 acres or approximately 0.1% of the Township's total land area.

### Community Facilities

The community facilities category consists of several Township-owned buildings associated with municipal services, including the Municipal Building, Fire Company, First Aid and Old Garage. Additional facilities are included that either serve the community as tax exempt, non-religious uses such as the Elks Lodge and YMCA, or as facilities belonging to other levels of government, such as the Post Office. These facilities comprise approximately 25.7 acres of land in Millstone.

### Schools

There are three public schools in Millstone, the Millstone Township Elementary School, Millstone Township Primary School and the Millstone Township Middle School. They comprise 120.9 acres of the developed land in Millstone.

### Roadway Rights-of-Way

Roadways are classified by ownership in three categories; township, county, and state. There are approximately 109 miles of Township roadways. Outside of roadways, there are portions of the Township that are other Rights of Way or are not parceled. In all, the roadway/un-parceled areas of the Township amount to 1,089 acres.

### Undeveloped Land

#### Vacant-Private

Vacant-private land totals 1,180.3 acres and accounts for approximately 8.6% of undeveloped land in Millstone and 4.9% of the total land area.

#### Farm Qualified

Farm qualified land in Millstone consists of 7,240 acres and comprises 53% of the undeveloped land. Farm qualified land accounts for 30.3% of Millstone's total land area. Farm qualified land does not include the 244 acres of "farm regular" land which is developed with houses and other farm structures.



Assunpink Wildlife Area and other State Lands

Various New Jersey State departments own parcels in the Township. Most of the state-owned land is held by the NJ Department of Environmental Protection (NJDEP), and is associated with Assunpink Wildlife Area that is situated in the northwestern corner of Millstone. The Assunpink Wildlife Area in Millstone totals 1,559 acres. The NJDEP owns an additional 1,091 acres of land for conservation purposes. The New Jersey Department of Transportation also owns approximately 2 acres of land. In total, these state-owned properties account for Assunpink Wildlife Area accounts for 2,652.8 acres, or 19.4% of the undeveloped land and 11.1% of Millstone's total land area.

Monmouth County Parks and Open Space

The County of Monmouth has developed two large parks in Millstone. One of these areas is located in the eastern corner of the Township, near the border with Freehold and Manalapan, containing approximately 777 acres, some of which has been developed into the Charleston Springs Golf Course. The second county holding is located in the western portion of the Township, extending inward from the border with Roosevelt Borough. These 990 county-owned acres make up a large portion of the Perrineville Lake Park, which extends into Roosevelt. In total, the County owns approximately 1,775 acres in the Township, or 7.4% of the total land area.

Millstone Township Parks and Open Space

This land category comprises 799.3 acres, or 5.9% of undeveloped land and 3.3% of the total land area. The types and location of Township Parks and Open Space areas are identified in detail in the Recreation and Open Space Element.

### Land Use / Land Cover Changes

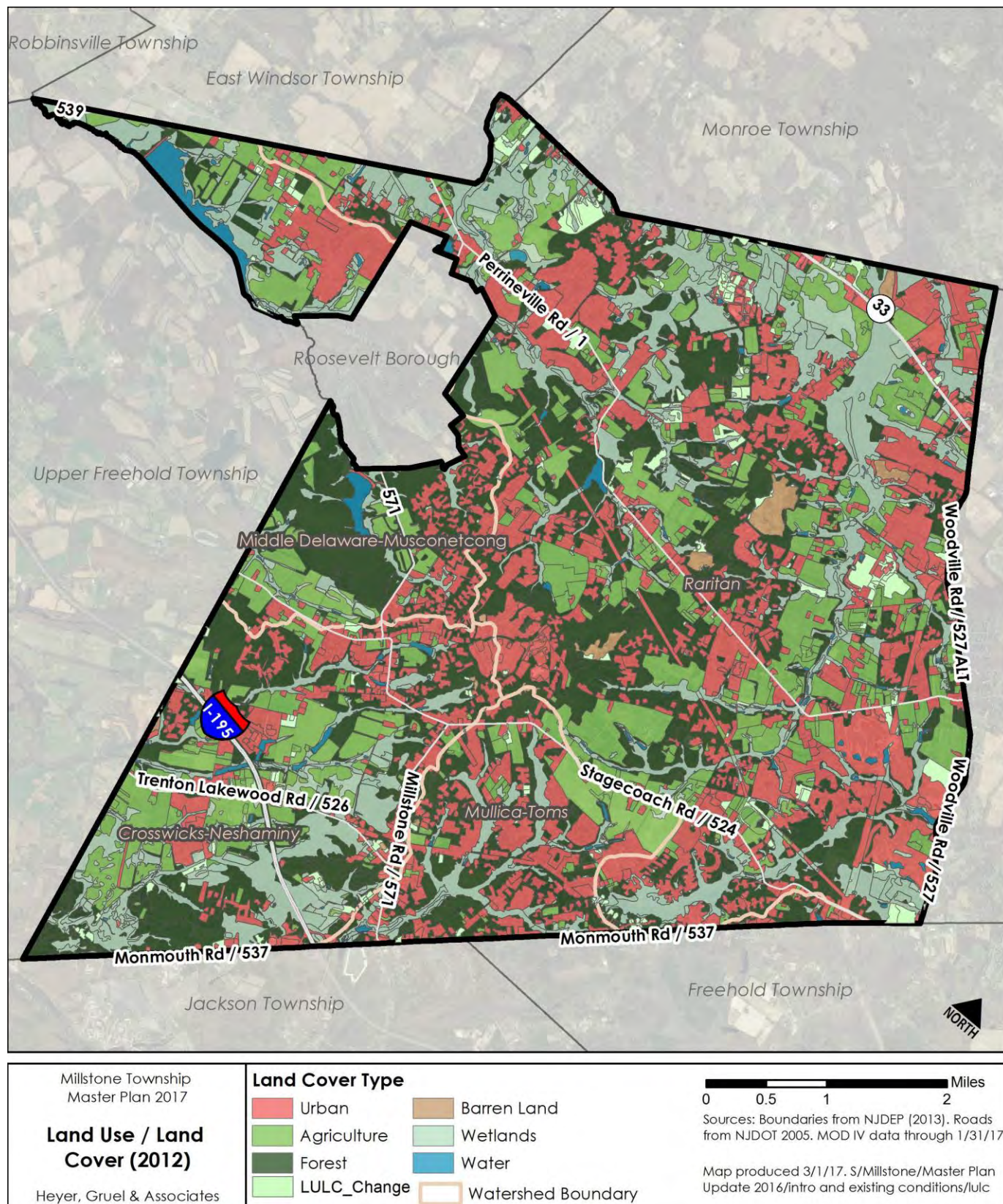
In addition to the land use analysis based on tax assessment data performed above, land use change over time is also tracked by the NJDEP's Land Use / Land Cover (LULC) datasets. LULC data does not follow parcel lines or administrative borders. Instead, it is derived from aerial imagery and developed in reference to watershed units (Hydrological Unit Code Catalog Unit, also known as HUC8 or a watershed). Developed under this framework, the LULC dataset contains greater information about how land use changes impact the natural environment. Map 6 shows the Land Use / Land Cover distribution within Millstone as of 2012.

The first noteworthy observation regarding the most recent 2012 LULC data in Millstone is that the Township does in fact span four watershed Management Areas; the Crosswicks-Neshaminy, Raritan, Mullica-Toms, and Middle Delaware-Musconetcong watersheds. The protection of waterbodies is impacted by the characteristics of all of the land that drains to them, i.e. by the characteristics of all the land in their watershed.

Second, the LULC data chronicles observed changes in land cover category from the last inventory in 2007 to 2012. Overall, the data shows 564.8 acres of land in the Township as having changed from one major land use category (urban, forest, agriculture, wetlands, barren land and water) to another. Specifically, the Township saw an increase in urban and forest land, and a decrease in agriculture, barren land, wetlands, and water areas.

Of all the 504 individual tracts that were reclassified between major land use categories, 74% are less than 1 acre in size, indicating that they may represent small map adjustments correcting for previous errors in the 2007 data. Other changes occurred between comparable land use covers in different major categories (i.e. "transitional areas" within the barren land major category shifting to "other urban or built up land" within the urban major category.) However, there were some substantial changes whereby land passed from agricultural to urban use and from agricultural to forest use. Tables 7 and 8 summarize the conversion of acreages between major land cover types between 2007 and 2012. The areas of change are also shown graphically on Map 7.

MAP 6: Land Use / Land Cover in Millstone Township (2012)



The decisions that communities make about land use and development (where, how intensely, and with what design it can occur) directly affect the health of a watershed. In the words of the NJDEP, “urbanization...changes how water flows in the watershed and what flows in the water.”<sup>6</sup>

Adding development and its associated impervious surfaces and infrastructure changes the natural flow, pathways, volume and speed of water and runoff as it transitions from precipitation to ground or surface water. Ultimately, these effects can cause drastic changes to natural water features, such as an erosion of stream beds, and the ability of the ground to absorb water. Human uses of land also contribute pollutants to the watershed, coating impervious surface or open space with contaminants or litter that are carried into flowing water and runoff during precipitation events.

With its unique geographic position of containing land in four separate watersheds, Millstone takes the responsibility of environmental stewardship seriously in the face of development pressure, and intends to pursue development regulations that aim to mitigate the effects of development on natural features.

The LULC data also includes information that allows communities to estimate how changes in land use affect changes in the overall amount of impervious surface. Each feature of the dataset is assigned an estimated percent impervious cover based on its land use/land cover category. Based on the changes in land use classification discussed above, it is estimated that in 2012, Millstone contained 1,079.6 acres of impervious surface. This figure is an increase of 36.6 acres from 2007 estimates, or a change of 3.4%. While this change is minor overall, such small changes over an extended period of time will aggregate into significant changes.

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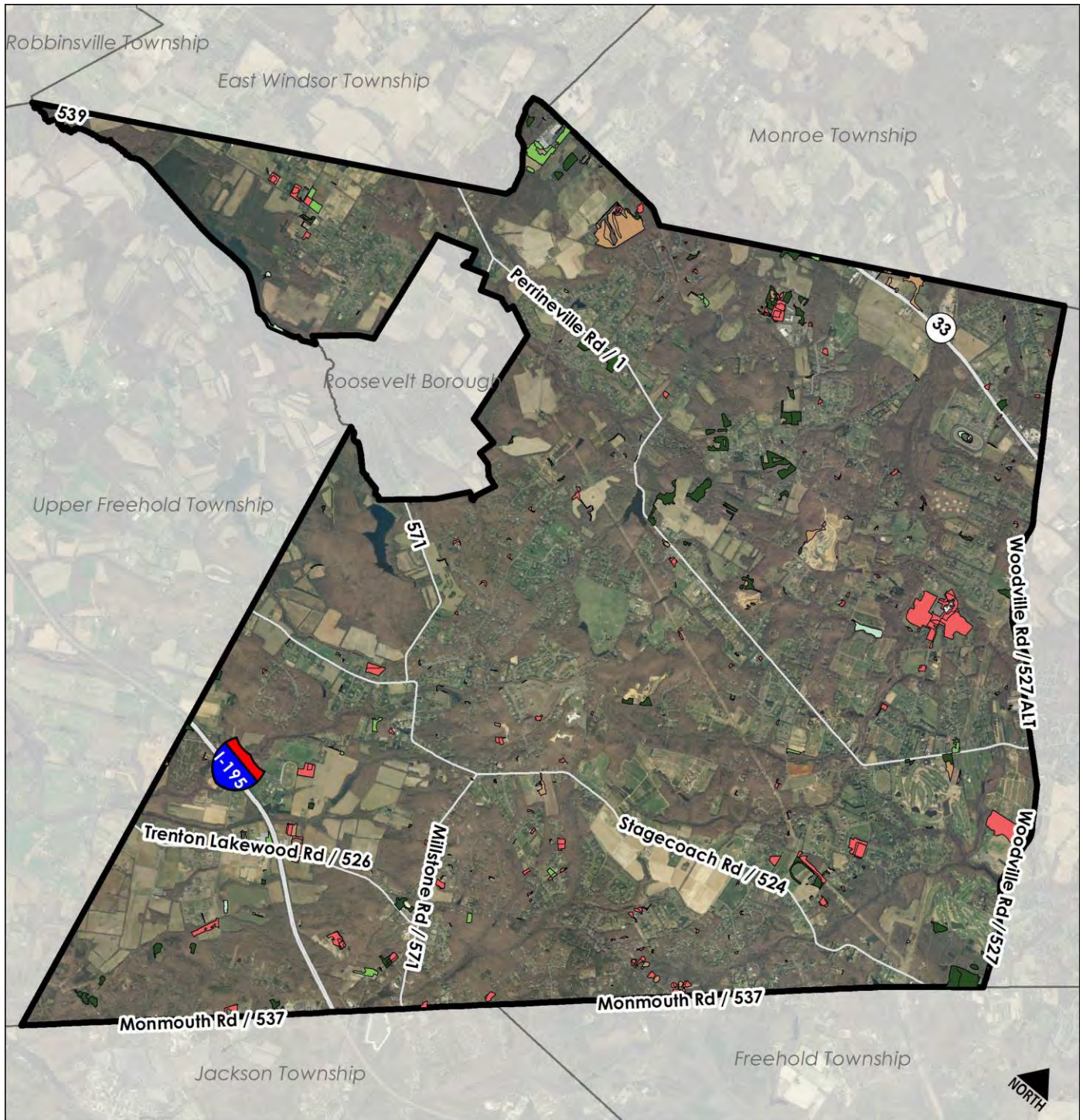
<sup>6</sup> NJDEP Watershed Restoration, Watershed Information, accessed 3/29/2016.

TABLE 7: Net Change between Major Land Use / Land Cover Categories			
Land Cover Type	2007	2012	Change
Urban	6,683.7	6,866.1	182.4
Agriculture	5,234.5	4,986.5	-248
Forest	6,185.1	6,301.1	116
Barren Land	250.5	242.4	-8.1
Wetlands	5,070.1	5,042.2	-27.9
Water	376.5	362.1	-14.4
Total		23,800	

TABLE 8: Detailed View of Land Use / Land Cover Changes between Major Categories							
From	To	Urban	Agriculture	Forest	Barren Land	Wetlands	Water
Urban			15.2	34	5.9	0.1	0.2
Agriculture		107.8		141	50	0	0.4
Forest		42	16.9		10.1	0	0
Barren Land		77.3	0	5.9		0	0
Wetlands		10.9	19	4	8.2		0.5
Water		0	0	0	1	14.6	
NET CHANGE		182.6	-248.1	115.9	-8	-27.9	-14.5



MAP 7: Areas of Land Use / Land Cover Change, 2007-2012



Millstone Township  
Master Plan 2017

**Land Use / Land  
Cover Change Areas  
2007-2012**

Heyer, Gruel & Associates

**Land Cover Type 2012**

<span style="color: red;">■</span> Urban	<span style="color: tan;">■</span> Barren Land
<span style="color: lightgreen;">■</span> Agriculture	<span style="color: lightblue;">■</span> Wetlands
<span style="color: darkgreen;">■</span> Forest	<span style="color: blue;">■</span> Water

0 0.5 1 2 Miles

Sources: Boundaries from NJDEP (2013). Roads from NJDOT 2005. MOD IV data through 1/31/17.

Map produced 3/1/17. S:/Millstone/Master Plan Update 2016/intro and existing conditions/ lulc\_change

### Status of **Millstone's** Farmland Preservation Program

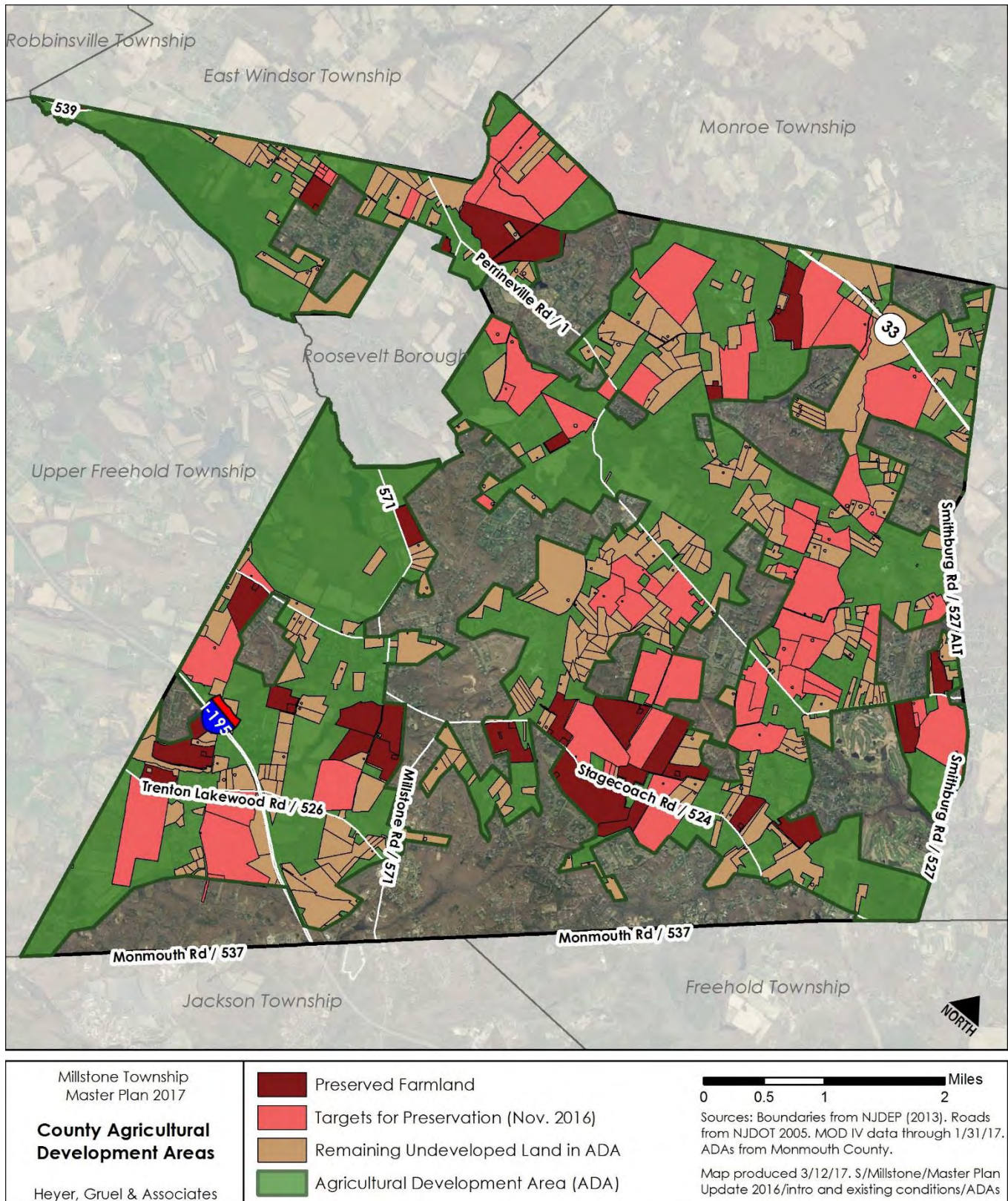
As this plan establishes, the maintenance of Millstone's current and historic rural character is among the Township's most significant principles for guiding land development. Farmland preservation is one of the most effective and long-term strategies for accomplishing these goals. In New Jersey, farmland preservation is a collaborative process implemented by the State Agricultural Development Board, County Agricultural Development Boards, and local municipal residents and committees. The County takes responsibility for creating Agricultural Development Areas (ADAs), which delineate the extent of lands that are targeted and can be considered for farmland preservation. Land must fall within an ADA in order to be eligible for preservation.

Just over two-thirds of Millstone's total land area (16,147.9 acres) falls within the Monmouth County ADA. At present, there are 36 parcels totaling 1,253 acres of preserved farmland in Millstone. This represents 7.5% of the ADA's total area. Since its creation, portions of land within the ADA have been developed with residential, commercial, or other similar developed uses, effectively removing it from the pool of lands that can be preserved. The amount of farmland (regular and qualified) and private vacant land within the ADA still vacant and undeveloped that could be preservation amounts to 7,849.8 acres (see Map 8 for a graphical representation). Using this as the base of potentially preserveable farmland, Millstone has preserved 15.5% of existing farmland. The County and Township collaborate to identify a subset of targeted farms from the overall pool of potential properties. The current target list (developed November 2016) includes 71 parcels totaling 3,104 acres of farmland.

As demonstrated in the above analysis, there are still large available tracts of land in Millstone that are eligible for farmland preservation. The Township intends to prioritize farmland preservation efforts as it endeavors to maintain its rural character.



MAP 8: Agricultural Development Areas in Millstone by Development Status





## NATURAL RESOURCES

Natural resources have been an important part of the planning process in Millstone Township since the first Master Plan was adopted in 1971. The Township Planning Board and the Township Environmental Commission have analyzed available environmental data and have established a library of environmental reports, maps and reference materials. Data covered by these reports include: topography, soils, and floodplain mapping in the 1971 General Development Plan; environmental data from Monmouth County and the State of New Jersey; and data from the Federal government.

In 1991 the Environmental Commission obtained an NJDEP Natural Resources Grant to prepare a Natural Resources Inventory (Phase I). The Natural Resources Inventory<sup>7</sup> included descriptions and maps of the vegetation, wildlife, and woodlands within the Township. Most recently, the Township received a grant from the Association of New Jersey Environmental Commissions for the preparation of an updated Natural Resource Inventory (NRI) that includes updated data and considers an expanded range of environmental topics. The NRI was completed in 2006, and covers topics from vegetation, wildlife and wetlands to hydrology, soils, and air quality.

### Relationship of Natural Resources to the Master Plan

Millstone Township contains extensive areas of sensitive environmental features which have been mapped and evaluated. Understanding how these features affect development in the Township is essential to maintain a successful balance between environmental constraints and residential and non-residential development. The natural resources of Millstone are interrelated with each other and must be viewed as integral parts of the overall physiography of the Township. Topography, soils, woodlands, vegetation, stream headwaters and corridors, wildlife, and geology comprise specific conditions which permit or restrict land development for specific uses. In addition, environmental and planning laws at the State and Federal level produce development controls which severely restrict development in areas which have been identified as environmentally sensitive and of State-wide or national importance.

The Master Plan for the Township of Millstone considers the existing natural resources and current environmental regulations in order to plan for the future conservation and development of the Township. While much of the following information and more can be found in the NRI, including a

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<sup>7</sup> Prepared by Amy S. Greene Environmental Consultants, Inc.

summary of pertinent data regarding natural resources in Millstone Township is prudent as it will set the stage for policies included in the Master Plan Elements that follow.

### Topography

Millstone Township is noted for its topographic features, containing some of the highest hills in the central New Jersey area of Monmouth, Mercer, and Ocean Counties and the southern portion of Middlesex County. The highest point in the Township is Pine Hill which is situated in the east central area of Millstone, west of Stillhouse Road. Pine Hill is 372 feet above sea level. Points of low elevation are found along the streams at the perimeter of the Township, with the lowest point located on the Assunpink Creek at an elevation of 98 feet. Other areas of Millstone have gently rolling hills and a relatively level landscape. Map 9 shows a graphical representation of the Township's topographic features.

The central portion of Millstone contains a series of steep slopes, or "cuestas," which dominate the overall landscape of the Township. A cuesta is a ridge or hill with a steep slope on one side and a gentle slope on the other side. The steep land in Millstone is generally located in the area of Pine Hill Road, surrounding Perrineville Lake, and from the intersection of Sweetman's Lane and Backbone Hill Road westward toward Roosevelt Borough and Upper Freehold Township. Ponds, streams, forests, and woodlands are the primary features along the perimeter of the Township.

A small section of the Pine Barrens extends into the southeastern portion of Millstone. The Assunpink Watershed drainage area is situated in the northwestern corner and south-central section of Millstone. Assunpink Lake, located in the northwestern corner of Millstone, is the Township's largest lake. There are several smaller lakes scattered throughout Millstone.

Land use is directly affected and limited by the steep slope conditions which occur in portions of the Township. Slopes are identified by the percentage of the angle of the slope. The percentage of slope directly affects runoff and erosion. The steeper the slope, the greater the erosion hazard. In general, it is more difficult and more expensive to design roads, parking lots, and driveways on steep slopes. Slopes which are 15 percent or greater are usually categorized as potentially critical environmental areas by State and County environmental agencies and it is recommended that such slopes be left in their natural state to the greatest extent possible.

Preserving steep slopes is particularly important in Millstone because several regional streams have their headwaters in the central, hilly portion of the Township. Development of nearby steep slope areas affects the rate of run-off and the water quality of these waterways, which extend into

This topographic map depicts the Roosevelt Borough and its surrounding areas in New Jersey. The map features contour lines indicating elevation, with labels such as 100, 150, 200, 250, 300, and 350 feet. Major roads are shown, including Route 539, Route 100, Route 33, Route 527, Route 526, Route 524, Route 537, and Route 571. A blue and red shield marker for I-195 is visible. The map also shows the locations of Robbinsville Township, East Windsor Township, Monroe Township, Upper Freehold Township, Jackson Township, and Freehold Township. A north arrow is located in the bottom right corner.

Map produced 3/7/17. S/Millstone/Master Plan  
Update 2016/intro and existing conditions/TandE



Mercer, Burlington, Middlesex, Somerset, Ocean, and other portions of Monmouth County. In areas where slopes lack vegetation it is generally found that the land and bodies of water adjacent to the slopes are at a greater risk for sediment contamination and excessive rates of erosion. Loss of wildlife and degraded water quality are the long-term negative impacts.

### Streams

Millstone is situated on a major divide between multiple watersheds (also known as drainage basins). Precipitation and other run-off is separated and channeled in different directions toward **different major bodies of water by Millstone's** slopes and topographic features. There are three primary drainage basins in Millstone Township: The Raritan River Drainage Basin located to the north; the Delaware River Drainage Basin located to the west; and the Atlantic Coastal Basin which is situated to the east. Within these three major drainage basins, six watersheds occupy the vast majority of the Township; the Millstone River basin, the Assunpink Creek basin, Doctor's Creek basin, the Crosswicks Creek basin, the Toms River basin, and the Manalapan Brook basin.

The Assunpink Creek flows in a westerly direction and discharges into the Delaware River. The Assunpink Creek forms a portion of the boundary between Upper Freehold and Millstone Townships. From the Village of Clarksburg, the headwaters of Doctors Creek flow southwest into Upper Freehold Township through Imlaystown and eventually into Allentown. From the southern corner of Millstone, the course of Iahaway Creek continues into Upper Freehold Township, where it eventually joins the mainstream of Crosswicks Creek.

The Rocky Brook, Millstone Creek and Manalapan Brook flow generally in a northwesterly direction from Millstone. The Rocky Brook continues its course into Mercer County where it enters into the Millstone River. The Millstone Brook is another tributary of the Millstone River. It flows northward from Millstone Township into Middlesex County. The Manalapan Creek originates in the northeastern corner of Millstone Township and flows in a northeasterly direction into Manalapan Township and eventually into the Millstone River. The Millstone River flows northward through Somerset County and discharges into the Raritan River.

The Atlantic Coastal Basin is found in the southeastern portion of the Township and the headwaters of the Toms River and a small portion of the Metedeconk River at Charleston Springs. The Toms River and Metedeconk flow in a southeasterly direction through Ocean County to the Barnegat Bay which is part of the backbay area of the Atlantic Ocean coast.

Data from the Monmouth County Health Department and the New Jersey Department of Environmental Protection shows that the quality of surface waters in Millstone is exceptional. The greatest threat to water quality in local streams is sedimentation. Drainage from rain carries suspended particulate matter into streams and rivers. When the suspended matter settles, the sediment blocks essential sunlight from reaching the bottom of the stream. These effects can stunt or prohibit the growth of plants and macroinvertebrates species that serve as food for other aquatic wildlife. Macroinvertebrates act as "indicators" of the overall health of the system. Erosion is exacerbated by soil disturbances associated with agricultural activities, mining and development.

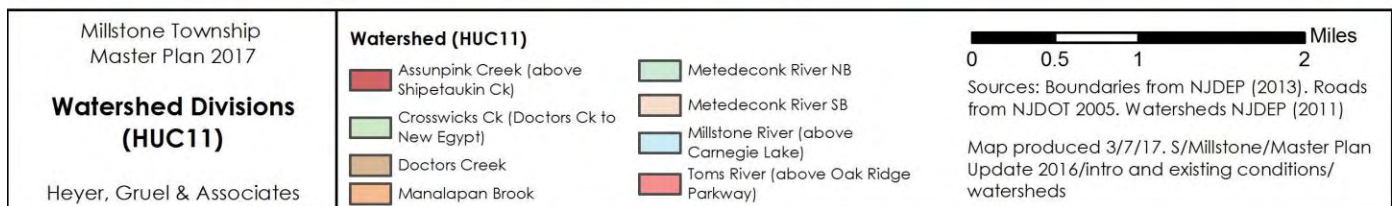
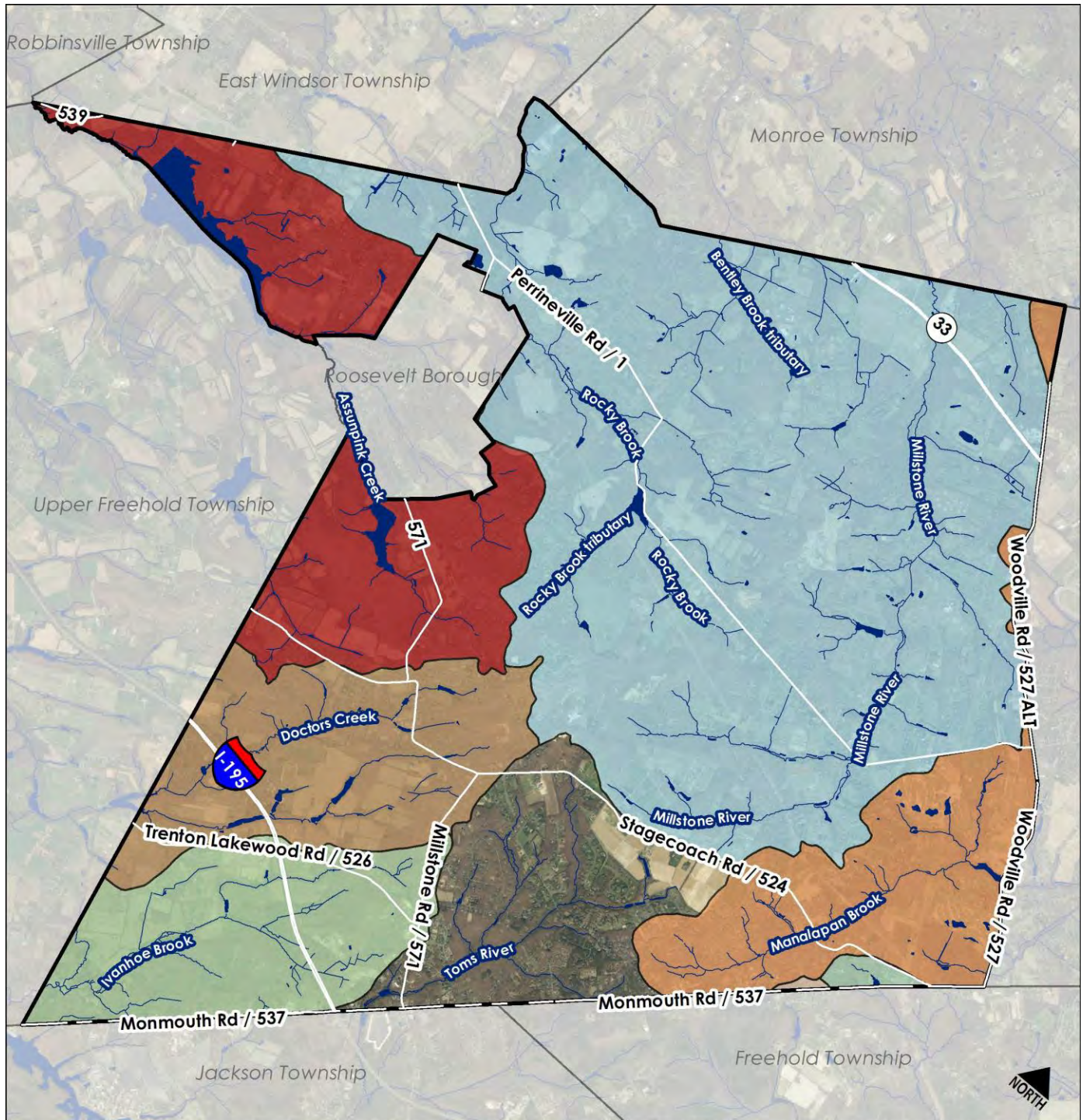
The impervious surfaces associated with increased development contribute to the magnitude of water run-off, increasing water velocity in streams. This intensifies the sluffing of exposed stream banks, adding more particulate matter into the stream itself. Protecting natural vegetation on either side of streams can help to alleviate some of the impacts of erosion and sedimentation. It is important that any development or land use within the Township mitigate erosion problems associated with stormwater run-off.

#### Aquifers

Although most ground water in New Jersey is of naturally high quality, some ground waters are affected by chemicals and bacteria present at levels that would be detrimental to human health. Elevated levels of nitrates and naturally occurring radioactivity have been found in some areas. Microbial contamination, which occurs in some areas, is of concern when ground water is used for human consumption.

Although there are sufficient quantities of water to meet statewide needs, some areas of the state are projected to experience shortages of water. These deficits may worsen as population and demand for water increase. In some coastal areas, ground water has been overused and saltwater has intruded into the ground water. This limits potable use of ground water supplies and has led to the designation of two critical areas where water allocation must be strictly monitored and controlled. Land development and the associated impervious surfaces that come with this development have reduced the rate of aquifer recharge. (NJDEP Strategic Plan, 1998-2001)

MAP 10: Watersheds and Waterbodies in Millstone Township



Millstone Township is unique in the fact that so many different aquifers traverse the subsurface. As the demand for water increases with growth in residential and commercial development, the Township must ensure that water quality and groundwater recharge is sufficient to supply homes, businesses and agriculture with a safe and secure water supply. Because the Township is entirely reliant on well water, protection of water quality and quantity in the aquifers is crucial to community sustainability. Shallow wells associated with the Englishtown aquifer in the northern reaches of the Township are at the greatest risk. Because these wells are close to the surface, they are more likely to be exposed to pollutants discharged at the surface level. During periods of drought, shallow wells may have a propensity to go dry. Most of the Township receives its water from deeper wells like the Potomac-Raritan-Magothy (PRM). The PRM has been designated by NJDEP as a critical aquifer. Although the quality of water at this depth is better than that at shallower levels, removal of water from these aquifers impacts downstream communities resulting in the salinization of wells along the Jersey Shore in Ocean and Monmouth Counties.

NJDEP has established discharge standards for septic systems based on nitrate dilution. These standards are used to determine how much land is needed to safely absorb and dissolve septic discharge based on soil type and conditions. The state has also enacted the Water Supply Management Act, regulating all ground and surface water diversions in New Jersey that are in excess of 100,000 gallons of water per day. This includes water diverted for public water supply, industrial processing and cooling, irrigation, sand and gravel operations/ remediation, and power generation.

### Wetlands

A wetland is an area that sustains hydrophytic plants which are adapted to living in saturated soils. Wetlands also provide for wildlife habitats, flood protection, erosion control, and improved water quality. Wetlands are ideal sites for nature study, bird watching and other non-intensive recreational activities. Nevertheless, there are strict regulations regarding the activities in wetlands which are enforced by both the Federal and the State environmental agencies.

Wetlands are a significant natural resource in Millstone. With the exception of the central and central hilly areas of Millstone, wetlands are present throughout the Township, particularly along the perimeters of the Township. The specific type of wetland depends, in large part, on the topography and the soil of the specific site. The type of vegetation determines the type of wetland. The primary types of wetlands in Millstone are Emergent Wetlands, Farmed Wetlands, Forested Wetlands, and Scrub/Shrub Wetlands.

Emergent Wetlands - This type of wetland is usually situated in areas which are permanently flooded. Areas which are commonly referred to as marshes fall under the category of emergent wetlands. Emergent wetlands frequently occur in small patches situated near larger patches of forested wetlands. There are many sites in Millstone which are wet, unplowed portions of agricultural fields categorized as emergent wetlands.

Farmed Wetlands - Soybeans and other wet-tolerant crops are grown in farmed wetlands. Due to a lack of natural vegetation, farmed wetlands are difficult to identify and delineate. If farming practices were stopped in this type of wetland, then vegetation similar to emergent wetlands would rapidly appear. Normal farming practices are not regulated in farmed wetlands.

Forested Wetlands - Floodplains, headwaters of streams, and major stream corridors are the most common location for forested wetlands.

Scrub/Shrub Wetlands - Generally, scrub/shrub wetlands are situated in wet areas which are less frequently flooded. Scrub/shrub wetlands can be present in areas between emergent and forested wetlands. Shrubs are the dominant vegetative growth for this type of wetland. It is common to see intermixing of emergent, scrub/shrub, and forested wetlands in Millstone.

## Vegetation

Because a large amount of Millstone's land has been used historically for agricultural purposes, there are very few large tracts of undisturbed forest remaining in the Township. Nevertheless, there are forests in the southwestern and central portions of the Township. One example is a tract of an oak forest situated between Clarksburg, Millstone, Agress, and Bittner Roads in the central region of the Township.

Vegetative growth controls erosion by stabilizing soil, providing habitats for wildlife, and creating a buffer against noise and air pollution. There is a wide variety vegetation types in Millstone, which can be attributed, in large part, to a varied topography and a range of soils. Vegetation significantly contributes to Millstone's aesthetic character and provides the Township with a valuable natural resource.

The vegetation in Millstone can be categorized into eight general types; Mixed Hardwood Forest, Successional Field, Agricultural Field, Farmed Woodlands, Forested Woodlands, Scrub/Shrub Woodlands, Emergent Woodlands and Pine lands.



Forests are often located along the ridges and side slopes in central Millstone. It is frequently difficult to determine the exact boundaries between the various stages and types of forest growth or vegetation in Millstone. A significant percentage of land in Millstone consists of agricultural crops. Corn, soybeans, wheat, oats, and a variety of vegetables are examples of crops grown in Millstone. Rare and uncommon plants do grow in the Pinelands vegetative area of the southeastern section of Millstone.

In September 2015, Millstone adopted its second 5-year Community Forestry Management Plan, covering the period January 1, 2015 to December 31, 2019. The goal of the plan is to establish a program of planting, care and maintenance for community trees in Millstone (more information is provided in the Open Space, Recreation and Conservation Element). Efforts in creating and updating these plans demonstrate that Millstone is devoting resources to actively care for and preserve vegetation and forests within the Township.

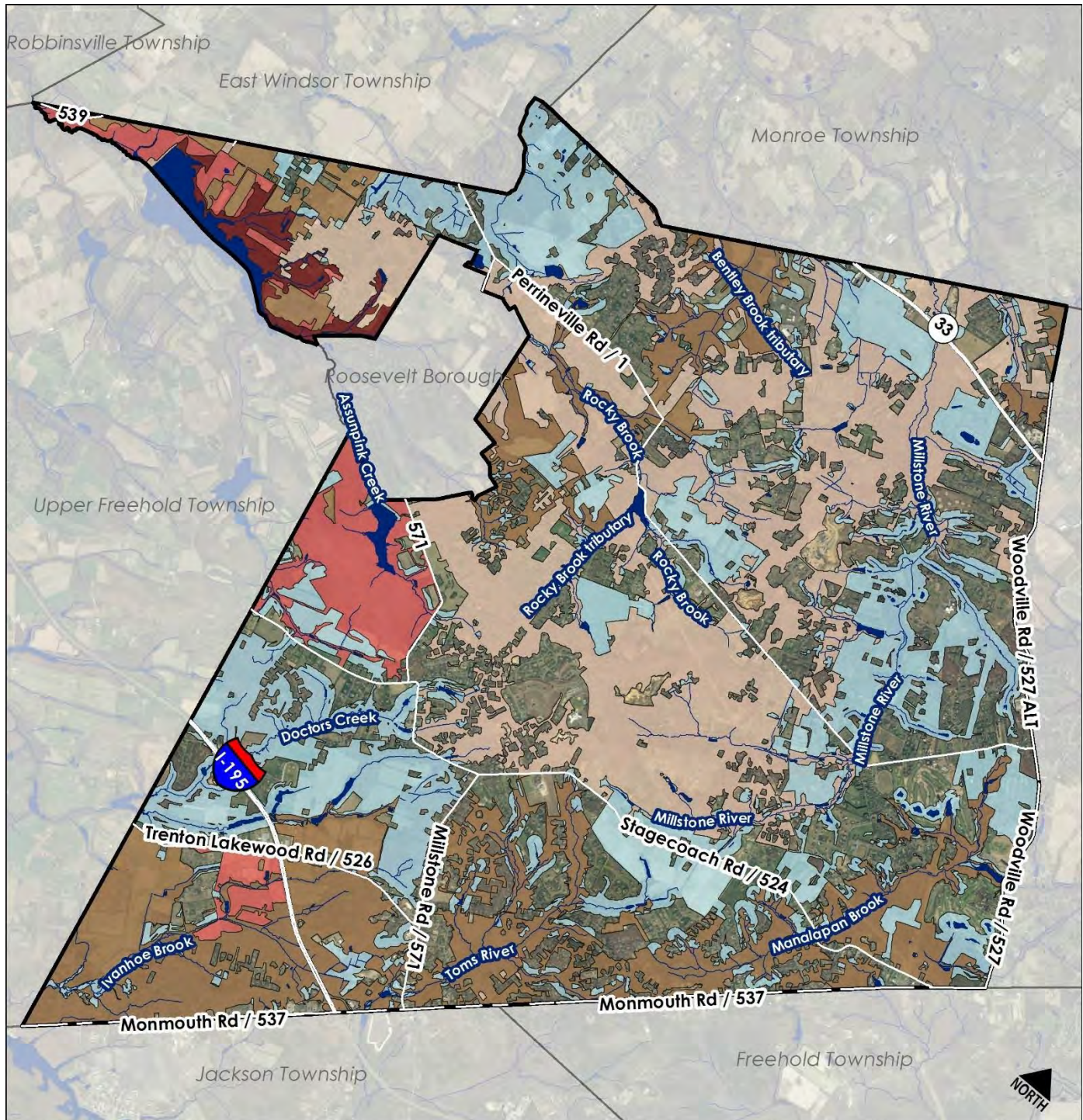
#### Wildlife

There is a wide variety of wildlife habitats in Millstone. The various topographic and vegetative features of Millstone contribute towards sustaining these habitats by providing a variety of food, shelter, and breeding areas.

Many species inhabit Millstone's land area across all land categories. The cottontail rabbit, opossum, skunk, raccoon, and woodchuck are common types of wildlife. The white-tailed deer is the largest mammal in Millstone. Common types of birds in Millstone include the song sparrow, crow, gray catbird, tufted titmouse, robin, mourning dove, common flicker, and the black-capped chickadee. Reptiles and amphibians exist in Millstone, but they are not frequently encountered.

There are several areas in Millstone which provide habitat for endangered and threatened species. Several species have been recognized within the New Jersey Assunpink Wildlife Management Area (AWMA) and are protected by the New Jersey Threatened and Endangered Species Act. In the southern corner of Millstone near I-95, an area has been identified that provides a nesting habitat for several endangered and threatened bird species (see Map 11).

MAP 11: Prime Wildlife Habitat Areas in Millstone



Millstone Township  
Master Plan 2017

### Wildlife Habitat

Heyer, Gruel & Associates

#### Landscape Project Habitat Rank

- Rank 1: Habitat Specific Requirements
- Rank 2: Habitat of Special Concern

- Rank 3: Habitat of State Threatened Species
- Rank 4: Habitat of State Endangered Species
- Rank 5: Habitat of Federal Endangered Species

0 0.5 1 2 Miles

Sources: Boundaries from NJDEP (2013). Roads NJDOT 2005. NJDEP Landscape Project (2012)

Map produced 3/7/17. S/Millstone/Master Plan Update 2016/intro and existing conditions/TandE

## Geology

According to the Geologic Map of New Jersey (1910-1912), the Marshalltown Formation is widespread in Millstone. The Marshalltown Formation is comprised of silt and sand. The topography, soil types, woodlands, vegetation, slopes, stream corridors, and wildlife of Millstone are all affected by the geology of the Township.

## Township NRI

More detailed information on the natural features that exist in Millstone can be found in the Township's Natural Resource Inventory. Land development policies will be made in light of the areas with sensitive environmental features so identified in the NRI. The Township supports the work of the Environmental Commission and other Township Committees and groups in continuing to inventory natural features as new data becomes available so as to inform conservation and preservation targets.

## INFRASTRUCTURE CONSTRAINTS

Millstone has development limitations due to a lack of sanitary sewers and public water systems. The natural conditions in large areas of the Township, including freshwater wetlands, seasonal high-water table, steep slopes, limited stream flows with high water quality, and soil conditions, place severe restrictions on the use of septic systems. The development of package treatment plants is restricted by limited stream flows and costs for tertiary treatment requirements established for physiographic areas like Millstone Township by the New Jersey Department of Environmental Protection.

At the adoption of the Township Sanitary Sewer Management Plan (208 Plan) in 1994, no plans were pending for the extension of sanitary sewerage lines from the surrounding regional systems including the Western Monmouth Utilities Authority, the Ocean County Utilities Authority, Monroe Township, or East Windsor Township. Limited stream flow restricts the development of Millstone.

As has been articulated in previous planning documents, the Township's **chief** goals are to maintain the rural character of the community and secure the environmental, economic, and social benefits of a coordinated system of open space, outdoor recreation, and farmland. Public infrastructure extensions, particularly sewer service, are an inducement to development intensities that would conflict with these Township goals.

The Jackson Township Municipal Utilities Authority and the Ocean County Utilities Authority indicated their interest to Millstone Township, to Monmouth County, and to the New Jersey Department of Environmental Protection in extending sewers into the State Plan Fringe Planning Area of Jackson to service the Route 537 corridor, including a portion of Millstone that is part of the State Plan Rural Environmentally Sensitive Planning Area fronting on Route 537. While respectful of the right of surrounding Townships to install desired water service infrastructure within their borders, Millstone Township and its resident community does not intend to participate in the Route 537 corridor network. The problem of heavier than expected water use at existing commercial operations in the corridor could be resolved through redesign of the on-site systems to handle the seasonal peak flows.

The Township will continue to adhere to a policy of limiting growth and development in order to maintain the rural character of the community, to conserve the environmentally sensitive features and farmland of Millstone, and to curb the installation of spread-out infrastructure systems that would stress the municipal budget. As an essential part of this policy, the Township discourages

the extension of sewer service into the Township. Furthermore, the Township encourages establishing and maintaining greenbelts and open space in abutting municipalities that will buffer Millstone from the impacts of any expanded sewer service areas or sewer line extensions. The Township will review proposals for such expansions or extensions and take appropriate action to discourage expansions or extensions that would be incompatible with the Township policy.





# MASTER PLAN

## Principles, Goals and Objectives Element

The Millstone Township Master Plan has been prepared in accordance with the provisions of the New Jersey Municipal Land Use Law (N.J.S.A. 40:550-28 as amended) to guide the development of the community and conserve its natural and cultural resources in a manner which will promote and protect the public health, safety, and general welfare. The Principles, Goals and Objectives Element builds on the community vision provided in the introductory section, honing in on the specific goals, principles and objectives that will advance the Township toward its desired future.

Principles are the broadest policy statements provided in the Master Plan. They are the stated ideals underpinning the Township's community vision against which proposed land development regulations, public investments, and other policies are weighed. Township planning policy and land development action will be grounded in the following six principles:

### Principles

1. Millstone Township has a long and rich history as an agricultural community. The community-wide, purposeful commitment to maintaining agriculture as an active industry and way of life makes it a unique place in New Jersey and Monmouth County, both of which are seeing ever-more farmland lost to development pressure. The goals, objectives, and recommended action items in the Master Plan prioritize farmland preservation and the maintenance of the rural character and quality of life of Millstone Township.
2. Open space and conservation areas are essential to maintaining a healthy environment, controlling suburban sprawl, and preserving the rural character of Millstone Township and its natural and cultural resources. A Township network of permanently preserved open spaces and conservation lands is needed to provide public recreation, to maintain biodiversity, to protect water quality, to control flooding, and to conserve the community's significant scenic, cultural, and natural features.
3. As a rural environmentally sensitive place, the Township supports the State Plan's policies related to Planning Area 4-B communities, which are targeted for land preservation and development that is limited to centers. The Township supports its regional role by taking local actions that are committed to the protection of its farmland and natural and cultural resources. Areas with steep slopes, stream corridors, wetlands, floodplains, forests, agriculture, and areas valuable as scenic, historical, cultural, or recreational resources will be preserved.

4. The Township is uniquely located and serves as the origin for one-quarter of New Jersey's twenty major watershed areas. The Township recognizes the regional importance of Millstone Township as the convergence zone for central New Jersey watersheds and supports actions that protect its exceptional high-quality water resources.
5. The Township will plan for the full array of agricultural, residential, commercial, office, light industrial, recreational, and public and quasi-public land uses in such a manner as to achieve beneficial development that respects the rural character of Millstone. Private lands, community facilities, active recreation, economic development, and all other built infrastructure are developed so as to fit in to sensitive environmental areas with as low of an impact on natural features as possible.
6. The Township will make decisions regarding the provision of infrastructure that seek to limit its impact on environmentally sensitive features and agricultural areas and to prevent inefficient and expensive sprawl development.

The quality of life and unique identity of a community is shaped by the interplay of a number of different factors related to land use and development, including land use, circulation, housing, economic development, open space and natural resource preservation, historical and cultural preservation, community facilities, utilities, and recreation. The Master Plan includes an overall goal and a series of objectives for each of these functional areas of planning. Goals and objectives are stated as follows:

#### Goal Statements and Objectives

Land Use. The Township implements land use policies that are compatible with the maintenance and enhancement of Millstone as a rural, environmentally sensitive community.

- a. Promote the establishment of appropriate rural population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities, and regions and preservation of the environment.
- b. Promote the conservation of historic sites and districts, open space, energy resources, and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.

- c. Continue to enforce and implement site design regulations and performance standards related to land conservation and the mitigation of environmental impacts.
- d. Encourage cluster development options and other flexible development controls that provide incentives for preserving larger tracts of contiguous open space.
- e. Continue to make public investments that maintain the bucolic atmosphere of the Township by preserving open space, parkland, and farmlands.
- f. Protect water quality by limiting impervious surface rates and requiring buffers along streams and other environmentally sensitive features.
- g. Maintain a desirable visual environment through design guidelines that require new development to match existing aesthetic and architectural patterns with the Township.
- h. Encourage Township actions that will guide the appropriate use and management of lands within Millstone Township in a manner which will promote the public health, safety, morals and general welfare.
- i. Provide sufficient space in appropriate locations within the Township for agricultural, residential, business, office, light industrial uses, public and quasi-public uses, and open space in a manner which will provide for balanced Township growth and development and meet public needs.
- j. Encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies.
- k. Encourage the coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and of increasing the efficient use of land.

Housing. The Township meets its responsibilities under the Fair Housing Act, and continues to provide for its fair share of the regional lower income housing need consistent with the State Plan designation of the Township as a rural environmentally sensitive planning area.

- a. Work with affordable housing providers to achieve the development of affordable housing projects in accordance with the zone plan.

Circulation. The Township balances the need for well-designed transportation routes that promote the free flow of traffic with the imperative to protect the natural environment from the adverse impacts of additional lanes and impervious surface.

- a. Encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight.
- b. Promote adequate pedestrian infrastructure in commercial areas.
- c. Promote the development established routes for recreational cyclists. Establish "share the road" programs to make routes safe for these types of users.
- d. Encourage limited public transit operations that target specific under-served communities with limited mobility, such as senior citizens.

Community Facilities. The Township ensures that adequate public community facilities are in place such that municipal services adequately provide for the health, safety, education, and welfare of the current and projected future population.

- a. Continually evaluate the adequacy of community facilities in serving the needs of Township residents.
- b. Work with the Board of Education to anticipate changes in the school-aged population and plan facilities accordingly.
- c. Collaborate with the Board of Education to share facilities and services to the mutual benefit of the Township, the school system, and residents.
- d. Incorporate the use of community facilities into emergency management plans and procedures.
- e. Ensure that any new community facilities are located outside of high environmental hazard areas.

Historic Preservation. The Township continues to expand its historic preservation efforts, ensuring that cultural resources representative of the Township's agricultural past continue to exist and provide a reference point for Millstone's unique history and community character.

- a. Coordinate local historic preservation efforts with regional initiatives, such as the Monmouth County Scenic Byways program.
- b. Support the efforts of the Historical Commission in researching Township history, inventorying historic properties, and **promoting Millstone's historical and cultural resources.**
- c. Explore the establishment of a state-designated historic district in Clarksburg.

Open Space, Recreation, and Conservation. The Township continually seeks new opportunities to permanently preserve environmentally sensitive natural features and open space, ensuring that **the Township's character and aesthetic will remain intact as additional development occurs.** The Township has adequate facilities and programs to serve the recreational needs of all populations, age-ranges and abilities residing in Millstone.

- a. Prioritize open space preservation that has the dual benefit of conserving environmentally sensitive natural features.
- b. Create a true network of environmental features and open space areas by pursuing purchase or easement of linear bridal paths as well as large land tracts.
- c. **Encourage recreational activities that build off of Millstone's inherent natural and scenic qualities,** such as long-distance cycling, bird watching, and other similar forms of recreation.
- d. Establish scenic corridors that respect and showcase the natural beauty and environmental qualities of the Township.
- e. Promote recreational activities that reach currently underserved populations in the Township, such as teenage children and senior citizens.
- f. Ensure that active recreational parks with structures, fields and improvements have minimal impact on surrounding natural areas.

Farmland Preservation. The Township provides its active support and encourages local participation in State and County farmland and open space preservation programs to preserve as much of Millstone's open space and farmland as possible.



- a. Actively pursue all opportunities for farmland preservation **within the Township's ADA** in order to achieve the one-year, five-year and ten-year acreage targets contained in the Millstone Farmland Preservation Plan.
- b. Work with the County on an ongoing basis to accomplish farmland preservation.
- c. Proactively approach property owners and advertise farmland preservation opportunities.

Economic Development. The Township builds off its existing economic base to promote the agricultural industry and complementary retail and service establishments.

- a. Promote agro-tourism and eco-tourism.
- b. Support the Township's agricultural industry.
- c. Support new businesses within existing commercial areas and areas zoned for commercial uses.

Utility Service. The Township controls the location and expansion of infrastructure to conserve the rural character of the Township and discourages the extension of sewer and water service into the municipality.

- a. Continue to limit the extension of sewer and water service, the installation of which would **interfere with the Township's environmentally sensitive features, rural make-up, and is not in accordance with the State Plan's vision for a PA-4B community** given that there are no existing designated centers in Millstone.
- b. Promote the utilization of renewable energy resources in appropriate locations.

Recycling. The Township achieves the maximum practicable recovery and recycling of recyclable materials from municipal solid waste.

Relationship to Other Plans. The Township ensures that the development within Millstone does not conflict with the general welfare of neighboring municipalities, the county, and the State as a whole.

## Recommendations

In each element, the Master Plan provides additional recommendations that are specific actions, ordinance changes, programs, or other studies that the Township can take to further the goals and objectives stated above. The Master Plan will be implemented as these recommendations are pursued over time.

## Land Use Plan Element

The land use plan element for Millstone Township is prepared in accordance with the Municipal Land Use Law, N.J.S.A. 40:55D-28.b(2). It is based upon the principles, goals, objectives, policies and standards for the development of Millstone Township and takes into consideration all the other elements of the Master Plan as well as the State Development and Redevelopment Plan.

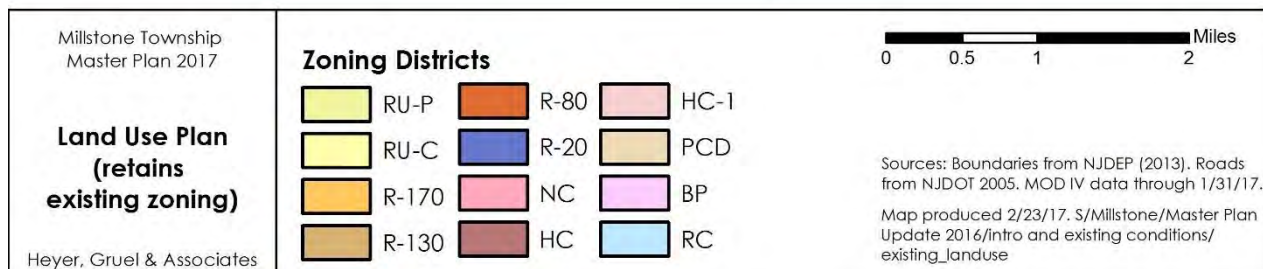
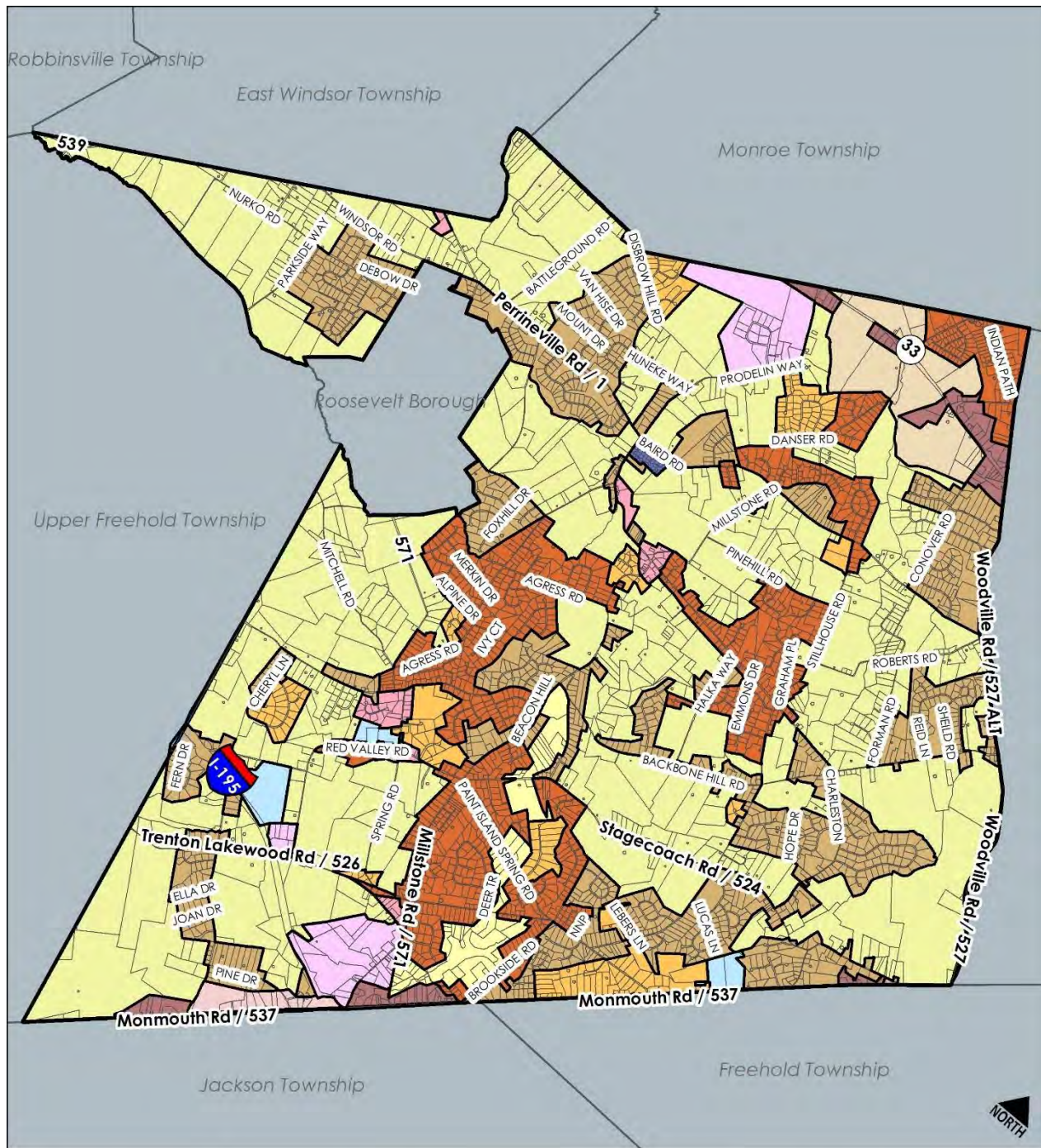
### Land Use Plan

The Township land use plan considers the existing residential and non-residential land use development patterns of the Township. Given that this Master Plan approaches land use from a green infrastructure perspective, the Township land use plan considers development patterns in relation to the desire of Millstone residents to preserve the rural character of the community; the need to preserve and protect agricultural areas; the need to protect environmentally sensitive lands including stream corridors and their associated freshwater wetlands and floodplains, steep slope areas, forests, and habitat areas. The land use plan element addresses the existing and proposed location, extent, density and intensity of development for varying types of residential, commercial, light industrial, agricultural, recreational, educational, and public and quasi-public uses and open space.

The Township's existing zone plan has proven to operate as intended since its last significant amendments were implemented in accordance with the build-out analysis and recommendations of the 2003 Master Plan. No zone changes are anticipated or needed at this time. Thus, the Land Use Plan Map (Map 12) is the same as the Township's existing Zoning Map.

The Township has been concentrating on implementing the existing zoning code, and in adding and updating significant land development controls that preserve and protect environmental features. The Township will continue these efforts. A large component of protecting these sensitive areas requires the mitigation of development impacts, and resistance to development pressures. One of the most direct ways of addressing development pressure is to continue the Township's explicit policy of prohibiting the extension of sewer and water service infrastructure within Millstone, that act of which would both interrupt and affect natural systems through the installation of piping and other physical service elements, and allow for ever-increasing density of development that would threaten to impair natural systems through significantly elevated human activity.

Map 12: Land Use Plan (same as Existing Zoning)



In addition to the discussion of existing zoning districts, this Land Use Plan Element analyses recent development in the context of environmentally sensitive areas of the Township, and presents recommendations for regulatory changes related to land use and zoning.

#### Water Resources

Water supply, water quality and the degradation of the State's surface and ground water resources is a significant public concern. Millstone Township has a limited infrastructure to support intense development and it lacks and has no plans to provide sewer or water service. The continued spread of development into rural, environmentally sensitive planning areas impairs the State's water resources. Millstone is a convergence area for the headwaters of the major watersheds in central New Jersey. Consequently, the Township land use plan emphasizes the need to protect the water resources and high-quality streams within the Township.

#### State Development and Redevelopment Plan

This Land Use Plan Element gives particular consideration to the designation of Millstone by the State Plan as a rural environmentally sensitive planning area that serves as the environs to nearby densely-developed centers in the eastern coastal portion of Monmouth County. The Township land use plan recommends a land use pattern and densities that maintain the rural character of the community, prevent the extension of sprawl, promote agriculture, and better support the intent of the State Plan for conserving the environs of the State's rural environmentally sensitive planning areas.

There are no State Plan centers in Millstone, which is the only location in Planning Area 4-B where the extension of infrastructure is promoted. As Millstone does not meet the criteria for State Plan Centers, Center designation is not an appropriate consideration. Accordingly, Millstone Township will continue its policy of restricting the installation of additional utility, water, sewer, and roadway infrastructure within its jurisdiction. Maintaining Millstone as a greenbelt environs area has regional benefit. One of the attributes that makes Monmouth County special is the variety of land uses it supports, including its lasting agricultural heritage. Respecting the natural features within Millstone from development pressure also has the benefit of protecting **the region's** environmentally sensitive natural features, and water quality within larger portions of the State as a whole.

#### Relationship Between the Zone Plan, Land Use Element, & Goals and Objectives

Millstone's goals and objectives center around the desire to preserve the Township as a rural community that protects its plethora of regionally-significant environmentally sensitive features.



Natural resource mapping has been utilized (in the Township's NRI and elsewhere) to delineate steep slope areas, freshwater wetland areas, floodplains, forested areas, priority agricultural areas, and headwater areas for the seven (7) streams and drainage basins which originate in Millstone Township.

It is the Township's most paramount land use goal that development should be designed to fit within this context of a rich and fragile natural ecosystem. Design techniques such as reverse frontage with conservation easements for homes along existing roads, residential density development concepts for single family uses, provisions to avoid monotony in housing appearance, cluster options, and similar approaches should continue to be used and implemented wherever possible. Major developments should be designed in such a way that they will have minimal effect on the flow of traffic on the existing road system.

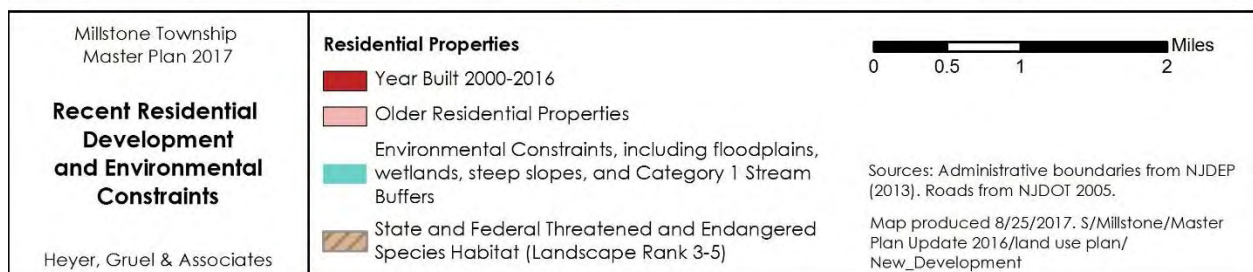
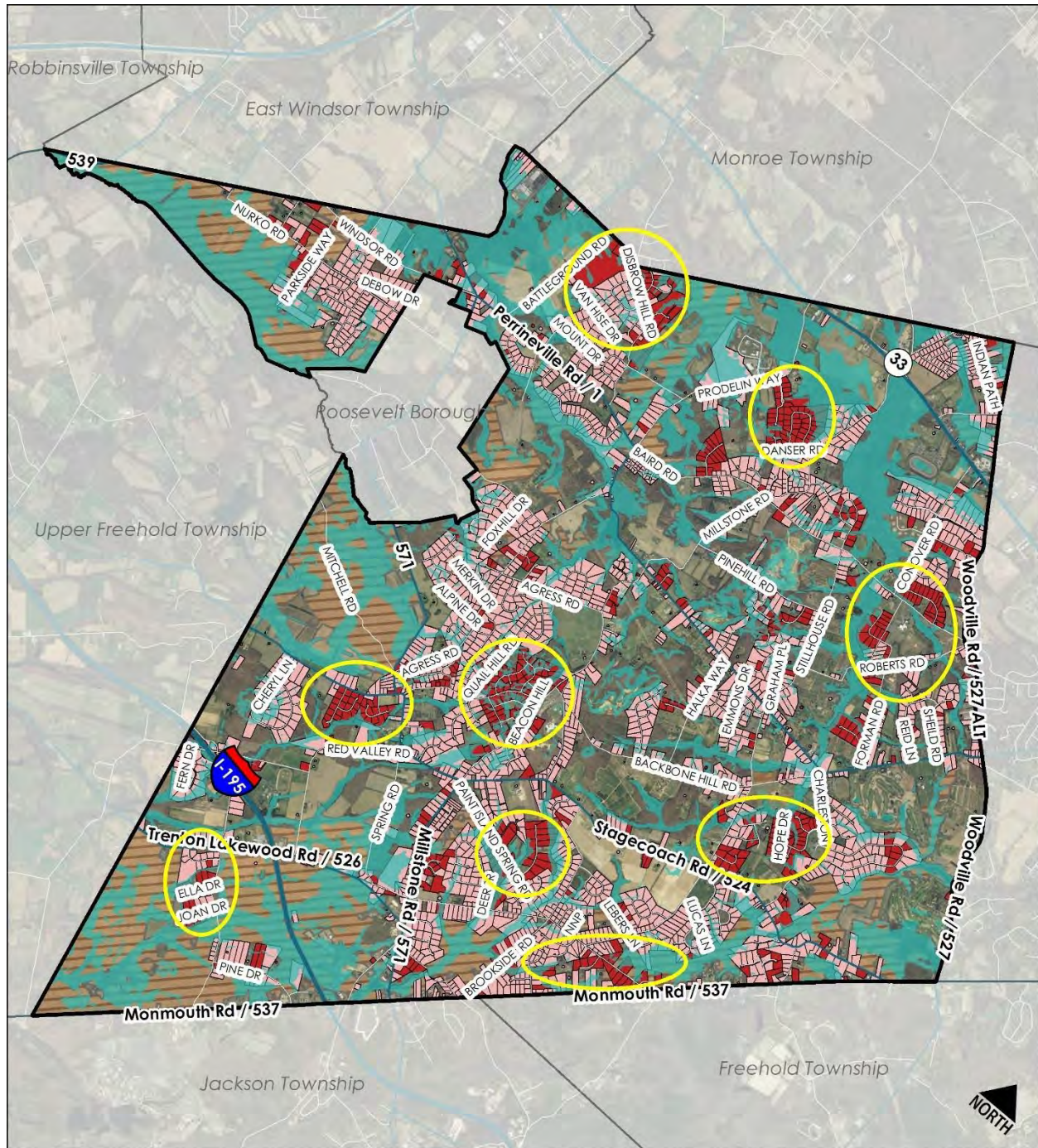
Given that maintaining the rural character of the Township, preserving farmland and open space, and protection the environment are fundamental purposes of the Township land use plan, the Township continues to designate large zoning districts for rural preservation and conservation. The plan provides both for large scale and small-scale farm operations. Smaller farmsteads provide more specialized products such as organic produce, specialty and ethnic vegetables, exotic livestock, horticultural products. This type of diversity between large-scale crop producers and small-scale alternative growers can help strengthen the local agricultural economy.

The general zone plan is not in need of updating at this time. The Township is committed to implementing current zoning standards as intended, to preserve as wholly as possible the Township's rural character and environmental features.

#### Recent Development

The Township has continued to grow and develop. Between the 2000 and 2010 census, the number of housing units within the Township increased by 637 units. As explored in the Existing Conditions section, for the first time in its history, the majority of the Township's land area is now occupied by residential properties (34.4%) as opposed to farmland (31.3%). Map 13 below shows the areas of the Township that have experienced recent development, defined as having occurred between 2000 and 2016, in the context of the Township's environmentally sensitive areas.

Map 13. Recent Development in the Context of Environmental Features



Sections of the Township that have experienced significant pockets of new development include:

- The area between Battleground Road and Disbrow Hill Road
- Prodelin Way, Danser Road, and Baird Road
- Roberts and Forman Roads
- Areas off Stage Coach Road around Hope Drive and Graham Place
- Areas off Paint Island Spring Road,
- Areas in the vicinity of the Monmouth Road and Trenton Lakewood Road intersection
- Quail Hill Road and Beacon Hill Road area
- The Area between 571 and Red Valley Road

Much of this new development is located on the outskirts of environmentally sensitive stream corridors and wetlands areas, although much of it has been located outside of threatened and engendered species habitat. The Beacon Hill and Quail Hill Road developments have been built among steep slope areas. As land abutting environmentally sensitive areas continues to be developed, it will become even more imperative for the Township to continue managing the interplay of built structures and environmental features, and ensuring that mitigation measures are included in site plan and subdivision applications.

As can be seen in Map 14, some of this new development has occurred within the Rural Preservation zone, particularly in the areas along Roberts Road, near Red Valley Road, and near Hope Drive.



This map illustrates the Perineville Rd area in Monmouth County, New Jersey. The map is color-coded to show different types of land use or terrain, with green and yellow areas likely representing open land or forests, and red areas possibly indicating developed or urban zones. Major roads are labeled, including Perineville Rd, Stagecoach Rd, Woodville Rd, and Trenton Rd. The map also shows surrounding townships: Robbinsville Township to the north, East Windsor Township to the northeast, Monroe Township to the east, Upper Freehold Township to the south, Jackson Township to the southwest, and Freehold Township to the west. A north arrow is located in the bottom right corner, and a scale bar is provided in the bottom left corner.

Map produced 8/25/2017. S/Millstone/Master  
Plan Update 2016/land use plan/  
New\_Development\_ZoneContext

### Existing Zoning Districts

At present, Millstone's land area is divided between 13 zoning districts. A summary of the extent and purpose of each of these districts is as follows:

#### RU-P Rural Preservation Zone

The RU-P Rural Preservation Zone is among the newest land use planning area designations within the Township. It was put into place in 2003. The primary purposes of the RU-P zoning district are to maintain the rural character of the Township; to promote the preservation of the open space and farmland areas of Millstone Township; and to minimize the impact of new development on natural resources and rural features of the community; and to support the policies of the SDRP and the Monmouth County Farmland Preservation Plan.

Overall, the RU-P zone covers 52% of the Township. The zone contains large areas of farmland, prime agricultural soils, and open space. Areas designated RU-P have an average lot size in excess of 10 acres and contain large, contiguous tracts of viable farmland that contain 85.5% percent of the Township's total prime agricultural soil. These areas contain some of the largest nursery, equestrian and agricultural land areas in the Township. A minimum lot size of ten (10) acres reasonably assures that most properties can continue to be utilized for agricultural purposes consistent with the Farmland Assessment Act and the Township's goal of maintaining its rural character and agricultural uses.

To provide flexibility to preserve larger tracts as farmland or open space, the rural preservation area permits lot size averaging and residential clusters. A farmland/open space conservation cluster option allows for a density bonus of 30% over development under traditional site design when 70% of the area is put into permanent open space or farmland preservation through deed restriction.

#### RU-C Rural Conservation Zone

The RU-C, Rural Conservation Zone was implemented alongside the RU-P district, with a similar set of purposes. It covers roughly 2% of the Township. A large percentage of the RU-C district is comprised of farm qualified and farm regular land. It also contains substantial tracts of vacant land associated with environmentally sensitive lands such as freshwater wetlands, floodplains and headwater areas. Preserving open space and limiting intensive development in the RU-C area will help protect the surface water quality for Millstone Township and downstream communities.



The average lot size in the RU-C is in excess of six (6) acres. Agricultural operations that are located in this district vary in size from smaller farmsteads to large-scale operations. Six (6) acres allows sites suitable for agricultural uses to participate in the State's farmland assessment program. To provide flexibility to preserve larger tracts as farmland or open space, the Rural Conservation also permits lot size averaging and residential clusters.

#### R-170 Rural Environmental Zone

The R-170 Rural Environmental Zone was implemented after recommendations in Township's 1995 Master Plan. The zone's purpose is to protect sensitive environmental features consistent with the New Jersey SDRP including significant areas with one or more of the following: freshwater wetlands, steep slopes (15% or greater), 100-year floodplains, shallow depth to water table, headwaters of streams, mature wooded areas, and areas with highly erodible soils based upon the U.S Department of Agriculture Soils Mapping, NJDEP Freshwater Wetlands Maps, U.S.G.S. Topographic Mapping, and the Millstone Township Natural Resources Inventory.

The R-170 zoning district is intended to be the lowest density residential development zone within the Township. It covers approximately 4% of the Township's total area in 12 separate pockets of land, and is mainly concentrated along stream corridors. Development of residential uses within the R-170 zone requires that proposed lots contain a minimum of one acre of developable land and a minimum lot size of four (4) acres. Variable density development is permitted on parcels containing forty-two (42) or more acres, provided that the number of dwelling units does not exceed that which would be permitted for a conforming conventional subdivision.

#### R-130 Rural Residential Zone

The R-130 Rural Residential district covers nearly 19% of the Township. Its intent is to permit low density residential, general agricultural, nurseries, and horse farm uses. The R-130 zone regulations require a minimum lot area of three (3) acres. There are extensive wetland areas, floodplains and steep slope areas located within the designated R-130 zone, which are generally restricted from development by other Township development regulations.

#### R-80 Rural Residential Zone

The R-80 Rural Residential district is located in the central portion of the Township. It provides for moderate-density, rural residential development of single-family detached dwellings in developed portions of the Township and infill areas. It is intended to accommodate single-family detached dwelling units on individual lots with on-site septic disposal systems and individual wells.

The R-80 district covers about 13% of the Township, including pockets of existing development interspersed with undeveloped areas. The minimum lot size recommended for the R-80 areas is two (2) acres.

#### R-20 Residential Zone

The R-20 Residential zone is limited to one location consisting of 38 dwelling units on approximately 40 acres. This small district lies north of Perrineville, at the intersection of Perrineville and Baird Roads, and covers 0.1% of the Township. It has been maintained in the land use plan element in recognition of the existing development pattern. The minimum recommended lot size is 20,000 square feet. The R-20 designation cannot practically be expanded in the Township due to development constraints associated with the requirements of on-site septic waste disposal systems and individual wells.

#### NC Neighborhood Commercial Zone

The Neighborhood Commercial zone provides for a mix of individual, small-scale retail and service uses that serve as convenience shopping outlets, and as a location for public and quasi-public community facilities. The scale of development in this zone is limited to locally-oriented businesses rather than large, regional commercial establishments. Four areas of the Township are covered by the NC zone: the Clarksburg NC District on County Route 571 is a historic neighborhood location of 98 acres; the Perrineville NC District on Sweetmans Lane is a historic neighborhood location of 64 acres; the NC District on Millstone Road and Trenton Lakewood Road is 24 acres; and the NC District at Perrineville Road on the East Windsor Township border is 16 acres. Together these four areas amount to less than 1% of the Township.

Perrineville and Clarksburg provide focal points for neighborhood and Township-wide public and quasi-public facilities and services, including fire stations, first aid squads, churches, and the municipal complex in Perrineville. While no such standards have yet been created, the NC zone would be a logical place to apply design criteria based on the historic village patterns of Clarksburg and Perrineville. The zone allows for some mixed-use development by allowing both neighborhood commercial uses and single-family dwelling uses that meet the requirements of the R-80 district.

### HC Highway Commercial Zone

The Highway Commercial zoning district is intended to provide for service and retail commercial uses along County Routes 526, 571 and 537, New Jersey Route 33 and Burnt Tavern Road. The Highway Commercial zone permits a variety of retail and service uses, office uses, restaurants, commercial recreation uses, farms, and similar uses along some of the Township's major transportation corridors that carry regional traffic. Fast food restaurants, drive-in restaurants, and motor vehicle related uses such as service stations, are not permitted in the HC area. The total area of the Highway Commercial zone is about 1.4% of the Township.

### HC-1 Highway Commercial Zone

The Highway Commercial HC-1 zoning district is intended to provide for services and retail commercial uses along County Route 537 and recognizes the existence of fast food restaurants, convenience shopping and the potential for other uses to serve the needs of the tourist trade generated by Great Adventure and other travelers exiting off I-195. The HC-1 zone covers 0.5% of the Township.

The Township does not desire the proliferation of fast food uses beyond this zone within the Township. Fast food restaurants and other food service uses are a conditional use in the HC-1 zone. Conditions are related to seating quantities; minimum lot area; approval of on-site septic system design prior to approval of conditional use permit; pedestrian and vehicular circulation requirements; a traffic impact analysis; lighting and noise restrictions; and drive-through stacking provisions. Regulations of the zone also seek to protect neighboring residences from undue impact by requiring a 300-foot minimum separation between any building constructed within the HC-1 zone and a residential or rural preservation zone line.

### Planned Commercial Development Zone

The planned Commercial Development district is intended to promote the use of larger tracts for unified, well planned and designed commercial development. The PCD will better control highway access, maintain the free flow of traffic along Route 33, and discourage the fragmentation of the highway frontage into a highway strip of uncoordinated development on small lots. A master development plan is required for all development in the PCD zone. Smaller lots (2-3 acres) are permitted if developed in accordance with the overall plan for the property as part of a planned commercial development. The total area designated for Planned Commercial Development is 3% of the Township.

The types of uses envisioned for the Planned Commercial Development zone include business and professional offices, banks and other financial institutions, restaurants (not including fast food or drive-in), commercial recreation, health spas, farms and agricultural use, "big box" retail operations, and storage warehouse and distribution centers.

#### BP Business Park

There are three Business Park areas planned in the Township. The Business Park areas provided for limited industrial uses in a business park setting. One Business Park area is located along Prodelin Way adjacent to Monroe Township in Middlesex County and two are on Route 526, north of 1-195. It is the intent of the Planning Board to encourage the planned development of business parks which would include offices, distribution warehouse facilities and designated light industrial, low intensity uses which would be suitable for on-site septic systems and water systems. Farms would also be a permitted use.

The plan calls for the expansion of the BP zone district to replace the HC zone district near the intersection of County Route 526/571. Increasing buffers between residential and non-residential uses and zones is recommended to help facilitate the transition between commercial and residential areas in the Township. The plan recommends removing housing as a permitted use of the BP zone district. The BP Business Park zone covers 3% of the Township.

#### RC Recreation Camp Zone

There are two private recreational camps located in the Township. Black Bear Lake Camp is located on Stagecoach Road and Red Valley Road consisting of 21.73 acres. Frogbridge Day Camp is located off Yellow House Meeting Road and consists of approximately 88.7 acres. The RC Recreation Camp zone is intended to recognize these unique areas. Since the last Master Plan was prepared in 2003, it has been updated to include the YMCA property along the Township's eastern border with Freehold. The RC Recreation Camp zone covers approximately 1% of the Township.

#### FHSC Flood Hazard and Stream Corridor Overlay Zone

In 2003, the Township enacted the FHSC Flood Hazard and Stream Corridor Overlay Zone, which applies to all tracts of land that fall in whole or in part within a stream corridor or stream corridor buffer. The Stream Corridor Buffer is defined as an area extending a minimum of seventy-five (75) feet and an average distance of one hundred (100) feet from the one hundred (100) year flood line. If there is no one hundred (100) year flood line delineated, the distance shall be measured

outward from the bank of the stream channel, lake, or pond. The buffer area acts as a filter and barrier against erosion, overland flows of sediments and pollutants, and stream ecosystem disruption, and provides wildlife habitat.

The purpose of the overlay is to improve the management, care, and conservation of water resources; protect significant ecological components of stream corridors such as floodplains, woodlands, steep slopes and wild life and plant life habitats within stream corridors; prevent flood damage; complement existing State, regional, County and municipal stream corridor and flood hazard protection and management regulations and initiatives; coordinate the regulation of development within stream corridors; reduce the amount of nutrients, sediment, organic matter pesticides, and other harmful substances that reach watercourses, and subsurface and surface water bodies; regulate the land use, siting and engineering of development in stream corridors; conserve natural, scenic, and recreation areas within and adjacent to streams and water bodies; support the water resource policies of the New Jersey State Development and Redevelopment Plan; and advance the purposes of the New Jersey Municipal Land Use Law.

The overlay permits activities such as wildlife sanctuaries, game farms, bike trails, fishing areas, and other recreational or wildlife pathways. With the exception of activities related to these uses, stream corridors and stream corridor buffers shall remain in their natural state, with no clearing or cutting of trees and brush (except for removal of dead vegetation and pruning for reasons of public safety), altering of watercourses, regrading or construction.

#### Relationship Between the Land Use Element and Development Regulations

This Land Use Element, in conjunction with the Land Use Goals and Objectives listed in the Goals and Objectives Element, set forth the Township's policy for land development that priorities the of preservation of the natural environment. This policy position has prompted Millstone to promulgate an extensive set of land development regulations that govern the treatment of environmentally sensitive features and open space. The following table enumerates these standards, with a fuller description of their intent and requirements located in the Open Space, Conservation, and Recreation Element.

Ordinance Section	Title
35:4-7	Preservation of Natural Features
35:4-14	Stormwater Management (system design)
35:9-3	Statement of Environmental Impact and Assessment
35:11-12	Floodplain Regulations
35:11-13.2	Easements and Wildlife Corridors



35:11-13.3	Conservation Easement Monumentation
35:11-13.4	Wildlife Corridor Easements
35:11-13.5	Horse Trail Easements
35:11-20	Natural Features
35:11-24	Steep Slope Buffer Requirement
35:11-25	Tree Preservation
35:11-30	Site Investigation and Soil Sampling
35:11-32	Tree Clearing
35:11-33	Threatened & Endangered Species
35:16	Stormwater Management (pollution control)
35:17	Riparian Zone Regulations

### Recommendations

The Township should consider the following additional recommendations relating to land use and municipal land development regulations:

1. Increase the minimum buffer requirement between commercial and residential uses.
2. Where soil conditions are suitable, continue to require development to provide recharge rather than retention or detention facilities for stormwater run-off. Require developments to use natural basins, where applicable, to enhance views, help recharge and reduce maintenance.
3. Continue to expand the series of greenways and wildlife corridors requiring development easements throughout the Township using stream corridors as the spine of the network.
4. Establish an EMF (Electric and Magnetic Field) buffer of 300' from high tension power lines.
5. Review, revise, or establish impervious coverage limits and building floor area ratio limits in commercial and business park areas to better protect water quality and the environment.
6. Amend the Zoning District regulations for all commercial zones to require that fire flow calculations be submitted at the time of application, and that on-site detention (for water supply purposes rather than storm water management) may be required if determined by the Township to be warranted.
7. In commercial areas, generally prohibit permanent outdoor sales areas and storage areas of merchandise, excepting plant nurseries and agriculturally related uses.

8. Amend the site plan and subdivision submission regulations to require submission of computer generated plans at the time of application in addition to the current requirement for such files at the time of final approval. Further amend site plan and subdivision submission requirements to require submission of aerials for those areas within 1000 feet of the subject property.
9. Continue to expand the Township's land development regulations related to environmental conservation.
10. Review impervious coverage limits in all zones to better protect water quality and the environment.
11. Continue to strongly discourage or prohibit the extension of sewer service and public water service into areas of the Township that are classified State Plan Planning Area 4-B.

NOTE: Millstone Township is currently working with the post-COAH court-controlled affordable housing framework to update its Housing Element and Fair Share Plan for the Third Round and Gap Period. Once approved by the Courts, the Township will adopt its new Housing Element and Fair Share Plan. Until that time, the Township's most recent Housing Element and Fair Share Plan, adopted May 17, 2000, remains in effect and is reproduced below.

## IX. HOUSING PLAN ELEMENT

Adopted May 17, 2000

*(Note: Millstone Township has been providing for its fair share of the regional lower income housing need through a Regional Contribution Agreement with Asbury Park and through the rehabilitation of substandard housing in Millstone. As of August 2002, Millstone Township determined that it would satisfy the remainder of its fair share obligation for affordable housing by the purchase of additional properties within Millstone to be used as group homes. Consequently, the Township has purchased or is in the process of purchasing two properties and arranging with a non-profit organization to operate the group homes.)*

### Introduction

The Housing Plan Element for Millstone Township is based upon the requirements of the Fair Housing Law (N.J.S.A. 52:270-310), the Municipal Land Use Law (N.J.S.A. 40:55D-28) and the revised New Jersey Council on Affordable Housing (COAH) Procedural Rules (N.J.A.C. 5:91) and COAH Substantive Rules (N.J.A.C. 5:93) which became effective on June 6, 1994. The Housing Plan Element is designed to achieve a goal of access to a variety of housing to meet municipal and regional housing needs with particular attention to low- and moderate-income household housing needs.

Millstone Township is located in the western portion of Monmouth County. The Township is a rural municipality. The Township has no public water or sanitary sewerage service. All development including existing residences within the Township has individual wells and individual septic disposal systems. Due to the rural character of the Township and lack of sanitary sewer service, the Monmouth County Planning Board recommended and the New Jersey State Planning Commission have designated Millstone Township entirely as Planning Area 4B, Rural/Environmentally Sensitive, in the New Jersey State Development and Redevelopment Plan.

The New Jersey Council on Affordable Housing (COAH) is the state agency responsible for identifying housing regions and estimating low- and moderate-income housing needs for the State, housing regions and allocating these needs to municipalities. COAH has designated six Housing Regions in the State. Millstone Township is located in the East Central Housing region that includes Monmouth, Ocean and Mercer Counties. Millstone Township received Substantive Certification for its first Housing Plan adopted in December 1986 for the first six-year compliance period 1987-1993.

The Council on Affordable Housing developed a methodology for determining "housing need" which is comprised of three major components: "indigenous need", "reallocated present need" and "prospective need". "Indigenous need" consists of existing housing units with physical deficiencies such as heating, plumbing, roofing, etc. that are occupied by low and moderate income households within a municipality based upon statistical data from the 1990 U.S. Census of Housing. "Reallocated present need" is a portion of the housing region total number of deficient housing units occupied by low and moderate income households that have been redistributed from urban aid municipalities to designated suburban municipalities. "Prospective need" is a projection of low and moderate income housing needs based on development and growth, which is projected to occur in the housing region. The distribution of reallocated present need and prospective need housing for low and moderate income housing to individual municipalities is based upon a methodology adopted by COAH which incorporates regional shares of non-residential ratables, an income factor and a factor that is sensitive to vacant land weighted by the State Development and Redevelopment Plan Planning Areas.

Based on Procedural and Substantive Rules of the New Jersey Council on Affordable Housing, Millstone Township has a cumulative fair share housing obligation for the period 1987- 1999 of 93 low and moderate income housing units. The obligation which consists of 18 indigenous need units which will constitute the Housing Plan "Rehabilitation Component" and 81 units of reallocated present and prospective need housing units which constitutes the "Inclusionary Component."

#### Housing Stock Characteristics

Housing stock characteristics include the number and type of housing units, occupancy/household characteristics, age (the year the structure was built), condition of units, purchase or rental value of units and units affordable to low and moderate income housing. Table IX-1, "Housing Characteristics – 1990 Millstone Township" summarizes these characteristics which are based on the 1990 U.S. Census of Housing. Each of the characteristics is described below.

Number, Type and Ownership of Housing Units

Millstone Township had 1,709 housing units in 1990 according to the 1990 U.S. Census. This is an increase of 494 units since the 1980 Census, which reported a total of 1,215 units. In 1990, 135 units or 7.9 percent were listed as vacant.

In 1990, 87.4 percent of the 1,574 occupied housing units in Millstone Township were owner occupied and 8.8 percent of the Township occupied housing units were renter occupied.

Occupancy/Household Characteristics

According to the 1990 Census, Millstone Township had a total of 1,574 households and 10 seasonal, recreational or occasional use housing units. Of the total number of occupied households 1,375 or 87.4 percent were single family households and 199 or 12.6 percent were non-family households (defined as two or more unrelated householders living together).

Householders 65 years of age or older accounted for 73 or 4.6 percent of the households in Millstone Township in 1990.

Age of Housing

The Millstone Township housing stock is relatively new with 57.6 percent of the housing constructed after 1970. Only 18.3 percent of the current housing stock were recorded as being built in 1939 or earlier. Between 1940 and 1949, 77 units were constructed which accounts for 4.5 percent of the current housing stock. Between 1950 and 1959, 151 housing units or 8.8 percent of the total housing stock was constructed. Between 1960 and 1969, 185 or 10.8 percent of the housing stock was constructed. Between 1970 and 1979, 435 housing units or 25.5 percent of the total. Between 1980 and March 1990, 548 housing units were constructed accounting for 32.1 percent of the total.

Condition of Units

The housing stock in Millstone Township had a small number of substandard units according to the 1990 Census. The 1990 Census indicates that Millstone had no units lacking complete kitchen facilities and only 13 units lacking complete plumbing facilities.

Owner Occupied Housing Value and Rental Rates

The 1990 median value of the 1,210 owner occupied housing units in Millstone Township was \$252,400. Of this total, 45 or 3.7 percent had a value of less than \$100,000, 93 units or 7.7 percent had a value between \$100,000 and \$149,000, 209 or 17.2 percent had a value between \$150,000



and \$199,000, 475 or 39.3 percent had a value between \$200,000 and \$299,999 and 388 or 32.1 percent had a value of \$300,000 or greater.

The 1990 median gross monthly rent was \$517 for rental housing units in Millstone Township. Of the 90 renter occupied units reporting monthly rental rates, 33 units or 36.7 percent had a monthly rental rate between \$250 and \$499; 29 units had a monthly rental rate between \$500 and \$749; 11 units had a monthly rental rate of between \$750 and \$999 and 8 units had a monthly rental rate of \$1,000 or more.

TABLE IX-1  
Housing Characteristics (1990)

	Number	Percent of Total
<b>I. HOUSING UNITS</b>		
Number of units	1,709	N/A
Occupied Housing Units	1,574	N/A
Number of units (1980)	1,215	N/A
Vacant Housing Units	135	N/A
Homeowner vacancy rate	3.9%	N/A
Rental vacancy rate	4.1%	N/A
<b>II. OCCUPANCY/HOUSEHOLD CHARACTERISTICS</b>		
Number of Households	1,574	N/A
Persons Per Household	3.14	N/A
Family Household	1,375	87.4%
Non-Family Household	199	12.6%
Householders 65 +	73	N/A
Seasonal, Recreational or Occasional Use	10	N/A
Owner Occupied	1,435	87.4%
Renter Occupied	139	8.8%
<b>III. YEAR STRUCTURE BUILT</b>		
1989 - March 1990	69	4.0%
1985 - 1988	314	18.4%
1980 - 1988	165	9.7%
1970 - 1979	435	25.5%
1960 - 1969	185	10.8%
1950 - 1959	151	8.8%
1940 - 1949	77	4.5%
1939 or earlier	313	18.3%
<b>Total</b>	<b>1,709</b>	<b>100.00%</b>
<b>IV. CONDITION OF UNITS</b>		
Lacking complete plumbing facilities	13	N/A
Lacking complete kitchen facilities	0	N/A
<b>V. HOUSING VALUE - (Owner Occupied Units)</b>		
\$300,000 and up	388	32.1%
\$200,000 - \$299,999	475	39.3%
\$150,000 - \$199,000	209	17.3%
\$100,000 - \$149,000	93	7.7%
\$50,000 - \$99,999	36	3.0%
\$0 - \$50,000	9	0.7%
<b>Total</b>	<b>1,210</b>	<b>100.0%</b>
Median Value	\$252,400	

TABLE IX-1  
Housing Characteristics (1990)

	Number	Percent of Total
<b>VI. MONTHLY RENTS - (Rental Occupied Units)</b>		
\$1,000 & +	8	8.9%
\$750 - \$999	11	12.2%
\$500 - \$749	29	32.2%
\$250 - \$499	33	36.7%
Less than \$250	9	10.0%
<b>Total</b>	<b>90</b>	<b>100.0%</b>
 Median Monthly Rent	 \$517	

SOURCE: U.S. Bureau of Census 1990

COMPILED BY: T & M ASSOCIATES

Affordability to Low and Moderate Income Households

Rental and owner occupied housing affordable to low and moderate income households were determined using the 1994 COAH regulations, 1990 U.S. Census data and COAH assumptions on the amount low and moderate income households can afford for housing based on a percentage of their income.

The 1994 COAH regulations defined the East Central Housing Region as Monmouth, Ocean and Mercer Counties. (Prior to 1994, the East Central Region only included Monmouth and Ocean Counties.) Based on 1990 Census data and using the 1994 definition of the East Central Housing Region, the average income for households in the three county Region was \$49,862. This was calculated by multiplying the mean household income times the number of households for each county in the region and dividing that total by the total number of households in the region.

Moderate income households are defined by COAH as households earning between 50 percent and 80 percent of the median household income level in the region. In 1994, "moderate" household income in the East Central Housing Region ranged from \$24,931 to \$39,890 for a four person household based on 1990 Census data. Low income households are defined by COAH as households earning 50 percent or less of the median household income within the Housing Region. Low income households in the 1994 East Central Housing Region earned \$24,931 or less based on 1990 Census data.

Rental housing affordable to low and moderate income households in 1990 can be extrapolated from the 1990 Census data assuming renter households spend a maximum of 30 percent of their income for rent based on COAH regulations. Approximately 56 units or 62 percent of the renter occupied units in Millstone were affordable to low income households in the 1994 East Central Housing Region and, approximately 81 units or 90 percent of the renter occupied units in Millstone were affordable to moderate income households in the 1994 East Central Housing Region.

Owner occupied housing units which were affordable to low and moderate income households in 1990 can be extrapolated from the 1990 Census data based on assumptions by COAH that owner occupied affordable income households should spend a maximum of 28 percent of their income for housing costs. COAH regulations require that the initial price of a low and moderate income owner-occupied single family housing unit be established so that after a down payment of five (5) percent, the monthly principal, interest, homeowner insurance, private mortgage insurance, property taxes (based on the restricted value of low and moderate income units) and

condominium or homeowner fees (if applicable) do not exceed 28 percent of the eligible gross monthly income. Based on these assumptions, approximately 20 units or 1.5 percent of the owner occupied housing units in Millstone Township were affordable to low income households in 1990. Based on COAH regulations 54 units or 3.4 percent of the owner occupied units in Millstone were affordable to moderate income households in 1990.

#### Housing Construction: 1980 - 1999

Table IX-2, "Residential Construction and Demolition Permits - Millstone Township", lists the number of building permits and demolition permits reported to the New Jersey Department of Labor annually from 1980 to 1999.

A review of building and demolition permits from 1980 through 1999 indicates that a total of 1,739 building permits were authorized and 30 demolition permits were authorized for a net gain of 1,709 units. The peak construction year for this period was 1991 when 151 building permits were authorized. In the same year, three demolition permits were authorized resulting in a net gain of 148 units. In 1995, only 28 construction permits were issued for new units but the number of permits increased to 123 in 1996, 126 in 1997, 68 in 1998 and 118 in 1999. Between 1980 and 1989 there was a net increase of 637 new dwelling units. Between 1990 and 1999 there was a net increase of 1,072 new housing units. Based on construction permit data, there has been a decrease in the number of new housing units in the past five years. The number of new housing units from 1990 to 1994 totaled 609 while 463 new units were issued construction permits from 1995 to 1999.

#### Projections of Housing Stock 1999-2006

The total number of year-round housing units in Millstone Township increased 41 percent between 1980 and 1990, from 1,215 units in 1980 to 1,709 units in 1990. Regression analysis based upon historical growth trends from 1980 to 1999 would indicate continued growth in the Township housing stock ranging from 89 to 122 new units per year using 1980-1999, 1984-1999 and 1988-1999 housing regression trends (see Table IX-3, "Housing Stock Projections" - 2006). Since 1995, however, there has been a decline in the number of construction permits issued compared to the first half of the decade. Based on the 1995 - 1999 trend of housing units, new housing construction in Millstone Township would continue to decline in the future.

Actual housing construction is dependent on a variety of factors over which the Township has little control including financing, marketing and builder timing. Higher interest rates have a direct negative impact on new housing construction in rural/suburban areas such as Millstone Township.



**TABLE IX-2**  
**Residential Constuction and Building Permits (1980-1999)**

<b>Year</b>	<b>Construction Permits</b>	<b>Demolition Permits</b>	<b>Net Change</b>
1980	29	0	29
1981	18	2	16
1982	20	1	19
1983	36	0	36
1984	47	0	47
1985	87	1	86
1986	109	4	105
1987	96	2	94
1988	106	4	102
1989	110	7	103
1990	103	2	101
1991	151	3	148
1992	131	4	127
1993	119	0	119
1994	114	0	114
1995	28	0	28
1996	123	0	123
1997	126	0	126
1998	68	0	68
1999*	118	0	118
<b>TOTAL</b>	<b>1,739</b>	<b>30</b>	<b>1,709</b>

\* Preliminary

SOURCE: New Jersey Department of Labor, Building Permit Sumaries.

COMPILED BY: T&M ASSOCIATES.

**TABLE IX-3**  
**Housing Stock Projections**

YEAR	TRENDS		
	1980-1999	1984-1999	1988-1999
1986	1,309	1,309	1,309
1987	1,403	1,403	1,403
1988	1,505	1,505	1,505
1989	1,608	1,608	1,608
1990	1,709	1,709	1,709
1991	1,857	1,857	1,857
1992	1,984	1,984	1,984
1993	2,073	2,094	2,106
1994	2,161	2,203	2,228
1995	2,250	2,313	2,350
1996	2,338	2,422	2,472
1997	2,427	2,532	2,593
1998	2,515	2,642	2,715
1999	2,604	2,751	2,837
2000	2,693	2,861	2,959

REGRESSION TRENDS	PROJECTED MEAN YEARLY CHANGE
1980-1999	88.6
1984-1999	109.6
1988-1999	121.9

SOURCES: Trends based upon New Jersey Department of Labor, Division of Planning & Research.  
Residential Building Permits Historical Summary 1970 - 1979  
Residential Building Permits: Yearly Summaries 1980 - 1993

COMPILED BY: T & M ASSOCIATES

## Demographic Characteristics

Table IX-4, "Demographic Characteristics- 1989 Millstone Township" presents total population by age cohort and income level by household.

### Population

Millstone Township had a total of 5,069 persons in 1990. Of this total, 405 persons or 8.0 percent were classified as pre-school age 0-4 years. School age children age 5-19 years accounted for 1,119 persons or 22.1 percent of the total. Working age 20-64 year old persons accounted for 3,083 persons or 60.8 percent of the Township population. Seniors aged 65 and older accounted for 462 persons or 9.1 percent of the Township population.

### Income Level

Per capita income within the Township in 1989 was \$19,812 while the median household income was \$56,655. A total of 267 households reported income of less than \$25,000, or 17.4 percent of the households. A total of 141 households reported income between \$25,000 and \$34,999 or 9.2 percent of the households. A total of 227 households reported incomes between \$35,000 and \$49,999, a total of 408 households reported incomes between \$50,000 and \$74,999 or 26.5 percent. A total of 252 households reported incomes of \$75,000- \$99,999. A total of 162 households reported incomes of between \$100,000 and \$149,999 and 80 households reported incomes of \$150,000 or more.

### Existing and Future Employment Characteristics

Characteristics of the Millstone Townships labor force are presented in Table IX-5, "Employment Characteristics - 1990 Millstone Township." In 1990, the Census recorded that 35.7 percent of the 2,590 jobs held by residents of Millstone Township were classified as managerial/professional, 31.8 percent as administrative, technical or sales, 10.3 percent as service, 2.5 percent as farming, forestry, fishing, 11.3 percent as production/craft/repair, and the remaining 8.4 percent as operator/fabricator/laborer.

Employment projections prepared by the Monmouth County Planning Board show an increase of 431 jobs in Millstone Township between 1988 and 2010 (Table IX-5, "Employment Characteristics - 1990 Millstone Township").

TABLE IX-4  
DEMOGRAPHIC CHARACTERISTICS (1989)  
TOWNSHIP OF MILLSTONE

POPULATION AGE	Number	Percent of Total
Preschool (0 - 4 Yrs.)	405	8.0%
School Age (5 - 19 Yrs.)	1119	22.1%
Working Age (20 - 64 Yrs.)	3083	60.8%
Seniors 65 +	462	9.1%
Total	5069	100.0%

SOURCE: U.S Bureau of Census as compiled by Monmouth County Demographic & Economic Profile Vol. I  
COMPILED BY: T & M ASSOCIATES

HOUSEHOLD INCOME	Number	Percent of Total
Less than \$5,000	32	2.1%
\$5,000 - \$9,999	36	2.3%
\$10,000 - \$14,999	38	2.5%
\$15,000 - \$24,999	161	10.5%
\$25,000 - \$34,999	141	9.2%
\$35,000 - \$49,999	227	14.8%
\$50,000 - \$74,999	408	26.5%
\$75,000 - \$99,999	252	16.4%
\$100,000 - \$149,999	162	10.5%
\$150,000 or more	80	5.2%
Total	1537	100.0%

Median household income = \$56,655

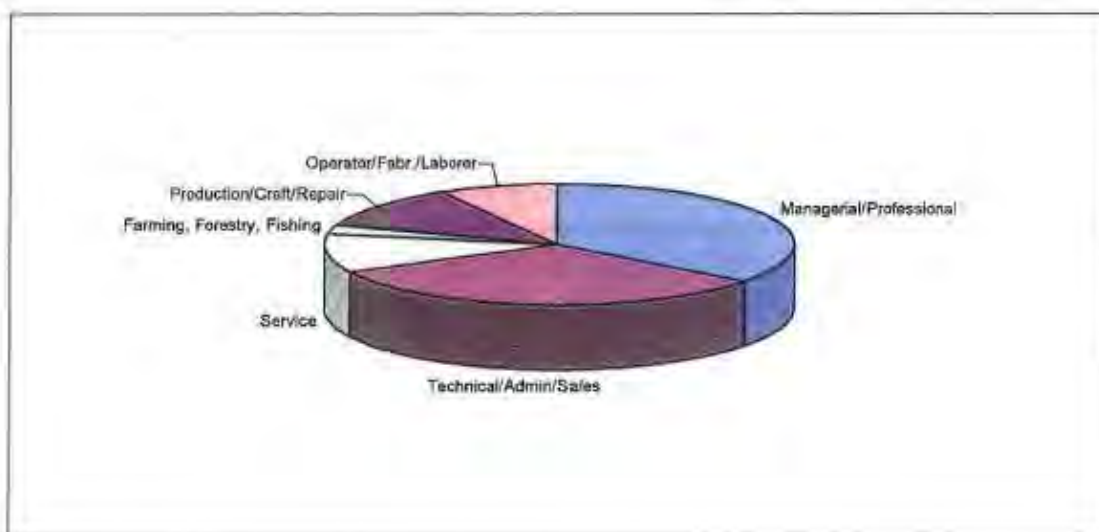
Per capita income = \$19,812

SOURCE: U.S Bureau of Census 1990 Summary Tape File 3A.  
COMPILED BY: T & M ASSOCIATES

TABLE IX-5  
EMPLOYMENT CHARACTERISTICS (1990)

Occupation	Number	Percent of Total
Managerial/Professional	924	35.7%
Technical/Admin/Sales	824	31.8%
Service	266	10.3%
Farming, Forestry, Fishing	65	2.5%
Production/Craft/Repair	293	11.3%
Operator/Fabr./Laborer	218	8.4%
<b>TOTAL</b>	<b>2,590</b>	<b>100.0%</b>

SOURCE: U.S Bureau of Census as compiled in Demographic and Economic Profile Volume II.  
COMPILED BY: T & M ASSOCIATES



NUMBER OF REPORTED AND PROJECTED JOBS IN MILLSTONE		
Year		Number
1988		768
(Projected) 2010		1,199

SOURCE: Monmouth County At-Place Employment Monmouth County Municipalities, June 1990  
COMPILED BY: T & M ASSOCIATES

### Determination of Pre-Credited Present and Prospective Fair Share Need

Millstone Township was allocated a fair share housing calculated need of 93 low- and moderate-income housing units as calculated by the New Jersey Council on Affordable Housing and presented in a report entitled "Municipal Number Summary - 1993 - 1999 Low- and Moderate-Income Housing Needs Estimates by County" dated October 11, 1993. The methodology established by the New Jersey Council on Affordable Housing allocates present and prospective housing needs for all municipalities within New Jersey.

The COAH methodology established a present fair share need of 25 low and moderate-income housing units and a prospective need of 65 units for a total need of 90 units for the period of 1993 - 1999 for Millstone Township. In addition to this, COAH allocated a "prior cycle prospective need" of 7 units.

The total fair share need (total need and prior cycle prospective need) was calculated as 97 units minus 4 filtered down units, minus 0 conversion units, minus 2 spontaneous rehabilitation units, plus 8 units which were demolished to yield a pre-credited need of 99 units. A reduction of six units to the precredited need was calculated by the Council on Affordable Housing for efforts by the Township between 1987-1993. This resulted in a calculated need of 93 units (See Table IX-6, "Present and Prospective Fair Share Need for Low And Moderate Income Housing").

### Housing Policy

Millstone Township encourages development of housing that will be compatible with existing residential neighborhoods, with environmental resources and constraints, with the availability of infrastructure, and with the need to maintain adequate levels of public services. The Township will satisfy its constitutional obligation to create realistic opportunities for the provision of its fair share of the region's low- and moderate-income housing needs within the guidelines and regulations established by the New Jersey Council on Affordable Housing. Housing development in Millstone Township occurs entirely within rural areas and is projected to continue to be developed as rural, single family detached residential units at densities consistent with the State Development and Redevelopment Plan for Planning Area 4, Rural Environmentally Sensitive. The Township encourages the development of group homes and senior citizen development where septic systems can meet NJDEP and Township Health standards. To address the cumulative affordable housing obligation for the period 1987 - 1999, Millstone Township has established a compliance plan that identifies the various housing obligation requirements established by COAH and how the Township will address these requirements.



## Compliance Plan

The Millstone Township Affordable Housing Compliance Plan consists of two basic components: a rehabilitation component and an inclusionary component. The rehabilitation component is designed to address that portion of the affordable housing obligation referred to by COAH as "indigenous need". The inclusionary component constitutes that portion of the affordable housing obligation needed to address the "present" and "prospective need" established by COAH.

The Millstone Township compliance plan is a twelve-year cumulative plan for the Township Cycle I and II affordable housing obligations for 1987-1993 and 1993- 1999. The rehabilitation component has been determined by COAH based upon the 1990 U.S. Census and thus comprises rehabilitation needs from 1990 to 1999. The inclusionary component constitutes the allocated affordable housing obligation based upon regional and state affordable housing needs for the twelve year period of 1987-1999. These two components of the Township Affordable Housing Compliance Plan are described below.

Rehabilitation Component. The "rehabilitation component" of the Millstone Township Housing Plan Element is based upon the COAH calculation for indigenous need that constitutes the Township's obligation to rehabilitate 18 housing units within the Township that were determined to be substandard based upon statistical data from the 1990 Census and were occupied by low and moderate income households in 1990. The Township will address its rehabilitation component through an ongoing intergovernmental agreement with the Monmouth County Department of Community Development to rehabilitate substandard housing units in the Township that are occupied by low and moderate income households. Since April 1990, one housing unit has been rehabilitated in Millstone Township leaving a net rehabilitation obligation of 17 indigenous need housing units to be addressed as part of this Housing Plan.

COAH regulations provide that the Township is responsible for funding the rehabilitation of the 17 remaining indigenous need housing units. COAH regulations require that the Township fund an average rehabilitation cost of \$10,000 per unit of which an average of \$8,000 must be utilized for actual construction costs and up to \$2,000 can be utilized for administrative costs. Millstone Township would be responsible for up to \$170,000 for rehabilitation costs for the indigenous need units. The Township is responsible for providing an affirmative marketing program to advise Township residents who may be eligible and who are interested in the rehabilitation program that Monmouth County is administers the program for the Township. The Township has provided application forms and announcements of the program in the Township Newsletter that is

distributed to Township resident and available at Township facilities. The Township will continue to do so in the future.

Inclusionary Component. The "inclusionary component" is comprised of present reallocated and projected affordable housing needs within the Monmouth, Mercer and Ocean Counties Housing Region allocated to Millstone Township by COAH for the period 1987-1999. The inclusionary component totals 81 low- and moderate-income housing units. COAH regulations provide a variety of ways that this housing obligation can be met. COAH also establishes minimum and maximum requirements for addressing the inclusionary housing obligation as follows:

- COAH regulations permit up to 50 percent of the inclusionary component to be transferred to qualified municipalities within the Monmouth, Mercer, and Ocean Counties Housing Region through a process referred to by COAH as a Regional Contribution Agreement (RCA).
- COAH regulations require that 25 percent of the inclusionary component be developed or zoned for rental housing.
- COAH regulations limit the percentage of age restricted (senior) housing to twenty-five (25) percent of new construction affordable housing units within the Township.

Application of these regulations to the Millstone Township inclusionary housing obligation and component are provided in Table 8, Fair Share Plan Calculations 1987-1999, and described below.

Regional Contribution Agreement (RCA) Housing Unit Credits. Millstone Township proposes to utilize the RCA option for addressing a portion of its inclusionary obligation. Under the COAH RCA program, Millstone Township can enter into an agreement with an approved "receiving community" where Millstone Township would fund the rehabilitation of substandard housing units in the "receiving community" and credit would be given to Millstone Township against its affordable housing obligation. Millstone Township proposes to address 50 percent of its affordable housing obligation through a Regional Contribution Agreement. Application of the COAH regulations provide that 50 percent of the COAH precredited need of 99 housing units minus one rehabilitation unit completed after 1990 or 98 units would permit Millstone Township to enter into a regional contribution agreement with a receiving community for 49 RCA affordable housing units. Millstone Township proposes to enter into a regional contribution agreement with the City of Trenton or other eligible municipalities within the Housing Region to rehabilitate 49 substandard

housing units. Millstone Township will fund the RCA rehabilitation program at an annual adjusted rate beginning at \$22,000 per unit for 12 units in 2000, \$22,000 per unit for 10 units in 2001, \$23,000 for 10 units in 2002, \$24,000 per unit for 10 units in 2003 and \$25,000 units for 7 units in 2004. This produces an average rate of \$23,000 per affordable housing unit over a five-year period.

COAH regulations provide that 25 percent of the inclusionary component of 81 housing units in Millstone Township must be developed or zoned for rental units. The rental obligation for Millstone Township is 20 units. A portion of this obligation was addressed with the development of the Indian Path Associates group home consisting of six bedrooms. COAH permits one rental credit for each bedroom in a group home. The Indian Path Associates group home six bedrooms provides the Township with six rental unit credits. The remaining obligation of 14 rental units will be included as a component of the Township affordable housing compliance plan. A portion of this obligation may be addressed through the RCA program with the City of Trenton or other eligible municipalities when the receiving municipality implements "gut rehabilitation" of a rental housing unit in the community.

COAH regulations provide that not more than 25 percent of the inclusionary housing units constructed or proposed to be constructed within the Township to address its affordable housing obligation can be age restricted (senior) housing. COAH regulations provide that the proposed 49 RCA housing units are to be deducted from the 81 unit affordable housing unit obligation to determine the 25 percent maximum of age restricted units. Based on this requirement, the 81 unit inclusionary obligation would be reduced by 49 RCA units leaving a total of 32 units as the remaining inclusionary obligation for Millstone Township. Twenty-five percent or eight of the 32 units can be age restricted. COAH regulations provide that age restricted rental housing units can be granted a rental bonus credit of one-third unit per each age restricted rental housing unit.

The Millstone Township obligation for inclusionary housing obligation for the period 1987-1999 is 81 low- and moderate-income housing units. A portion of this obligation has been addressed through construction of the Indian Path Associates group home. The group home consists of six bedrooms that produce six housing credits. In addition, the six units are eligible for six rental bonus credits. The 12 housing credits and rental bonus credits would be deducted from the 32-unit, non-RCA obligation resulting in a net inclusionary component of 20 new construction low- and moderate-income housing units. COAH regulations require that 14 of the 20 new construction units be rental units and that not more than four of the rental units be age restricted.

Compliance Plan Implementation Program. Implementation of the Millstone Township Compliance Plan consists of two components: 49 RCA's and 20 new construction inclusionary units.

Millstone Township will enter into a Regional Contribution Agreement to provide for the rehabilitation of 49 substandard housing units occupied by low- and moderate-income households. An agreement has been reviewed with the City of Trenton.

In terms of the new construction component of 20 affordable housing units Millstone Township has evaluated the Township in terms of areas that can realistically develop an inclusionary development with a 20 percent set-aside for sales units or a 15 percent set-aside for rental units in accordance with COAH regulations. To obtain 20 low- and moderate-income housing units with a 20 percent inclusionary sales project would result in a total development of 100 units ( $100 \times 20\% = 20$  L/M units).

A 15 percent inclusionary rental project would result in a development of 67 low- and moderate-income housing units since rental housing units (non-age restricted) would also generate an equal number of rental bonus credits. To generate credit for 20 rental affordable housing units under COAH regulations would require construction of 10 affordable rental units eligible for 10 rental bonus credits. At a 15 percent set-aside for new construction and a one-to-one 15 percent rental bonus credit would require a total development of 67 housing units. A total of 67 housing units times 30 percent (15 percent units plus 15 rental bonus credits) would equal the 20 affordable housing unit inclusionary component.

COAH regulations provide that an inclusionary development in a community that is entirely within a State Plan designation of Planning Area 4B, Rural/Environmental, the municipality should locate the inclusionary development in a "center". There are no "centers" designated in Millstone Township. The Township, therefore, evaluated where an inclusionary development could most realistically be developed at this point in time in accordance with N.J.A.C. 5:93-5.4 at the densities established by COAH for inclusionary developments.

COAH regulations provide that a multi-family rental apartment project should have a development density of ten (10) units per acre; in multi-family attached sales development project at six (6) dwelling units per acre; and a single-family detached dwelling development at four (4) dwelling units per acre. These densities would require the establishment of a sanitary sewerage system. Due to the small streams within the Township (Millstone Township is at the

headwaters of seven rivers), sanitary sewerage can best be provided by an existing sanitary sewerage system in one of the adjacent municipalities. Based on developability of land, proximity to an existing sanitary system and proximity to existing shopping, medical, and other services, the most realistic development area within Millstone Township would be the Bergen Mills area located along Route 33 at the Monroe Township border. This area is in close proximity to the Monroe Township, which has sanitary sewer trunk lines within one mile of the Township border. The Bergen Mills area is also in close proximity to shopping facilities and other services in East Windsor Township and the Borough of Hightstown.

Extension of sanitary sewer services from the Township of Monroe would require an amendment to the Millstone Township and Monroe Township 208, Water Quality Management Plans. The sanitary sewer extension would also require that the development site be designated as a "center" in accordance with COAH regulation N.J.A.C. 5:93-5.4 (c) that states, in part, "In Planning Areas 4 or 5, as designated in the SDRP [State Development and Redevelopment Plan], the Council [COAH] shall require inclusionary development to be located in centers."

The amount of land that would be required to develop an inclusionary affordable housing development would depend upon the type of development proposed. An apartment rental project requiring 67 dwelling units could be developed on a site of approximately seven acres. An attached single family (townhouse) development at six dwelling units per acre would require approximately 17 acres. A single family detached development at four dwelling units per acre would require approximately 35 acres.

Due to the lack of water and sanitary sewage service in the Township, the Township petitioned COAH for a waiver of the municipal low- and moderate-income housing obligation in accordance with N.J.A.C 5:93-4.5. Waivers, for the period 1987-1993. The Millstone Township 208 Water Quality Plan provides that development in the Township will be on individual on-site septic systems for 10 years or more. In addition, the entire Township is located within Planning Area 48, Environmentally Sensitive Rural, on the New Jersey State Development and Redevelopment Plan Development. Inclusionary development within the Township, therefore, was not feasible during the period of 1993-1999.

Millstone Township received Substantive Certification of its Housing Plan for the period 1987-1993. As part of the Substantive Certification, the Township was approved to collect development fees for affordable housing. Millstone Township will apply for approval to continue to collect development fees in order to fund its Rehabilitation Program which consists of 18 units, one of

which was completed prior to the adoption of this Housing Plan and a Regional Contribution Agreement for 49 housing units. A Spending Plan will be submitted in compliance with N.J.A.C. 5:93-8.1 to provide for the collection and spending of development fees to address the indigenous need rehabilitation component of the Township Fair Share Plan.

**Table IX-6  
Present and Prospective Fair Share Need  
Millstone Township**

<b>I. TOTAL 1987 - 1999 PRECREDITED NEED = 99 UNITS</b>			
(Per COAH Allocation Formula - June 6, 1994)			
A. Inclusionary Component (81)			
B. Rehabilitation Component - Post-1990 Calculations by COAH = 18 units			
		<b>Inclusionary</b>	<b>Rehabilitation Component</b>
		81	N/A
		N/A	18
<b>II. REHABILITATION COMPONENT</b>			
A. Indigenous Need (20) - Spontaneous Rehab. (2) = Rehab. Comp. (18)			
B. Rehabilitation Units Completed After 4/1/90 Census through 1/25/00			
		N/A	18
	1	N/A	17
<b>III. INCLUSIONARY COMPONENT - REDUCTIONS</b>			
A. PRIOR-CYCLE CREDITS - (N.J.A.C 5:93-3.2)			
1. Units Created Between 4/1/80 and 12/15/86			
	0	81	N/A
B. CREDITS-Units Created After 12/15/86 (N.J.A.C 5:93-3.3)			
1. Regional Contribution Agreement Units			
	0	81	N/A
2. Alternative Living Arrangements Indian Path Associates			
	6	75	N/A
C. RETROACTIVE RENTAL BONUSES (N.J.A.C. 5:93-5.14(d))			
1. Indian Path Associates			
	6	69	N/A
<b>IV. CALCULATED NEED 1996 - 1999</b>			
		69	17
<b>V. 1996 - 1999 COMPLIANCE PLAN</b>			
A. INCLUSIONARY COMPONENT (Line IV)			
1. RCA - Maximum Permitted per COAH Regulations			
Total Obligation after RCA's = 20 Affordable Housing Units			
	49	20	
2. Rental Obligation per COAH = 8 Affordable Units Affordable Housing Overlay Zone (8 Rental Units)			
		8	
3. Rental Bonus Credits (Maximum Rental Bonus Credits based on Total Rental Obligation 14 Rental Units) Affordable Housing Overlay Zone - 8 Bonus Rental Credits			
		8	
4. Net Affordable Housing Obligation (1) Surplus of 4 credits will be applied to Cycle III Obligation			
		4	(1)
B. REHABILITATION COMPONENT (Lines II. A and B)			
		N/A	17



**Table IX-6**  
**Present and Prospective Fair Share Need**  
**Millstone Township**  
(continued)

<b>I. REGIONAL CONTRIBUTION AGREEMENTS (RCA's): 1987 - 1999 (N.J.A.C. 5:93-6.1(a))</b>	
A. Precredited Need	99
B. Prior Cycle Credits	0
C. Rehabilitation Credits After 1990	1
D. RCA Base (Line A - B - C)	98
E. RCA Base x (0.5) (Line D x 0.5)	49
F. Units previously approved by RCA agreements	0
G. MAXIMUM REMAINING RCA's (1987-1999) (Line III.F minus Line III.E)	49
<b>II. RENTAL OBLIGATION: 1987 - 1999 (N.J.A.C. 5:93-5.14)</b>	
A. Calculated Need (81 Inclusionary and 17 Rehabilitation Units)	99
B. Prior Cycle Credits	0
C. Rehabilitation Component	18
D. Rental Base (1987-1999)	81
E. Rental Obligation = (Line D) x 0.25	20
F. Rental Obligation Addressed (1987 - 1999)	6
1. Existing Rental Housing Units: Indian Path Associates (6 Bedroom)	
G. RENTAL OBLIGATION REMAINING (1994-2001) (Line III.F - Line III.G)	14
<b>III. SENIOR MAXIMUM: 1987 - 1999 (N.J.A.C. 5:93 - 5.13 a &amp; b)</b>	
A. Precredited Need (99) - Rehabilitation Units after 1990 (18)	
- RCA Units (49) X 0.25 = 8 Senior Citizen Units	8

## CIRCULATION PLAN ELEMENT

The Millstone Township Circulation Plan Element describes the existing and proposed transportation modes available within or near the Township. The major transportation component in Millstone is the roadway system which consists of Interstate, state and municipal roads. The Township does not contain any railroads, airports or public bus routes, but all are available within the region.

### Classification of Roadways

Millstone's roadways are classified in accordance with the Uniform Functional Classification of Streets established by the United States Department of Transportation, Federal Highway Administration in conjunction with the New Jersey Department of Transportation. Under this system, roadways are classified according to the primary functions they perform. This Circulation Plan identifies the classification, location and jurisdiction of roadways within the Township. Map 15 "Circulation Plan," depicts these roadway elements.

### Freeways or Expressways

Freeways or expressways are designed for high-speed, high-capacity regional traffic. These types of roads provide for uninterrupted movement of vehicles and have no direct access to adjacent properties.

The separation of opposing traffic lanes by a continuous center barrier or median strip and full access control and grade separation at intersections or interchanges which are generally wide spaces are the prominent design features of freeways or expressways. The ability to carry multiple lanes of traffic in each direction and the capacity to provide for the traffic of approximately 1,000 to 1,500 vehicles per lane per hour are other characteristics of freeways or expressways. These roads usually have rights-of-way widths in excess of one hundred fifty feet (150'). In Millstone, I-195 runs in an east/west direction in the southern portion of the Township. Interstate Route 195 is the only freeway or expressway located in the Township.

### Arterial Streets

Arterial streets serve as major feeder roads to and from freeway systems and carry major movements of traffic between the principal traffic generators in the region. In rural areas, where the freeway system is incomplete and/or not extensive, arterial streets act as major carriers for regional traffic flows. These streets also connect the collector streets. Intersected at grades,

utilization of timed traffic signals, jughandle intersections, center barriers, and lane markings which facilitate traffic flow are characteristics of arterial streets. Arterial streets usually have four or more traffic lanes and provide direct access to adjacent properties.

Arterial streets are designed for high speed travel and are considered to represent major public resources. Trips on arterial streets are usually long in distance. Mobility is a primary function and access is a secondary function for these types of streets. Arterial streets account for a significant percentage of total vehicle miles traveled (often over 50%). Trips on arterial streets go in, out, or through Millstone.

Arterial streets in the Township and their jurisdiction include the following:

<u>Road Name</u>	<u>Jurisdiction</u>
Route 33	New Jersey
Route 537	County
Route 1	County
Route 524	County
Route 527A	County
Route 527	County
Route 571	County
Route 526	County

#### Collector Streets

Collector streets provide access between local streets and arterial streets. These streets also provide access to adjacent properties and carry traffic from residential neighborhoods to arterial streets. Collector streets are made up of major and minor collector streets. These streets are characterized by relatively high traffic volumes at moderate travel speeds.

*Major Collector Streets*

Major collector streets connect high traffic volume local streets to the arterial streets. The major collector streets in Millstone and their jurisdiction include the following:

<u>Road Name</u>	<u>Jurisdiction</u>
Baird Road	Township
Clarksburg Road	Township
Millstone Road	Township
Bergen Mills Road	Township
Battleground Road	Township
Prodelin Way	Township
Stillhouse Road (Stagecoach to Baird Road)	Township

*Local Collector Streets*

Local collector streets connect low traffic volume local streets to the major collector or arterial streets. These streets serve the principal function of collecting traffic from residential neighborhoods and feeding it to streets of higher classifications. In many instances, local collector streets also provide access to adjoining properties. Local collector streets are not included within the Uniform Functional Classification of Streets.

Local collector streets in Millstone, all of which are under Township jurisdiction, include: Agress Road, Bitner Road, Witch's Hollow Road, Brookside Road, Halka Way, Nurko Road, Paint Island Spring Road and Stillhouse Road from Carrs Tavern Road to Stagecoach Road.

Local Streets

Providing access to abutting properties is the primary function of local streets. Local streets also serve as easements for various public utilities and provide light and air to adjacent buildings. Local streets carry low traffic volumes and are characterized by low travel speeds. Trips are primarily within the origin or destination of the specific roadway. Local streets include all other roadways not previously defined as Expressways, Arterials or Collectors.

Map 15. Roadway Classification Map



<p>Millstone Township Master Plan 2017</p> <p><b>Rodway Classification</b></p> <p>Heyer, Gruel &amp; Associates</p>	<p><b>Interstate</b> I-195</p> <p><b>Major Collectors</b> Baird Rd, Bergen Mills Rd, Clarksburg Rd, Millstone Rd, Battleground Rd, Prodelin Way, Stillhouse Rd (portion)</p>	<p><b>Arterials</b> State Hwy 33, County Roads 1, 524, 526, 527, 527A, 537, 571</p> <p><b>Minor Collectors</b> Agress Rd, Bitner Rd, Brookside Rd, Carrs Tavern Rd, Halka Way, Nurko Rd, Witch's Hollow Rd, Stillhouse Rd (portion)</p>	<p>0 0.5 1 2 Miles</p> <p>Sources: Boundaries from NJDEP (2013). Roads from NJDOT 2005. Parcels NJGIN.</p> <p>Map produced 9/21/17. S/Millstone/Master Plan Update 2016/circulation/roadway class</p>
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County Roadways

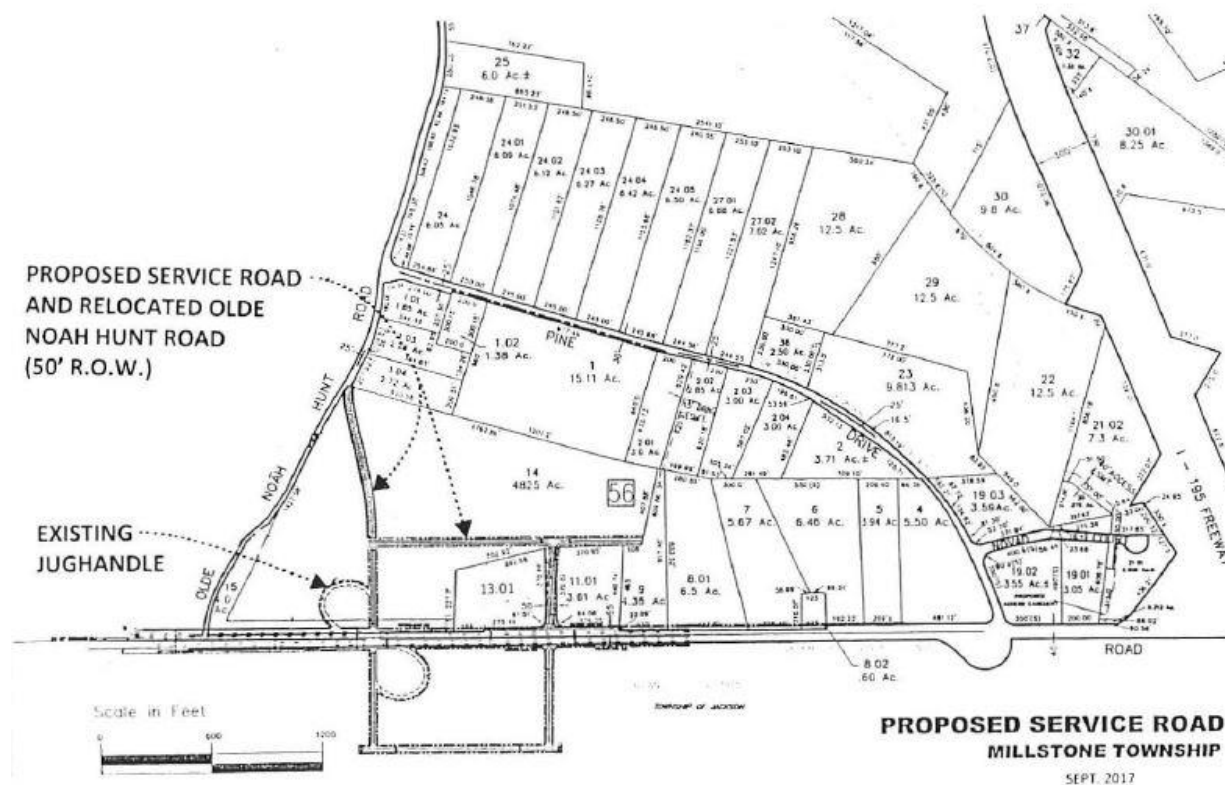
Since the last Master Plan was prepared in 2002, the County completed the planned improvements at the Route 526, 537 & 571 intersection, and the improvements at the Route 1 and Route 527-A intersection. The future desired right-of-way width for all county roadways in Millstone Township is 80 feet.

Going forward, the County has designed a "Roundabout" at the intersection of Route 524, Route 571, Millstone Road, and Paint Island Spring Road (Scooter's Corner), with construction is slated for 2019. The County is studying the intersection of Route 524 and 537 for possible re-alignment. The continued commercial development and increase in traffic volumes along County Route 537, between Pine Drive and the Great Adventure entrance, has made ingress and egress more difficult to control and manage safely with conventional driveway designs.

In order to improve circulation and safety, a service road is planned to parallel Route 537 east of Olde Noah Hunt Road. The service road would be set back a distance of approximately 450 feet (right-of-way) from Route 537. The service road would have a right-of-way of 50 feet and a paved roadway of 36 feet. Property owners that have access to the proposed service road would be required to provide a fair share contribution to the construction of the service road. The owners would also be required to provide the dedicated right-of-way for the service road. The Township and the County are also proposing to re-align the dead end Olde North Hunt Road to connect to existing jug handle. (See Figure 5 below).



FIGURE 5. Proposed Service Road Layout



### Public Transportation

There are no bus, railway or airport facilities in the Township. Regional bus facilities are located in Freehold Township. Regional airports include the Trenton-Robbinsville Airport in Washington Township (Mercer County), Old Bridge Airport in Old Bridge (Middlesex County) and Allaire Airport in Wall Township (Monmouth County).

### Highway Access Management Code

In 1989, the New Jersey Municipal Land Use Law was amended by the State Highway Access Management Act. The Act authorizes the NJDOT, county, and municipalities, to adopt access management codes. Where such codes have been adopted, no permits for construction of a building or structure can be issued unless the proposed access conforms to the adopted codes of the entity with jurisdiction over the road. NJDOT prepared an access code for state highways in 1992. Municipal zoning ordinances are required to regulate land adjacent to state and county

roads in conformity with the access management code. Access management techniques include the following requirements:

1. Minimum spacing of driveways.
2. Minimum corner clearance.
3. Minimum property clearance.
4. Regulation of the number of driveways per property frontage.
5. Consolidation of access for adjoining properties.
6. Consolidation of access for parcels assembled for one purpose, plan, entity, or usage.
7. Designation of the number of driveways permitted to each existing property and denial of additional driveways regardless of future subdivision.
8. Minimum sight distance.
9. Encouraging connections between adjacent property.
10. Adequate internal design and circulation.

Route 33 is the only roadway affected by the Highway Access Management Code in Millstone. Based on the Highway Code, it is recommended that the portion of Route 33 through Millstone Township have access spacing of 330 feet between access points (which does not include single family lots). The desired typical section for the roadway is 6 lanes, divided with shoulders or parking.

In 2007 and 2016, Millstone Township Planning Board approved a commercial major subdivision (Riverside Center) on the north side of Route 33 between Millstone Road and Prodelin Way. This subdivision will access Route 33 with a new public road (DeBaun Road) approximately halfway between Millstone Road and Prodelin Way.

In reviewing this access point with NJDOT, it was decided in order to meet the intent and purpose of the NJDOT Highway Access Management Code and the Township Planned Commercial Development (PDC) Zone requirements, any development of the large parcels of property located between Millstone Road and Prodelin Way on the south side of Route 33 should have limited access and be located directly south of the proposed DeBaun Road intersection. A service road running parallel to Route 33 will be required to connect the properties and allow for proposed DeBaun Road intersection.

### Pavement Management Plan

Periodically, the Township reviews the condition of its infrastructure to determine need and priority for maintenance, repairs, and construction. The Township in 2002 compiled a comprehensive report and recommendations for the improvement of the Township roads. The Engineering Department prepared 16 detailed budgets for 14 different road sections. These roads were considered to be in greatest need of improvement due to structural or geometrical concerns.

The Engineering Department measured the length and width of every Township road and created an inventory. An evaluation of the roadway conditions was made to ascertain the need for repairs or reconstruction. Roadway geometry was considered and evaluations were made with regard to sight distance, slope, radius of curvature, and intersection arrangement. Private and paper streets were identified but not evaluated.

Since 2003, the Township has improved all roadways listed in Table 9 with the exception of Halka Way, Kimberly Court and a portion of Disbrow Hill Road. The Township will continue to monitor and improve roadways as required.

TALBE 9: Completed and Outstanding Roadway Improvements based on 2002 Inventory					
Street	From	To	Length / Width	Comments	Completed?
Baird Rd	Conover Rd	Water's Ln	450' / 19'	Alligatored / narrow road	Yes
	Water's Ln	Woodville Rd	3,200' / 20'	Alligatored / narrow road	Yes
Clarksburg Rd	Spring Rd	Cottrell Dr			Yes
	Cottrell Dr	Robbins Rd	1,030' / 27'	Alligatored	Yes
	Robbins Rd	Millstone Rd	3,350' / 28'	Alligatored / bad sight triangle	Yes
Disbrow Hill Rd	Battleground Rd	Perrine Circle	<b>2,420' / 17'</b>	Poor sight triangle	Partial
Ely Harmony Rd	CR 537	Coach Rd	1,710' / 20'	Alligatored / rutting / poor sight triangle / ponding	Yes
Gordon Rd	Nurko Rd	Gordon Rd	1,580' / 14'	Limited sight triangle	Yes
Halka Way	Equine Rd	Back Bone Hill Rd	<b>2,450' / 12'</b>	Not paved	No
Indian Path	Township Boundary	Dugans Grove Rd	3,650' / 18'	Poor sight triangle	Yes
Kimberly Ct	Millstone Rd	Cul-de-Sac	<b>680' / 30'</b>	Road closed	No
Millstone Rd	Clarksburg Rd	Oak Hill Dr	2,975' / 26'	Alligatored / rutting	Yes
	Oak Hill Dr	Stage Coach Rd	2,360' / 40'	Alligatored / rutting / joint failure	Yes
	Pinehill Rd	Sweetman's Ln	3,180' / 24'	Alligatored / rutting / joint failure	Yes
Parkside Way	Nurko Rd	Dead end	2,110' / 17'	Extension	Yes
Pinehill Rd	Millstone Rd	Holdman Pl	3,140' / 18'	Alligatored / poor sight triangle	Yes
	Holdman Pl	Stevensons Ave	615'		Yes
	Stevenson Ave	Stillhouse Rd	2,375' / 19'	Alligatored	Yes
Spring Rd	Trenton-Lakewood Rd	Carrs Tavern Rd	270' / 21'	Signage / replace inlets	Yes
	Carrs Tavern Rd	Reid Valley Rd	3,030' / 21'	Possibly increase crown	Yes

In 2003, an inventory was also made of the Township road pavement striping. As with the pavement inventory, an assessment was made of the condition of the striping, and the total lengths of each type of stripe was cataloged. Since 2003, the Township has completed the recommended pavement striping inventory listed under Table 10 and will continue to monitor and improve the pavement striping of the Township roadways.

TABLE 10: Completed Roadway Striping, 2003-2017		
Street	Description of Striping	Completed?
Agress Rd	2 lines center yellow	Yes
Back Bone Hill Rd	2 lines center yellow	Yes
	1 line center yellow	Yes
	White lines edge of pvmt	Yes
Baird Rd	2 lines center yellow	Yes
	1 line center yellow	Yes
Battleground Rd	2 lines center yellow	Yes
	1 line center yellow	Yes
Bergen Mills Rd	2 lines center yellow	
Bittner Rd	2 lines center yellow	
Brookside Rd	2 lines center yellow, Paint Island Spring to Squan Rd	Yes
Carrs Tavern Rd		Yes
	1 line center yellow	Yes
	White lines edge of pvmt, Deer Tail Dr to Paint Island	Yes
Charleston Springs Rd	2 lines center yellow, looks okay	Yes
Clarksburg Rd	2 lines center yellow	Yes
Conover Rd	2 lines center yellow, looks okay	Yes
	1 line center yellow, looks okay	Yes
Disbrow Hill Rd		Yes
Dugan's Grove	2 lines center yellow	Yes
	1 line center yellow	Yes
Fairplay	No striping on road	Yes
Forman Rd	2 lines center yellow	Yes

Indian Path Rd	2 lines center yellow	Yes
Millstone Rd	2 lines center yellow	Yes
	White lines edge of pvmt	Yes
Nurko Rd		
	White lines edge of pvmt	Yes
Olde Noah Hunt Rd	2 lines center yellow	Yes
	White lines edge of pvmt	Yes
Paint Island Spring Rd	2 lines center yellow, Millstone Rd to Brookside	Yes
	White lines edge of pvmt, Millstone Rd to Brookside	Yes
Parkside	2 lines center yellow	Yes
Pine	2 lines center yellow	Yes
	White lines edge of pvmt	Yes
Prodelin Way	2 lines center yellow	Yes
	1 line center yellow	Yes
	White lines edge of pvmt	Yes
Red Valley Rd	2 lines center yellow, Yellow Meeting to 526	Yes
Roberts Rd	2 lines center little fade	Yes
Stillhouse Rd		Yes
		Yes
Spring Rd	2 lines center yellow	Yes
Witches Hollow Rd	No striping on road	Yes
Yellow Meeting Housing Rd	2 lines center yellow	Yes
	1 line center yellow	Yes

### State Transportation Plan

In 1995, the New Jersey Department of Transportation issued the Statewide Long-Range Transportation Plan, Transportation Choices 2020. The plan found that, "Traffic congestion is a pervasive and growing problem." The plan further determined that, "The cost of traffic congestion is a serious economic concern. It includes millions of lost hours of productive time for employers, expensive delays in the delivery of goods and services, and degradation of life and environment in the state." The plan further found that congestion occurs not only at "rush hour" but that, "Significant congestion occurs at other times particularly near major shopping centers on



weekends." The State Transportation Plan recommended that local government use the zoning power to address congestion. It recommended that, "Communities should consider zoning to limit development adjacent to existing or new highway interchanges and discourage strip development along highways to preserve capacity for through traffic."

These recommendations are consistent with Township objectives to encourage coordinated commercial development, minimizing the access points along Route 33. A scenic corridor program can further support this effort by establishing buffers along roadways, and limiting access.

#### Township Scenic Roadway Corridor Program (SRCP)

The Township should initiate a SRCP to identify and delineate scenic roadway corridors throughout Millstone. The program should be modeled after and coordinated with the County scenic roadway program to promote Township-wide efforts to maintain the rural character of the Township, to protect environmentally sensitive lands, to preserve open space, to strengthen existing street tree and natural vegetation preservation efforts and to preserve and protect the remaining aesthetic character of area along public roadways to the greatest extent possible.

The specific purposes of the Township Scenic Roadway Corridor Program would be to:

- Protect and enhance scenic views and vistas.
- Maintain and enhance the rural character of Millstone Township.
- Protect environmentally sensitive lands along roadway corridors.
- Provide for linear aquifer recharge areas along existing and future roadways.
- Enhance water quality from roadway drainage.
- Maintain and enhance Township and regional air quality.
- Provide inter-linking wildlife habitat corridors in rural areas of the Township.
- Establish natural vegetation links between major open space areas of the Township.

The Monmouth County Scenic Roadway Corridor Plan defines a scenic roadway as follows:

*"A public thoroughfare for the passage of vehicles, persons, or animals which traverses through an ever-changing, aesthetically pleasing environment that consists of natural and man-made elements which stimulate the senses and leave a lasting impression on the mind. "*

Several County roads within Millstone Township were designated as scenic roadways in the County Plan:

Route 527A	Iron Ore Road; From Monmouth Road (537) to Dugan's Grove Road
Route 537	Monmouth Road; From Iron Ore Road (527A) to Millstone Road (571)
Route 524	Stage Coach Road; From Monmouth Road (537) to Upper Freehold Township Line.
Route 571	Rising Sun Tavern Road; From Stage Coach Road to Roosevelt Borough Line
Route 1	Perrineville Road; From Roosevelt Borough to East Windsor Township

The County Plan recognizes that after a roadway has been designated as scenic, it is important that measures be taken to ensure that these roadways maintain their high degree of visual quality. Without design guidelines, new development will continue to encroach upon the scenic roadway. The County, therefore, established a series of policies to assist the County and its municipalities in protecting and enhancing scenic roadways.

#### New Jersey Scenic Byways Program

The New Jersey Scenic Byways Program was established in 1995. The goal of the program is to preserve the view of the state's diverse landscape from the roadway. To be eligible for designation as a scenic byway, a route must have a minimum length of five miles with significant opportunities to observe waterways, skylines, mountain tops or ridges and other features of natural, historic or recreational interest.

#### Scenic Roadway Corridor Designation Process

Roadways in the Township vary greatly from narrow and winding rural byways to interstate highways. Based on the Federal and State Highway Classification System that divides the Township into "urban area" and "rural area", most roadways in Millstone Township are classified as "rural area" roadways. Many of the rural roadways were historical Indian paths and pre-Revolutionary roads.

Methodologies that are used to designate roadways vary widely, with the most appropriate evaluation criteria being based on the objectives for the program as well as local conditions. For example, in a regional or county program intended to include the large-scale scenic corridors throughout the region or county, criteria are typically quite stringent. It would include a ranking procedure that eliminated all but the most scenic corridors. At the municipal level, however, a scenic corridor program can be designed to protect remaining scenic areas and to link these areas with municipal street tree and roadway planting programs.

The Township Scenic Roadway Corridor Program should first establish the local definition of scenic roadway corridor. The Township should then establish criteria for local scenic roadway corridor

designation. Criteria for scenic roadway corridor designation may include prescribing a minimum length of roadway, evaluation of existing and proposed land uses including rural character, historic value, proximity to public lands, development potential, and aesthetic quality. The Township should initiate a study to identify local scenic corridors and to establish land use regulations to support the designation and preservation of scenic roadway corridors.

### Bikeways

The State of New Jersey has initiated the High Point to Cape May Bicycle Route to provide cyclists the opportunity to enjoy New Jersey's diverse landscape. The Route traverses the center of the state and will serve as a spine that will ultimately expand to a network of bicycle routes and trails reaching across the state to link local bike routes. The selected route is along roadways that connect major attractions and pleasant cycling environments such as the rural landscape provided by Millstone Township.

Approximately nine (9) miles of the Route will traverse Monmouth County. The proposed route will pass through Allentown with a possible spur crossing portions of Millstone Township to the proposed Monmouth Heritage and Henry Hudson Rail Trail. The High Point to Cape May Route enters Monmouth County just south of the Assunpink Wildlife Management Area. County Route 526 in Allentown and County Route 539 as well as local roads will provide for the bikeway through Monmouth County.

The Township should work with the State in identifying roads suitable for the expansion of the High Point to Cape May Bicycle Route to the Monmouth Heritage and Henry Hudson Rail Trail including local points of interest.

## Community Facilities Plan Element

The Community Facilities Plan Element of the Millstone Township Master Plan considers the municipal services and related facilities necessary to meet the safety, health, education and general welfare needs to present and future Township residents. Included in this are the provisions for schools, police, fire, first aid, municipal administration and health care. This Element considers existing facilities (shown graphically in Map 16), and then makes recommendations for the future development and investments.

### EXISTING COMMUNITY FACILITIES

#### Education

##### Schools

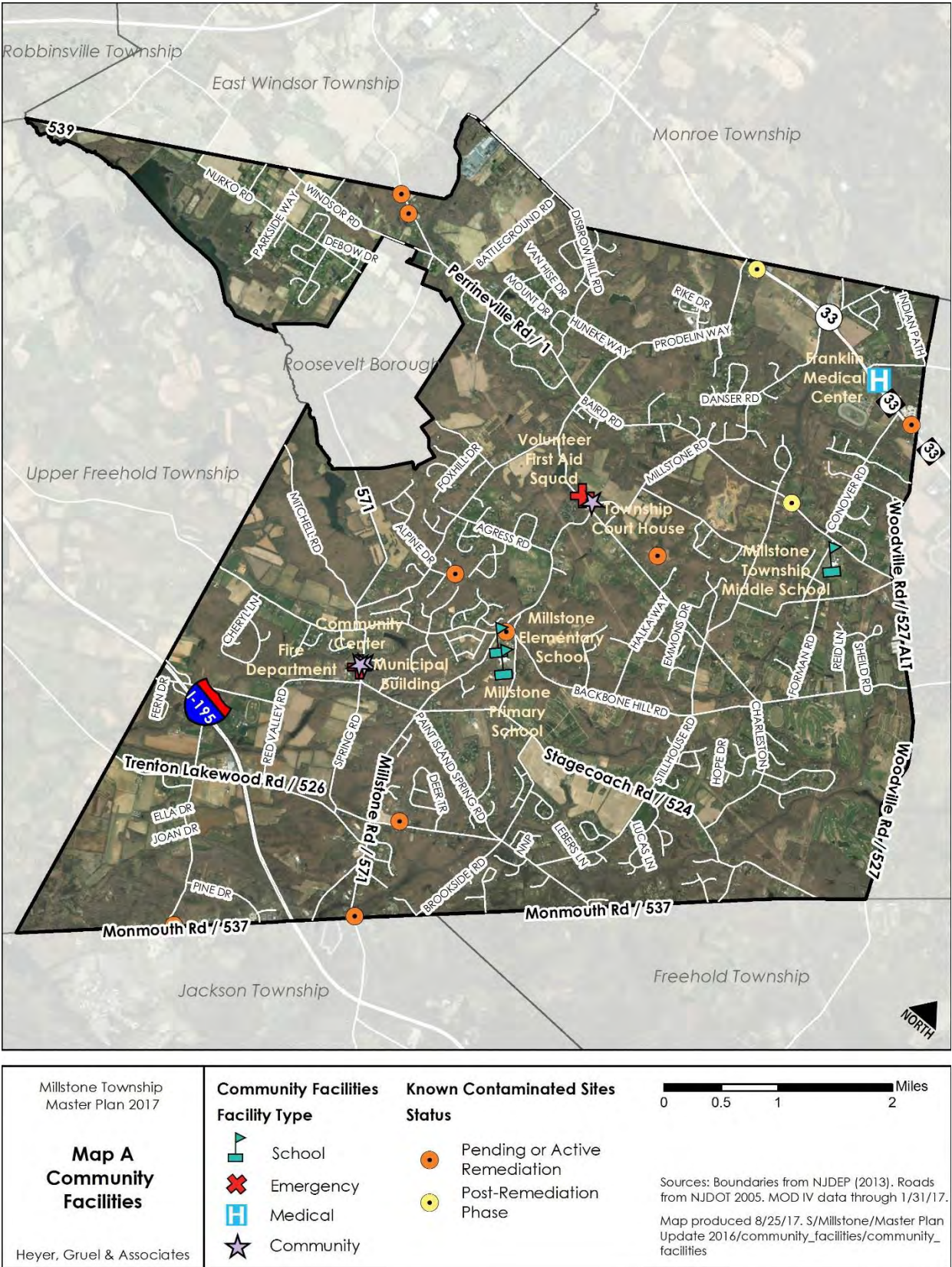
Millstone is home to three schools. They are the Millstone Township Primary School located on Schoolhouse Road; the Millstone Township Elementary School located at 308 Millstone Road; and the Millstone Township Middle School located at 5 Dawson Court. The primary school hosts preschool, kindergarten and grades one and two. The elementary school hosts grades three through five and the middle school, opened in 2007, hosts grades six through eight. After eighth grade, students attend schools located outside the Township, choosing from the Upper Freehold Regional School District High School located in Allentown, Red Bank Regional High School (the Township has a sending arrangement with this system), or the Monmouth County Vocational School District.

As of the 2012-2013 schoolyear, Millstone Township had a total enrollment of 1,324 students in pre-school through eighth grade. As of November 2013, the Township was facing challenges related to declining enrollment and declining revenues.

##### Libraries

Millstone is a member community of the Monmouth County Library system. There are 13 branches of the library. The nearest Monmouth County Library is located in Manalapan Township, approximately 12 miles from Millstone. The second closest Monmouth County Library is in Howell Township, approximately 20 miles from Millstone. The libraries offer programs for children, teens, and adults including book discussions, arts and crafts, and movie viewings. Monmouth County also offers a Career Information Center through its Eastern Branch Library in Shrewsbury. The Center provides reference material in the library and online to assist members in their professional endeavors.

Map 16. Community Facilities



## Safety

### Police

Police protection is provided by the New Jersey State Police. State Police are dispatched to Millstone from the Regional State Police Office in Hightstown.

### Fire Protection

The Millstone Township Fire Department operates from one fire station, located at 461 Stagecoach Road, in the Clarksburg neighborhood. This fire station services the entire Township. The Department consists of approximately 35 total members; 25 volunteers and 10 career professionals. The career firefighters also operate the Millstone Township Fire Prevention Bureau.

Because the entire Township receives its water from wells, the most significant problem facing fire fighters is obtaining adequate water supply during a fire event. Water supply is coordinated through a complex and integrated mutual aid system. In order to address this issue, all new developments should be required to provide water supply for fire protection in accordance with NFPA 1142, Standards on Water Supplies for Suburban and Rural Firefighting and Section 508 of the International Fire Code 2006, New Jersey Edition.

Other issues to consider related to fire protection include:

1. The need for shorter cul-de-sacs or alternative fire/emergency access for cul-de-sacs over 1,000 feet long.
2. The Fire Prevention Bureau should be consulted before any street names are approved to eliminate the potential for confusion when roads having similar names.
3. A driveway ordinance should be implemented in order to provide access for fire apparatus to residences.
4. New roadways should be paved (basecoat) to comply with Section 503 and Section 1410 of the International Fire Code 2006, New Jersey Edition, before building permits are issued, and fire safety improvements **should be installed before any CO's are issued.**
5. Required tree plantings for new subdivisions should be evaluated with the purpose of ensuring that the initial placement and project long-term tree growth will not impact road widths in such a way as to restrict fire department access.



6. Consideration should be given to the placement of speed reduction devices such as speed bumps and the impact they have on responding emergency vehicles.
7. Site plan and subdivision approvals should be subject to the review and approval of the Fire Prevention Bureau.

### Emergency Management Services

Millstone Township's Office of Emergency Management is operated by volunteers. They are tasked with emergency operations that include mitigation, preparedness, response and recovery.

The Monmouth County 2015 Hazard Mitigation Plan identified flooding, wildfire, and extreme wind as the most significant hazards posing a potential threat to Millstone. The hydrologic hazard of flooding is often exacerbated by the ineffective conveyance of stormwater runoff. The natural hazards of wildfire and extreme wind are intensified by presence of existing dead and hazardous trees located throughout the Township's large wooded areas, which can become ready fuel for wildfires, or block and damage power lines as they fall during extreme weather events. The Hazard Mitigation Plan also identifies Perrineville Dam on Perrineville Road to be at risk of failing due to capacity and integrity issues.

To combat these issues, the Township proposed two Hazard Mitigation Actions, which were both included in the County Hazard Mitigation Plan.

#### *Action 1: Municipal Stormwater Management Regulation Program*

The stormwater management program is meant to address current underperforming stormwater conveyance infrastructure. It is part of the Township's roadway program; whereby larger piping capacity is installed that will better drain and discharge stormwater with improved volume and flow capabilities. Annual flood losses in Millstone are estimated at \$100,000 to \$250,000, with the annual road program anticipated to help reduce these costs.

#### *Action 2: Fuel Management and Right-of-Way Clearing*

This proposed action, undertaken to mitigate wildfire risk, involves the removal of dead and hazardous trees, particularly along Township roads. The Shade Tree Commission's Community Forestry Management Plan provides a coordinated framework through which this action is pursued.

As sea levels rise and climate change contributes to more frequent and severe weather conditions, the Office of Emergency Management may need to expend more energy and resources on assessing the associated hazard risks and developing further mitigation steps. As can be seen in Map 17, only one facility, the First Aid Squad building, is located in close proximity to the existing Flood Hazard Area. The Township should continue to consider facility vulnerability to hazards and disasters when siting new buildings in the future.

## Health

### First Aid

The Millstone First Aid Station is centrally located on Sweetman's Lane near the Municipal Building. The squad services the entire Township. Maintaining membership to provide adequate coverage, particularly in the day-time is a major concern facing the first aid squad. The squad reports that storage space is adequate but the addition of any new large equipment may present a problem.

The first aid squad sponsors CPR classes at the building and in the spring, they conduct an annual fund drive. The squad welcomes volunteers, especially for calls during the daytime hours which is the most crucial time as far as volunteers being available for calls.

### Healthcare Facilities

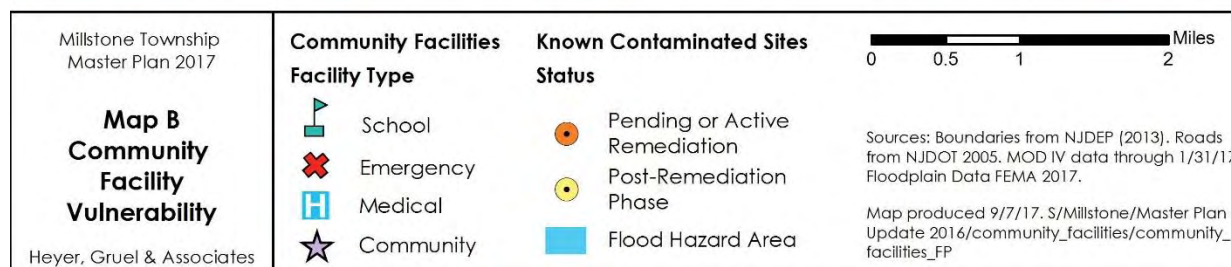
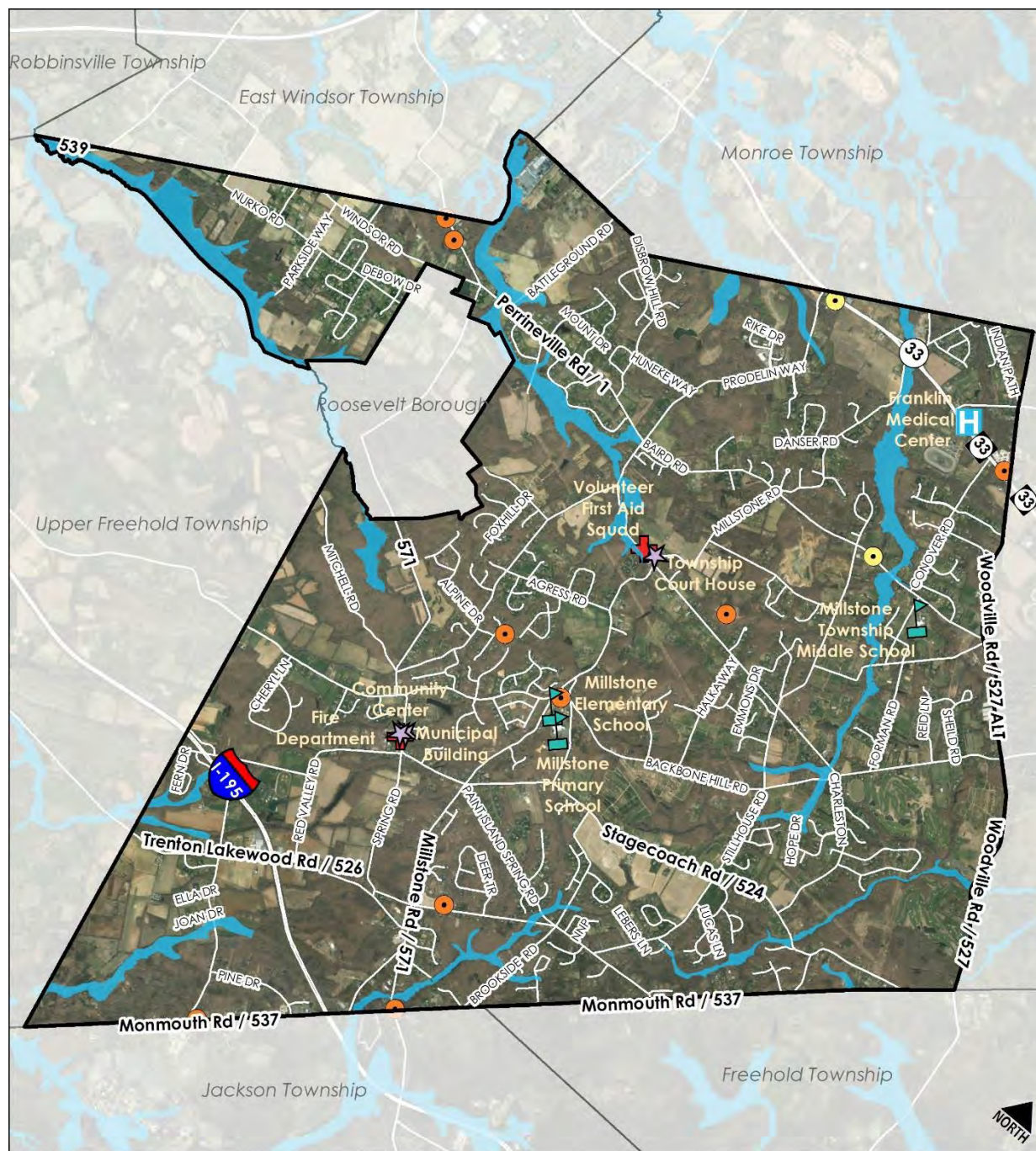
The Franklin Medical Center located at 514 Route 33 West provides same-day physician services seven days a week. Hospital facilities are provided by the CentraState Medical Center located on Route 537 in nearby Freehold Township.

### County CHIP

The 2012 Monmouth County Community Health Improvement Program (CHIP) identifies the greatest health needs and areas of opportunity for the County. During the preparation of the CHIP, the following three key issues emerged:

1. Risk factors for heart disease
2. Obesity/overweight issues (for both adults and children)
3. Access to comprehensive healthcare

Map 17. Community Facilities in reference to the Special Flood Hazard Area



These issues have a high incidence rate among County residents, but are also areas in which the CHIP Coalition has the ability to make a meaningful impact on health outcomes. They are serious, but preventable. The CHIP Coalition calls to action the providers, agencies, organizations, business and residents of Monmouth County to increase community outreach, educational opportunities, and access to healthcare.

Another analysis, the Monmouth County Community Health Assessment (CHA) from 2016, also identifies key regional healthcare issues. The CHA found the following significant problem areas:

1. Access to care;
2. Mental health;
3. Lack of funding and changing funding streams;
4. Cost of living;
5. Immigration status;
6. Aging populations; and
7. Drug abuse.

Even though Monmouth County is perceived as an affluent community, it is diverse, with significant and growing low-income populations. The high cost of living increases gaps between the haves and have-nots, particularly with regard to healthcare access. The population is aging and living longer. Changes in healthcare as a result of the Affordable Care Act and other healthcare trends have resulted in more healthcare being delivered in outpatient and community/home settings instead of hospitals. At the same time, there have been decreases in public funding for health and social services. There has been a dramatic increase in opioid use and overdoses. There are increases in mental health issues, including suicides. The long-term effects of Superstorm Sandy continue to impact health and social needs, but funding is short-term and expiring.

It is important to note that in terms of regional health, Millstone's agricultural industry supports local and state food systems. The preservation of its prime agricultural soils for continued crop production adds to the health of the State and the County, and should be a local and regional preservation priority for its positive effects on public health.

### Air Quality

Air quality is monitored by the NJ Department of Environmental Protection, Bureau of Air Monitoring. There are three monitoring sites within the Northern Coastal Region in which Monmouth County is contained. In 2004, one of these monitoring sites exceeded the ozone level standard for two days, while another monitoring site exceeded it for eight days. Weather can affect air quality through high temperature and bright sunlight.

The Township can help maintain air quality through proper land planning and preservation of open space. As discussed in more detail, the Township is contributing to overall air quality health by protect its natural areas through actions such as regulating tree removal during development; requiring conservation easements and horse trail easements; acquiring open space; and preserving farmland, among other strategies.

### Water Quality

A 2002 watershed assessment survey of Millstone Township indicates that the overall health and **quality of the Township's streams and their associated wetlands** is good. Most of the streams that were visited were well buffered with well-functioning, high quality wetlands. Buffer strips enhance water quality by intercepting contaminants and lowering water temperature. In addition to providing buffers and no mow zones along streams, watershed management practices include limiting the removal of vegetation on parcels, yearly inspection of stormwater detention basins, and restricting the excessive use of pesticides and herbicides within riparian corridors.

Millstone Township has adopted the Stormwater Management Regulations for both residential and non-residential development that are required by State Statute. The NJDEP has issued a New Jersey Pollutant Discharge Elimination System Permit to the Township which includes several statewide basic requirements such as proper/improper disposal of waste, maintenance yard operations, and construction site stormwater runoff control.

The source of all drinking water in Millstone Township is groundwater. There is no public water supply; therefore, all water supply to residents is from individual wells. There are five aquifers within the Township that provide water for the individual wells. One of these five does not meet the NJDEP regulatory requirements and therefore cannot be utilized for residential well systems.

Proper well construction and maintenance is essential to public health and the environment. Wells should be located as far from a potential pollution source as possible. Well water should be tested each year at a minimum for the three most common contaminants: bacteria, lead and nitrates.

#### Addressing Contaminated Sites

The Bureau of Site Remediation and Waste Management (SRWM) maintains a record of all known contaminated sites active within municipalities of the State. As of March 2017, there were 12 known contaminated sites in Millstone Township. Two of these are in post-remediation phase, where remediation has concluded and use remains restricted from certain categories. SRWM regulates the remediation of these sites including activities related to environmental site cleanups and restoration.

#### General Welfare

#### Municipal Administration

The Township administrative offices are located at 470 Stage Coach Road, across from the fire station and community center. The administrative offices include the building department, tax collector, tax assessor, clerk, code enforcement, recycling, planning and zoning, parks and recreation, and purchasing agent. The Millstone Township Municipal Court is located at 215 Millstone Road.

#### Community Centers

Millstone Township's Community Center is located at 463 Stage Coach Road, next to the fire station and across from the Municipal Building. The community center is primarily used by senior citizens and occasionally by other organizations such as the Girl Scouts.

#### Recommendations

The following recommended actions are intended to advance adequate planning and provision of community facilities into the future.

1. Continue to work with the Board of Education to obtain projections for anticipated student population growth or decline in order to inform community facility need for child-age activities and groups.
2. Implement the desired changes articulated by the Fire Department, including:



- a. Ensure all new developments provide water supply for fire protection in accordance with NFPA 1142, Standards on Water Supplies for Suburban and Rural Firefighting and Section 508 of the International Fire Code 2006, New Jersey Edition.
  - b. Implement shorter cul-de-sacs or alternative fire/emergency access for cul-de-sacs over 1,000 feet long.
  - c. Consult the Fire Prevention Bureau before any street names are approved.
  - d. Enact a driveway ordinance that provides access for fire equipment to residences.
  - e. Require new roadways to be paved (basecoat) to comply with Section 503 and Section 1410 of the International Fire Code 2006, New Jersey Edition, before building permits are issued, and require fire safety improvements to be installed **before any CO's** are issued.
  - f. Evaluate tree plantings for new subdivisions with the purpose of ensuring that the initial placement and project long-term tree growth will not impact road widths in such a way as to restrict fire department access.
  - g. Consider the placement of speed reduction devices such as speed bumps and the impact they have on responding emergency vehicles.
  - h. Subject site plan and subdivision applications to the review and approval of the Fire Prevention Bureau.
3. Investigate potential new storage areas for First Aid Squad equipment.
  4. Study the issue of understaffed daytime shifts of the First Aid Squad so that the Millstone Community always has access to adequate emergency services.
  5. Continue practices that have a positive impact on air and water quality, such as implementing ordinances related to environmentally sensitive areas, cooperating with NJDEP permitting processes, and preserving open space and sensitive natural features.
  6. Many communities are giving greater attention to public health concerns when planning their development patterns and infrastructure. The Township can study examples of health planning for small, rural communities, such as the Healthy Communities Toolkit issued by

the Eastern Highland Health District of Connecticut, for developing healthy community policies in a rural setting.

7. Continue to consider the location of floodplains when siting new facilities

## Historic Preservation Plan Element

The historic preservation plan element identifies landmarks of historical, archeological, cultural, scenic, or architectural significance within the Township. It further provides for their utilization and means of preservation. Finally, it includes standards to assess the worthiness of a site for landmark designation. A landmark may be any real property, man-made structure, or natural object which meets those standards.

### Historic Site Inventory

#### State and Nationally Designated Places

The National Register of Historic Places and the New Jersey State Register of Historic Places are **preservation mechanisms for protecting a community's historic resources**. Any project that includes federal funding, licensure, or permitting must consider potential impacts on nearby historic properties listed on the National Register. Similarly, listing on the State Register protects properties from potentially adverse public action related to development projects (private action is not regulated) through a project review process that is undertaken by the State Historic Preservation Office and Historic Sites Council.

As of August 17, 2017, two properties in the Clarksburg area of Millstone are listed on both the National and State Registers (see Table 11 and Table 12 entries in blue). The Clarksburg School was built in 1925. The Township has kept the historic value of the school building intact, while using it daily as municipal offices. The Methodist Episcopal Church, which was donated to the Township, has been partially restored.

TABLE 11: Inventory of State and Nationally Listed Historic Properties					
Site	Address	State Listing Date	State ID	National Listing Date	National Reference
Clarksburg Methodist Episcopal Church	512 Stagecoach Rd	12/23/1998	3364	2/5/1999	99000084
Clarksburg School	470 Stagecoach Rd	9/29/1999	143	11/12/1999	99001316
Thomas Baird Homestead	24 Baird Road			-	-

In addition, three properties have received opinions of eligibility from the State Historic Preservation Officer. These opinions are generally issued in response to a federally funded activity that would have an effect on historic properties that have not yet been listed in the registers. The properties are:

- Thomas Baird Homestead, 24 Baird Road (pre-approval)
- The Nathaniel Cox House, 25 Millstone Road (2013)
- Riverside 1 Archaeological Site (2009)
- Riverside 2 Archaeological Site (2009)

#### Locally Designated Places

The Millstone Environmental Commission prepared a Historic Resources Report in 1993 by Gail Hutton. The report identifies 68 sites, which includes an update of the 21 sites listed in the Monmouth County Historic Sites Inventory published in 1984. The report includes survey forms, photographs, and maps.

Since the Report was issued in 1993, development has occurred on a number of the sites on the original inventory. The table below provides a status update on the original 68 properties, as well as information on two new properties that are being added based on subsequent research. Map 18 indicates the location of each of the original 68 sites, with special demarcation of those that have been subdivided and therefore need reconsideration for historical status. A list of the same is found in Table 12. Properties highlighted in yellow have been subdivided or have had a similar change in record that requires further information to update historical status data.

Map 18. Historic Sites in Millstone Township

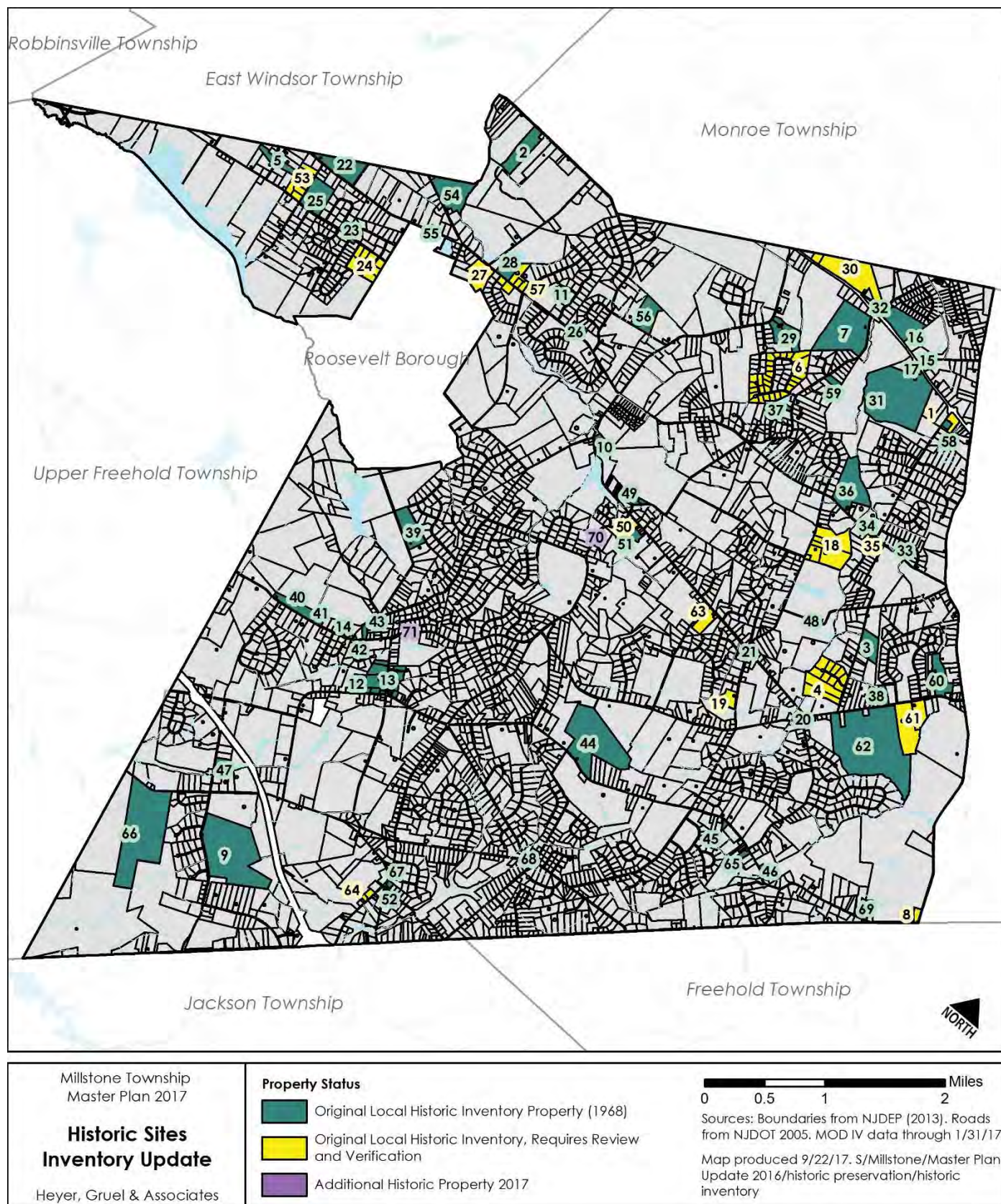


TABLE 12: Millstone Township Historic Site Inventory Update			
Map ID	Site Name	Address	Block/Lot
1	East side of Conover Road	0.4 miles north of Baird Road	<del>24/11</del> subdivided
2	South side Disbrow Hill Road	0.6 miles west of Battleground Road	11/11
3	44 Forman Road	0.4 miles north of Sweetman's Lane	43/11
4	West side Forman Road	0.2 miles north of Sweetman's Lane	<del>42/5</del> subdivided
5	Ely Farm/ West side Gordon Road	0.2 miles north of Nurko Road	3/2; 4/2.05
6	John Perrine Farm/ West side Millstone Road	0.8 miles north of Baird Road	<del>17/14</del> subdivided
7	Nathaniel Cox House/ West side Millstone Road	0.1 miles south of State Highway 33	17/10
8	Parker-Smithburg Hotel	SW corner Monmouth Road and Smithburg Road	44/23 Formerly listed as block 64, seems to have been an error
9	Noah H. Hunt House	42 Olde Noah Hunt Road	57.01/26
10	Perrineville Synagogue	North side Perrineville Road opposite Agress Road	29/24
11	Addison Mount Farm	4 Mount Drive	12.01/5
12	Clarksburg Village Historic District	Multiple	
13	Clarksburg School	470 Stagecoach Road	36/61
14	Clarksburg M.E. Church	512 Stagecoach Road	34/13.02
15	N.W. Morris House / North side State Highway 33	0.1 miles west of Dugan's Grove Road	20/3.02
16	Bergen House	NE corner State Hwy 33 and Bergen's Mills Road	20/5
17		519 State Highway 33	23/5.02
18		26 Stillhouse Road	<del>26/4</del> subdivided
19	Lewis L. Combs Farm	99 Stillhouse Road	40/3.01 No such lot, perhaps lot 43 based on address
20	Pittenger Farm	East corner Sweetman's Lane and Charleston Spring Road	44/7
21	St. Joseph's Roman Catholic Church	NE corner Sweetman's Lane and Stillhouse Road	42/12
22		1001 Windsor Road	8/1
23		18 Nurko Road	6.03/21



Map ID	Site Name	Address	Block/Lot
24		405 Nurko Road	<del>6.03/20</del> subdivided
25		39 Nurko Road	7/2
26		797 Perrineville Road	12/7.02
27		764 Perrineville Road	<del>13/2</del> subdivided; 13.01/2,3
28	Perrineville Jewish Chapel/	Perrineville Road	12/3
29		40 Prodelin Way	17/26.20, 26.21
30		620 State Highway 33	<del>18/2</del> subdivided
31		505 State Highway 33	23/8
32		127 Bergen Mills Road	18/5.01
33	Thomas Baird Homestead	24 Baird Road	24.04/6
34		39 Baird Road	26/2
35		37 Baird Road	<del>26/3</del> Subdivided; perhaps lot 3.10
36		54 Baird Road	23/24
37		107 Millstone Road	17/15.01
38		West side Sweetman's Lane, north of Reid Lane	43/15.012
39		26 Rising Sun Tavern Road	31/25
40		530 Stagecoach Road	34/15
41		528 Stagecoach Road	34/14
42	Clarksburg School	510 Stagecoach Road	34/13.01
43		506 Stagecoach Road	34/12
44		296 Stagecoach Road	46/7
45	St. Paul's M.E. Church	137 Stagecoach Road	62/5
46		110 Stagecoach Road	64/6.01
47		32 Olde Noah Hunt Road	53.01/1.02
48		64 Roberts Road	26/5.02
49	First Presbyterian Church	211 Millstone Road	29/10,11
50	Perrineville School	353 Sweetman's Lane	<del>39.01/2</del> subdivided
51		337 Sweetman's Lane	39.01/7
52	Hooper General Store	26 Trenton-Lakewood Road	60.02/20.02
53		55 Parkside Way	<del>4/3</del> subdivided
54		335 Perrineville Road	11/19
55		1071 Windsor Road	9/9.02
56		11 Hunecke Way	16/6
57		759 Perrineville Road	<del>12/4</del> subdivided
58	The Manalapan Cemetery	East side Conover Road, 200 feet south of State Highway 33	24/17

Map ID	Site Name	Address	Block/Lot
59		82 Millstone Road	23/15.01
60		174 Sweetman's Lane	43/ 16.01
61		183 Sweetman's Lane	44/4 subdivided
62		207 Sweetman's Lane	44/6
63		293 Sweetman's Lane	40/ No such lot, perhaps block 40.02 lot 1 based on address
64		11 Burnt Tavern Road	57/14 subdivided
65		111 Stagecoach Road	62/13.01
66		150 Trenton Lakewood Road	55/2
67		28 Trenton-Lakewood Road	60.02/20.01
68		41 Brookside Road	48/15.05
69		6 Stagecoach Road	64/21
70	Perrineville Cemetery Co. Office	246 Millstone Road	39.01/39.02
71	J.S. Thompson Farm	42 Clarksburg Road	37.03/29.02

The two new properties at the end of the list (highlighted in purple) are being added based on research provided by the Township's Historic Preservation Commission, and include the following sites:

246 Millstone Road: This property was referred to as the "Ketcham lot" as a point of reference in several old deeds. Deed Book 249 Page 280 has David and Ellen Ketcham selling the property to John B. Robbins and Ezekiel Chamberlin in 1873. Further research needed to determine if property was originally John Storer's. From 1938-1945 the house was the Perrineville Cemetery business office. (Ref.DB1795 Pg249)

42 Clarksburg Road: Deeds go back to William McKnight, Deed Book L-4 Page 93. The original property was one hundred and nine acres. J.S.Thompson is listed as owner of the property on the 1851 Lightfoot map, the 1873 Beers Atlas, and the 1889 Wolverton Atlas.

#### Landmark Designation Standards

The sites and locations listed in the Township Master Plan are based on available research. Further information on sites on landmark value in Millstone may result in additional designations. To guide the identification and designation process, the following provides standards to be followed in

making landmark designations. The following standards are to be used in evaluating the significance of properties and their eligibility for landmark designation in Millstone Township:

1. The landmark is associated with events that have made a significant contribution to the broad patterns of local, state, or national history; or
2. The landmark is associated with lives of persons significant in the past; or
3. The landmark embodies the distinctive characteristics of a type or method of construction, or it represents the work of a master, or it possesses high artistic values, or it represents a significant and distinguishable entity whose components may lack individual distinction; or
4. The landmark has yielded, or may be likely to yield, information important in prehistory or history; or
5. The landmark exhibits scenic, historic, architectural, archeological or cultural features which make a unique contribution to the townscape of Millstone.

#### Landmark Preservation Policy

The Township encourages the preservation of landmark buildings and sites and discourages their destruction or inappropriate alteration. Utilization of landmark sites in accordance with the land use plan element and other elements of this master plan is encouraged. Where rehabilitation, renovation, or adaptive re-use of a landmark is needed, the guidelines developed by the U.S. Department of the Interior and published as The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings should be used.

Historic Preservation is the dedicated focus of Millstone's Historic Preservation Commission (HPC). The HPC's current projects include oversight of the Township's historic properties inventory, and collection of Township artifacts and photos. At present, there is no locally designated historic district within Millstone. As a result, the HPC does not engage in the review of development proposals, as is the case in municipalities with designated historic areas with additional development regulations.

#### Clarksburg Local Historic District

Clarksburg Village, Inventory # 1332-12, should be recognized as a local historic district. The Village contains a number of historic buildings and structures including the Clarksburg Methodist Church

and Clarksburg school. Both sites have recently been renovated. Other factors that contribute the sense of historic place include a number of vintage homes and the Clarksburg Inn. The Township maintains a civic center in Clarksburg and a new Veterans Monument has been placed on the grounds of the Clarksburg School.

Designation of the Clarksburg Historic District will allow the Township to pursue funding, grants and low interest loans through the Preserve New Jersey Historic Preservation Fund (which replaced the Garden State Historic Trust Fund in 2016), as well as funding from other historic preservation organizations. In 2017, the Preserve New Jersey Historic Preservation Fund accepted applications for three types of awards to encourage the careful preservation, restoration, and rehabilitation of historic properties:

- Historic Site Management Grants related to the preservation, restoration, and rehabilitation of historic properties and associated architectural and engineering expenses up to \$50,000;
- Level I Capital Preservation Grants, for smaller "bricks and mortar" projects, up to \$150,000;
- Level II Capital Preservation Grants, up to \$500,000.

#### Recommendations

The following means should be pursued by the Township to achieve the preservation of historic sites:

1. The Historic Commission should review the original 68 properties inventoried in 1993 to determine which, if any, have lost historical status via subdivision. If portions of properties still have historic landmark status post-subdivision, their block and lot information should be updated.
2. Obtain final State Register listings for the sites that have received SHPO opinions but are not yet registered.
3. Survey the Township for potential historical sites with archeological significance, particularly the stream corridors. Suggest other possible areas for SHPO opinions related to archaeological resources. Consider how the Township's development ordinance might require applicants to address potential sites of archeological importance.

4. Development Review - The impact of public or private projects on landmarks should be a factor in evaluating the design and layout of development proposals. Appropriate language should be included within the Township development regulation to require that applications for development provide for the appropriate utilization and preservation of designated landmarks. Where, removal, demolition, or inappropriate alteration of the landmark is proposed, the environmental impact statement shall be required to review the alternatives which were considered to preserve the landmark. The municipal development agency may require alternative approaches to site development which would enable the landmark to be preserved and maintained on site.
5. Zoning Designation - The zoning ordinance may designate a land mark and provide design criteria to be used to regulate the development or alteration of landmark property.
6. Support - Sites eligible for the National Register of Historic Places should be supported.
7. Documentation - As recommended in the Historic Resources Report further site-specific research of primary source materials as well as oral history should continue
8. Community Education - The Township should sponsor programs of community education which would include recognition of landmarks through the award of landmark certificates to the owners of such properties and recognition of individual landmark preservation efforts.
9. Historic Site/Open Space Links - The Township should investigate opportunities for creating trail/greenway linkages within Millstone Township between historic sites and open space area, thus combining heritage education and recreation. Interpretive materials such as trail markers and brochures can be developed to provide education about historic and natural resources along the trail.

## Open Space, Recreation and Conservation Plan

The Millstone Open Space, Recreation, and Conservation Element is a community planning policy document that guides the maintenance and acquisition of open space, recreation, and conservation areas within the Township. Statutory Authority for preparing a Recreation and Conservation Element of the Master Plan is authorized by N.J.S.A. 40:55D-28, by which municipalities are permitted to adopt a recreation plan element showing a comprehensive system of areas and public sites for recreation, and a conservation plan element providing for the preservation, conservation, and utilization of natural resources.

### EXECUTIVE SUMMARY

#### Plan Origin

Millstone Township is committed to preserving its important open spaces, farms, and natural features. Although the Township has grown and developed, it retains a rural landscape of streams, rivers, farms, and woodland. The Township has established an open space trust fund that can be applied to leverage additional State and County funding available through the Garden State Preservation Trust to preserve a maximum of the remaining open spaces, farms, and natural features in Millstone.

In 2000, Millstone applied to the State and was approved under the Green Acres Planning Incentive (PI) Program for funding that covers 50% of the Township cost to preserve lands identified in the Township plan for open space and recreation use. In order to draw on State funds to match local funds, the Township must maintain an adopted updated open space plan as part of the Township. The Millstone Township Open Space, Recreation, and Conservation Plan will guide the Township effort to preserve open space and farms, develop parks, and coordinate with State and County open space preservation activities in Millstone. It will also allow the Township to draw down grant money from the Garden State Green Acres Preservation Trust to support the Township land preservation program.

Many sources of information were consulted in preparation of this update, including the following planning documents:

- Millstone Township Conservation, Recreation and Open Space Element (2002)
- Millstone Township Natural Resource Inventory (2006)
- Monmouth County Open Space Plan (2006)
- Millstone Township Comprehensive Recreation, Parks and Open Space Plan (2007)
- Millstone Township Community Forestry Management Plan (2015)



- Monmouth County Master Plan (2016)

Building on this existing information and previous studies, the plan presents an inventory of the existing open space and recreation resources in the Township; it analyzes present and future open space and public recreation needs, and it identifies lands that have the potential for meeting those needs. The plan establishes objectives for open space, recreation, and farmland conservation; it identifies the actions needed to achieve the objectives; and it identifies lands that should be conserved as open space, recreation, and agricultural use.

#### Plan Purpose

Most generally stated, the purpose of the Open Space, Recreation, and Conservation Plan is to **establish the Township's guiding vision and philosophy for providing open space, recreation and conservation parklands** within its jurisdiction, and to present a framework for the implementation and attainment of that vision. Millstone Township has long been committed to preserving its open space, farms and natural features, and has made concrete, community-backed investments to realize its open space and recreation goals through an open space trust fund.

Recreation, open space, and natural areas contribute to community well-being, health, and quality of life by providing opportunities for outdoor leisure and activity, and by preserving critical environmental features. Municipalities that consistently evaluate their existing recreation, conservation, and open space facilities against of the needs of the local population and the natural environment are poised to make better decisions and investments in open space, recreation, and conservation projects. This Plan updates the Township's policies to reflect current existing conditions and needs, and changes in recreation, open space and conservation planning assumptions. Its specific purposes are to:

1. Establish a guiding vision and philosophy for the development of open space, recreation, and conservation policies and priorities within the Township;
2. Set goals and objectives for future open space, recreation, and conservation land provisions;
3. **Assess the Township's existing** open space and recreation facilities in meeting the daily needs of residents and develop a short-term and long-term strategic plan; and
4. Establish a prioritized action plan for the preservation of **the Township's open space** in order to meet its defined goals and objectives.

## Major Findings

### Parks and Outdoor Recreation

There are 5,453.2 acres within Millstone Township, or 23% of the Township land area, owned by the State, County or Township and permanently dedicated and preserved as open space, parks, or outdoor recreation areas. Total parkland increased by 1,658.2 acres since last inventoried in 2007, and now consist of the following totals by ownership:

- 2,600.8 acres of State parkland, inclusive of 656.8 acres of additional land over 2007 figures, consisting of the Assunpink Wildlife Management Area, the Prospertown Lake Wildlife Management Area, and an unnamed Preserved Watershed Tract;
- 1,820.8 acres of County parkland, inclusive of 564.8 acres of additional land over 2007 figures, consisting of Perrineville Lake Park and Charleston Springs Golf Course; and
- 1,031.6 acres of Township owned parkland, inclusive of 436.6 acres of additional land over 2007 figures, consisting of recreation and open space areas owned through fee simple purchase and easements on tracts and trails.

Each level of government is responsible for providing certain types of open space and recreation facilities. Municipal government provides the close-to-home and easily accessible park and recreation facilities that meet the immediate needs of residents. Playgrounds, athletic fields, court sports, picnic areas, passive areas for enjoyment of local scenery and views, and opportunities for water contact sports, are typical recreation opportunities found in local park facilities. Of the Township-owned lands, 292.7 acres are devoted to parks with active recreation facilities.

Millstone should acquire at least an additional 106 acres of land for active recreation, and additional land for passive open space as available. This will ensure that, at full development, the Township has balanced its land use to include public parkland, owned and controlled by the municipality, which can support local recreation facilities and programs for Township residents. The Township open space plan identifies suitable locations and acreage for acquisition and development as Township parkland and recreation areas.

The Township has also significantly increased its trail easements and other linear parkland connections, which can be made available to hikers, bikers, and equestrian uses. In some areas, extensive linkages are almost complete. Where these easements are generally isolated, additional planning is needed to link them into a cohesive trails system.

### Farmland Preservation

Farming contributes to the economic base of the Township and is essential to the open rural landscape that characterizes much of the community. It is also important to conserving the community as a rural environmentally sensitive planning area, and must be coordinated with open space and conservation planning. The number of farms and the amount of farmland in Millstone has, however, declined. A significant area of Millstone Township, roughly 7,485 acres or 31.3% of the Township, continues to be farmed. To maintain its rural environment and landscape, the Township needs to preserve as much farmland as possible. The Township is within the Monmouth County Agricultural Development Area. Consequently, Township farms are eligible for farmland preservation funds from the County Agriculture Development Board and from the State. To maintain participation in the State and County Programs, the Township maintains an updated Farmland Preservation Plan, most recently adopted in 2008.

Under the Township plan, farmland that is not acquired for park, recreation, or open space use by the Township, the County, or the State would still be eligible for farmland preservation funding. The Township's objective is to preserve as much of its viable agricultural land base as possible over the next five to ten years.

### Resource Protection

In addition to opportunities for public recreation, open space protects environmentally critical lands and natural resources. For resource protection, the amount and location of land that should be conserved is variable and depends upon the resource to be protected. Recreational use of resource protection lands is a secondary objective to preserving resources and natural features. Millstone, located on New Jersey's coastal plain, is characterized by a rolling topography of hills and valleys and resources that include woodland, habitat areas for indigenous flora and fauna, wetlands, and stream corridors.

Resource protection areas are suitable as passive open space and may provide opportunities for resource based recreation such as trails, fishing, nature study, and scenic enjoyment. There is no set formula for calculating the land area that should be preserved in public ownership or regulated for resource protection. The objective is to preserve sufficient land to protect the resource. Resource protection areas in Millstone will conserve water resources, maintain biological resources; and preserve the scenic values of a rural landscape. The Township plan identifies areas where open space preservation will help protect important resources and natural features of the Township.

### Recommended Actions

The Township should pursue an aggressive program to acquire land and easements to implement the open space, recreation, and conservation plan. The Township should systematically approach and negotiate with property owners for the acquisition or right of first refusal for lands identified as potential park and recreation sites or greenways. The acquisition program should be reviewed annually by the Township to assess progress in implementing the open space, recreation, conservation, and farmland preservation plan and to determine whether the sites identified in the plan for acquisition should be modified to reflect changes in the availability of land or new opportunities for meeting the plan objectives.

The Township should cooperate with Monmouth County in the implementation of the County Open Space Plan and with the State in the implementation of the Crossroads of the Revolution Program for open space preservation and greenway protection in Millstone.

The Township should continue to coordinate open space and farmland preservation planning. Millstone will work with the Monmouth Agriculture Development Board to market the farmland preservation program to local farmers and it should contribute to the costs of preservation. The Township can facilitate farmland preservation by using local funds to fast track the acquisition of development rights. The Township should also take the lead in providing information, assistance, and support to local farmers who are interested in making application for preservation funding.

### Planning and Public Participation Process

The Millstone Township open space, recreation, conservation and farmland preservation plan has been developed with extensive public participation and community support. The Open Space, Recreation, and Conservation Plan was formulated in the course of an overall update to Millstone's Master Plan. **The timing ensures that the goals, objectives, and recommendations for open space and recreation contained in this Element are consistent with other Master Plan elements, such as land use and community facilities.** It is coordinated with the open space planning efforts of the State and Monmouth County.

The Township open space preservation effort is community-wide. It is driven by the energy and work efforts of citizens who have volunteered their time to local Township agencies including the Open Space and Farmland Preservation Council, Agricultural Advisory Council, the Historic Preservation Commission, the Shade Tree Commission, the Recreation Commission and the Environmental Commission. These municipal agencies compiled baseline information and

identified key areas for inclusion in an open system to conserve natural and cultural features and farmland and provide public park and recreation areas for Township residents.

In 1994, responding to growing development pressures, the Township established an Open Space and Farmland Preservation Committee. Township voters subsequently approved a dedicated tax of one cent to preserve its farmland. In 1997, Township voters approved an additional levy of two cents and expanded its objective to include the conservation of lands for open space and outdoor recreation. In 2000, Township voters added another two cents to the levy. The levy was again increased in 2008 by another one cent. The levy for open space and farmland preservation is currently set at six cents per hundred dollars of assessed valuation. It generates approximately \$1.1 million per year for open space, farmland, and outdoor recreation in Millstone.

In 2000, Millstone also applied for and was approved under the Green Acres Planning Incentive Program for funding from the Green Acres Preservation Trust to acquire land for outdoor recreation and open space use. Funds from the Township levy are used to leverage funds from the Green Acres Preservation Trust to preserve open space in Millstone. The Township also participates in the state Farmland Preservation Program. Previously, the Open Space, Recreation, Conservation and Farmland Preservation Program were all contained in a single element. In 2005, the Township established the Agricultural Advisory Council to hone in on issues related to farmland preservation. In 2008, the Township separated farmland preservation into its own distinct plan element, adopting the first ever Farmland Preservation Plan to be approved by the State on April 9, 2008.

The current Open Space, Recreation and Conservation plan was developed in the context of this history. A draft was compiled and reviewed with representatives from the key Township agencies, including the Planning Board, Environmental Commission, Agricultural Advisory Council, Township Committee, Recreation Commission, and Historical Commission. The draft plan was then made available for public review and submitted to the full Planning Board for public hearing.

## GOALS AND POLICIES

In developing objectives and policies related to open space, recreation and conservation, this Plan is guided by an overall philosophy and several correlated goals. All aspects of open space planning, including future land acquisition decisions, analysis of recreation and open space need, and conservation activity will be undertaken pursuant to meeting the spirit of these goals.

### Philosophy and Goal Statement

The Township, as set forth in this plan element, establishes the following goals, objectives, and policies for open space, conservation, and recreation in Millstone.

#### Open Space, Recreation and Conservation Philosophy

Open space and farmland are essential to maintaining a healthy environment, protecting its natural resources, and preserving the rural character of Millstone and its cultural resources. The Township is uniquely located and serves as the origin for one-quarter of New Jersey's twenty major watershed areas. A Township network of permanently preserved open spaces and farmland is needed to provide public active and passive recreation, to maintain biodiversity, to protect water quality, to control flooding, and to conserve the community's significant scenic, cultural, and natural features.

In the decades to come, the Township envisions the establishment of a network of protected open space and trails that creates an interconnected and comprehensive parkland system, provides the foundation for preserving the quality of the Township's natural environment, and maintains a bucolic, rural context for its developed areas. The Township will continually evaluate the adequacy of its facilities in meeting recreational needs across populations, age-ranges and abilities, and seek new opportunities to permanently preserve environmentally sensitive natural features.

#### Goal Statement

The goal of Millstone Township is to maintain the rural character of the community and secure the environmental, economic, and social benefits of a coordinated system of open space, outdoor recreation areas, and farmland in Millstone Township. To achieve its goal, the Township will acquire and develop additional land as local public open space and recreation parkland to meet the needs of existing and future Township residents. Furthermore, the Township, in conjunction with the County, the State and the private sector, will preserve open space to protect the natural resources



and rural character of the community and provide public opportunities for resource-based recreation and active community recreation. Finally, the Township will actively coordinate open space and farmland preservation programs in order to achieve preservation of both types.

Specific objectives to achieve this goal are provided below.

#### Objectives and Policies

1. *Acquire additional lands for open space conservation, particularly lands that contain environmentally sensitive natural features.*

For resource protection, the amount and location of land that should be conserved is variable and depends upon the resource to be protected. Millstone should acquire additional land for open space preservation and conservation in order to adequately protect significant natural features and the Township's rural community character. This will ensure that, as development continues, the Township is protecting the very assets that make Millstone unique and attract new residents, and maintaining the natural ecosystem services related to soil, air, and water quality that have far-reaching implications for the region and State overall. The Township open space system map identifies suitable locations for open space, passive recreation, and conservation acquisition.

2. *Preserve natural areas throughout Millstone that are vital habitats of threatened or endangered species or that are outstanding examples of the forest resources within the Township.*

The Township retains a variety of natural vegetative communities and habitat areas for a diversity of plant and animal life including threatened and endangered species. The vegetative communities that characterize the Township include deciduous wetland and upland forest containing mature woodlands with specimen stands of hardwood trees. While the wetland areas of the Township are protected by State regulation, the upland forest areas are particularly vulnerable to development. These forest resources enhance the community aesthetically as well as environmentally.

3. *Cooperate with State and County agencies to establish a system of greenways linking public parks and conserving the natural environment, rural landscape, and heritage of the Township.*

The State plans to preserve greenway corridors of farms and open spaces across central New Jersey to link the Revolutionary War sites to Monmouth Battlefield State Park. The State also plans a greenway linking Trenton to the Jersey Shore. Monmouth County has planned a system of greenways along major utility lines and stream corridors that cross Millstone. By coordinating their efforts, the Township, the State, and the County can create a greenway open space network that provides opportunities for active and passive recreation, flood control, and historic trails. It can also conserve environmentally sensitive habitat needed for water quality, air quality, and biodiversity.

*4. Regulate and manage Township watershed areas to improve and maintain water quality.*

Non-point source pollution into streams and surface waters from development accounts for over half the State's water pollution problems. Minimizing impervious areas, reducing development disturbance, and providing stream corridor protection will improve and maintain water quality in the Township.

*5. Acquire an additional 106 acres of land for public access, development, enjoyment and dedication as community park and recreation areas.*

Millstone should acquire an additional 106 acres of land for active recreation in order to meet the 3% threshold for active recreation established by the New Jersey Balanced Land Use Standards. This will ensure that, at full development, the Township has balanced its land use to include public recreation areas, owned and controlled by the municipality, that can support a variety of local recreation facilities and programs needed by residents. The Township open space system map identifies suitable locations for acquisition and development as Township park and recreation areas.

*6. Locate park and recreation areas in proximity to residential areas and provide safe and convenient access for residents.*

Park and recreation areas should be within or within a reasonable travel distance of residential development. Parks within easy and safe walking or bicycling distance of residential areas are especially desirable since school age children are frequent users of parks. Multi-use trails or bike lanes that link residential areas and parks should be planned as part of the overall park design.

*7. Encourage alternative, natural-resource based recreation that draws on the Township's protected natural areas.*

Resource protection areas that are suitable to include a passive open space component should be designed to provide opportunities for resource-based recreation such as trails, fishing, nature study, bird watching, and scenic enjoyment, particularly as these types of recreational uses are gaining in popularity as the population ages. More active uses, such as long-distance cycling on Township Roads, is also encouraged by the general natural atmosphere of the Township, and should be supported in the Township's open space, recreation, and circulation planning efforts

8. *Cooperate with the Millstone Township Board of Education to promote the joint use of public recreational facilities.*

The public schools in Millstone provide needed indoor and outdoor recreational facilities within the community. A cooperative relationship between the Township and the school districts to promote the joint use of recreational facilities both increases the available recreation opportunities within the community and makes the most economical use of public resources.

9. *Balance conservation and recreation land use with farmland preservation.*

Millstone is committed to its legacy as an agricultural community. Not only do farms form the basis of the Township's atmosphere, but they also contribute to the economic base of Millstone. Active farm operations in the Township include horse and livestock farms, nurseries, orchards, greenhouses and field crops. Township farms are eligible for Township, State and County farmland preservation funds. The Township should work to encourage additional participation and secure funding to preserve as much farmland as possible, especially where doing so serves the dual purpose of protecting its environmentally sensitive landscape.

10. *Maintain a stable source of Township funding to preserve local open space and supplement those funds with other revenue sources.*

Since 1995 the Township has maintained a trust fund for preserving Township farmland and open space. The fund provides a stable revenue source to conserve the Township's land resources and rural character. The fund can be used to leverage other State and County funding to achieve Township open space, recreation, and conservation objectives. By maintaining a trust fund and enacting an open space preservation plan, the Township qualifies for State Grants of 50% of the cost of acquisition for land for recreation and conservation purposes. Similarly, by participating in the State Farmland Preservation program and having a dedicated municipal levy for farmland

preservation, the Township qualifies for acquisition support from the State and County at the rates of 60% and 25%, respectively.

*11. Balance the needs of development with the needs of the natural environment.*

Conservation and the protection of environmentally sensitive areas remains a top priority for the Township, and will be reflected in its development policies in order to protect the intrinsic value of biodiversity, the continued functioning of vital ecosystem services, the health of residents, and the success of economic sectors that rely on a healthy natural system.

To meet this objective, the Township should use recent data on natural resources, such as the data included in the Township Natural Resource Inventory, to designate areas that are more and less suitable for development. The Township's Environmental Commission and Shade Tree Commission should continue to provide high-quality input into the review of development applications that affect environmentally sensitive areas.

*12. Control the location and expansion of infrastructure to conserve the rural character of the Township.*

Public infrastructure, particularly sewer service, induces growth and development. The Township plan is to maintain the rural character that exists in Millstone. Infrastructure expansions should be limited to restrain the development pressures on the rural areas of the Township, and to help achieve the Township land and water conservation and farmland preservation objectives.

*13. In the face of increasing concern for the ability of the Township to prepare and respond to environmental hazards, the Township recognizes the relationship between open space lands, environmental features, and resiliency.*

Open space, conservation, and recreation planning will support hazard mitigation efforts, as well as use planning strategies that minimize the potential for damage to recreational facilities during storm and other severe weather events.

## INVENTORY OF PRESERVED PARKLAND

The starting point to assess the Township need for open space is the inventory of existing public and private open space, recreation resources, farmland, and natural resources within the Township. The Township, in compiling its inventory, has also reviewed State and County plans for open space preservation to determine how they impact Millstone. The inventories and mapping compiled by the Township provide a baseline of information for developing a local plan to meet public recreation and resource conservation needs.

### Categories of Parkland

Open space generally encompasses three categories of land, each with differing purpose:

1. Active recreation, such as soccer fields, football fields, baseball and softball diamonds, running tracts, or exercise trails, which provide opportunities for physical activity;
2. Passive recreation, such as hiking trails, picnic areas, bird watching, quiet places, bike paths, equine / multi-use trails (walking, cross-country skiing, snow shoeing, bicycling uses), fishing, and boating, which are suited to lower-intensity activities; and
3. Natural resources protection areas, such as forest lands, wetlands, floodplains, steep slopes, stream corridors, and others, which preserve environmentally sensitive and natural lands with aesthetic or ecological resource value for the enjoyment of present and future generations. In some instances, these natural areas contain an element of passive recreation.

Open space and recreation areas are protected through a variety of land preservation tools with varying degrees of permanence. New Jersey municipalities often preserve recreation and open space land through Green Acres, a state-run program with a mission “to achieve, in partnership with others, a system of interconnected open spaces, whose protection will preserve and enhance New Jersey’s natural environment and its historic, scenic, and recreational resources for public use and enjoyment.” Green Acres provides funding for open space acquisition and park development, with the understanding that property preserved through the program is placed on a municipal Recreation and Open Space Inventory (ROSI). Once itemized on the ROSI, a property is considered permanently preserved and cannot be developed.

Many preserved properties are purchased outright by local governments, also referred to as a “fee simple” holding. Alternatively, governments can purchase public usage rights within a tract

of private property, generally referred to as an easement. Finally, there are instances in which vacant / undeveloped property is owned outright by a municipal government, but is not permanently preserved as open space or recreation land. These lands can be preserved in the future through the attachment of deed restrictions or a listing on the ROSI.

#### Inventory of Parkland 2017

A new inventory of parklands was undertaken as part of this Plan with the intention of capturing the existing conditions of the conservation, open space, and recreation lands within Millstone Township as they stand currently, and to identify emerging issues related to recreation and open space. Preparation of this list involved data from the Township, the New Jersey Green Acres Program, and Monmouth County, among other sources.

#### Public Park and Recreation Facilities

There are 5,453.2 acres within Millstone Township, or 23% of the Township land area, owned by the State, County or Township and permanently dedicated and preserved as open space, parks, or outdoor recreation areas (see Table 13). Total parkland now consists of the following totals by ownership:

- 2,600.8 acres of State parkland, inclusive of 656.8 acres of additional land over 2007 figures, consisting of the Assunpink Wildlife Management Area, the Prospertown Lake Wildlife Management Area, and an unnamed Preserved Watershed Tract;
- 1,820.8 acres of County parkland, inclusive of 564.8 acres of additional land over 2007 figures, consisting of Perrineville Lake Park and Charleston Springs Golf Course; and
- 1,031.6 acres of Township owned parkland, inclusive of 436.6 acres of additional land over 2007 figures, consisting of recreation and open space areas owned through fee simple purchase and easements on tracts and trails.

Each level of government is responsible for providing certain types of open space and recreation facilities. Municipal government provides the close-to-home and easily accessible park and recreation facilities that meet the immediate needs of residents. Playgrounds, athletic fields, court sports, picnic areas, passive areas for enjoyment of local scenery and views, and opportunities for water contact sports, are typical recreation opportunities found in local park facilities. Of the Township-owned lands, 292.7 acres are devoted to parks with active recreation facilities.

TABLE 13: Preserved Public Parkland in Millstone Township, by Ownership Entity		
Ownership	Total Area (acres)	% of Township Land Area
State of New Jersey	2,600.8	10.9
Monmouth County	1,820.8	7.6
Millstone Township	1,031.6	4.3
Totals	5,453.2	22.8

### State Parks and Open Space

There are two large State Wildlife Management Areas located in Millstone Township. The Assunpink Wildlife Management Area is located in the eastern central portion of the Township, extending into neighboring municipalities. The Prospertown Lake Wildlife Management Area is located in the southern tip of the Township. These lands are owned by the State of New Jersey and managed by the New Jersey Department of Environmental Protection Division of Fish, Game and Wildlife. As part of the State system of wildlife management areas, these lands have been reserved to protect and enhance the habitat needed to maintain the diversity of the State's wildlife, and to optimize the distribution and density of the State's fish and wildlife populations. The management areas provide a variety of resource based recreation such as hunting, fishing, boating, horseback riding, hiking, and wildlife observation.

Table 14 summarizes all of the State-owned parkland in Millstone.

The State is pursuing additional open space protection in Millstone as part of its program to establish a continuous greenway of parks and open spaces across central New Jersey from Trenton to the Jersey shore, as discussed in the Inventory of Current Plans section below.

### County Parks and Open Space

The Monmouth County Park System currently owns and maintains 1,820.8 acres as public open space and recreation sites in Millstone. This overall acreage is mostly divided between Perrineville Lake Park in the eastern central portion of the Township (1,042 acres) and Charleston Springs, a 770-acre site that has been developed with a golf course and trail system. The County has continually expanded these two sites by acquiring adjacent lands. Both parks each have some recreational component, whether it be the golf course and trails at Charleston Springs or the



passive trails and watersports offered at Perrineville Lake Park. The County is currently in the process of updating its Open Space and Recreation Plan, as discussed in the Inventory of Current Plans section below.

Table 15 summarizes all of the County-owned parkland in Millstone.

TABLE 14: State-Owned Parkland in Millstone									
Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	Type	New	ROSI	Acres
18	Assunpink Wildlife Management Area	B 1.01: 1, 1.02 / B 1.02: 4 / B 2.01: 1-3 / B 2.01: 1-3, 6 / B 5: 1-4, 13-17 / B 6: 5, 6.01 / B 31: 24 / B 32: 1.01-7, 9-19 / B 33: 1-3 / B 34: 1-7.04, 14.01, 15.01, 17.01, 18.01, 19		OLD YORK RD, WHITCOMB RD, NURKO RD, PARKSIDE RD, RISING SUN RAVERN RD, N SIDE ASSUNPINK, MITCHELL RD, STAGECOACH RD	Fee Simple Holding	Passive Rec / Cons	in part	No	1,654
19	Prospertown Lake Wildlife Management Area	B 55: 1, 2.01, 7.01-14, 16		OLDE NOAH HUNT RD, MONMOUTH RD	Fee Simple Holding	Passive Rec / Cons	in part	No	820
42	Preserved Watershed Land	57	2.02, 34	TRENTON-LAKEWOOD RD	Fee Simple Holding	Open Space / Cons		No	113, 13.8
43	Unnamed joint with State	35	24.01, 24.02	YELLOW MEETING HSE RD	Lease Agreement	Open Space / Cons		Yes	14.88, 34.75

TABLE 15: County-Owned Parkland in Millstone									
Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	Type	New	ROSI	Acres
16	Charleston Springs Golf Course	B 44: 5-6.01, 14, 14.01 / B 64: 11.01, 13-17.01, 21, 22.02		SWEETMANS LN, WOODVILLE RD, & STAGECOACH RD	Fee Simple Holding	Active Rec		No	770
17	Perrineville Lake Park	B 13: 1.02, 3.03, 4 / B 14: 2.03, 3, 4.01-4.03, 11.09 / B 27: 1-2.03, 14.01, 15.02, 15.03, 16.01, 32 / B28: 3, 4 / B 29: 3-5.01, 7.01, 7.03, 8, 9.01, 17-19, 21/B 30: 3, 3.01, 4, 11		FAIRPLAY RD, WITCH'S HOLLOW RD, PERRINEVILLE RD, PINEHILL RD, SWEETMANS LN, BAIRD RD, OTHERS	Fee Simple Holding	Passive Rec / Open Space / Cons	in part: + 550 ac	No	1,042
41	Unnamed County, vicinity of Prospertown Lake	55	17, 19	642-652 MONMOUTH RD	Fee Simple Holding	Open Space / Cons			4.2, 4.8

## Millstone Township Parks and Open Space

Millstone Township lists 45 parcels held in fee simple ownership and 66 sites or trails held through permanent easement on its Green Acres Recreation and Open Space Inventory (ROSI). These lands total 1,031.6 acres. In the inventories that follow, some of the individual parcels have been grouped when they are part of the same contiguous parkland facility. The Township-held parklands can be divided into four use categories as follows.

### 1. Active Recreation

The Township has provided or planned active recreation facilities at the following locations:

TABLE 16: Township-Held Active Recreational Parkland in Millstone									
Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	New	ROSI	Acres	Partial Lot?
1	Little League Fields (Leased)	12.01	7	771 PERRINEVILLE RD	Fee Simple Holding		Yes	26.88	
5	Wagner Farm Park	24.03	15.15	4 BAIRD RD	Fee Simple Holding		Yes	23.31	
7	Rocky Brook Park	29	13	901/905 PERRINEVILLE RD	Fee Simple Holding		Yes	4.56	Yes
13	Charles Abate Park	45	5.33	29 CHARLESTON SPRINGS RD	Fee Simple Holding		Yes	25.04	
14	Millstone Park	52	2, 13, 14	RED VALLEY RD	Fee Simple Holding	Yes	Yes	18.51, 157.6, 3.12	Yes
15	Brandywine Soccer Complex	62.02;62.03	1, 48;1	156-170 STILLHOUSE RD	Fee Simple Holding		Yes	7.02, 3.48; 23.18	

These active recreational parks add up to 292.7 acres of land. Each park offers a different array of recreational courts, fields, and other sport-specific facilities. Figure 6 summarizes the types of activities supported in each of the public and Board of Education recreation facilities in Millstone.

Millstone Township organizes a number of sports leagues and events throughout the year. Table 17 summarizes the types of recreational programming and events offered by the Township on an annual basis.

Figure 6. Facilities Inventory at each Active Recreation Park in Millstone

Park Name	Baseball	Baseball Jr	Softball	Tee Ball	Football	Lacrosse	Soccer	Field Hockey	Multi-Purpose Field	Basketball	Tennis
Little League Fields	1	2	1	1							
Wagner Farm Park					1				2	0.5 (indoor)	
Brandywide Fields							8				
Abate Park									2	3	3
Rocky Brook Park										1	4
Millstone Elementary / Middle School Complex	1		1	1					1		
Millstone Middle School						1			2		
Millstone Park									9 (4 lighted)		
Totals	2	2	2	2	1	1	8	0	16	4.5	7

Park Name	Handball	Playground	Gymnasium	Trails	Kayaking / Canoeing	Fishing	Picnic Area	Golf	Concessions / Kitchen	Bathroom
Little League Fields									yes	yes
Wagner Farm Park		1							yes	yes
Brandywide Fields										yes
Abate Park	1	1		yes						yes
Rocky Brook Park		1								
Millstone Elementary / Middle School Complex			2							yes
Millstone Middle School			2							yes
Millstone Park		1		yes	1 ramp	1 pier			yes	yes
Totals	1	4	4	-	1	1	0	-	-	-

Indicates fields with lights

The Township is currently completing the process of constructing the Millstone Park as an active recreation complex that will contain nine multi-purpose fields (four lighted), which will create additional facilities for soccer, and lacrosse, an area with restrooms and concession stands, a fishing pier, boat ramp, playground, and multi-use trails. In the future, additional baseball fields may also be added during subsequent development phases.

TABLE 17: Township Recreational Programming by Season			
Youth Programs			
Spring	Summer	Fall	Winter
Soccer: Instructional Soccer: Travel Soccer: Special Needs Lacrosse Tennis	Summer Camp Basketball Wrestling Tennis	Soccer Soccer: Travel Soccer: Special Needs Field Hockey Tennis Pop Warner Football Pop Warner Cheer	Basketball Basketball: Travel Basketball: Special Needs
Adult Programs (Year-Round)		Public Events / Celebrations	
Men's Basketball Co-Ed Volleyball Co-Ed Soccer Tennis (except winter season)		Millstone Day (September) Holiday Lighting (December)	

## 2. Open space tracts that include limited passive recreational components

This type of Township and Privately-held parkland mainly functions as un-programmed, unimproved, natural open space land, but includes some accommodations for passive recreation, mainly in the form of trails for walking, biking or horseback riding that are generally enjoyed for the purpose of being outside in nature. Also included in this category are parklands that are included on the ROSI as the grounds of historic buildings, where people might walk or hold events. The acreage of parklands in this category totals approximately 260 acres.

TABLE 18: Public Parkland and Privately-Held Land with accommodations for Passive Recreation in Millstone									
Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	New	ROSI	Acre(s)	Partial Lot?
2	Orchard Buffer & Orchard Trail	12; 14.01	53; 31	800-805 PERRINEVILLE RD	Fee Simple Holding		Yes	7.73; 42.86	
3	Scotto Open Space & Trail	17	18.06	5 SCOTTO FARM LN	Fee Simple Holding		Yes	21.95	
4	Lyle Farm Open Space & Trail	24.03	11.21	LYLE FARM LN REAR	Fee Simple Holding		Yes	22.5	
6	Unnamed Open Space & Trail	25	1.10	15 BAIRD RD	Fee Simple Holding		Yes	40.56	
8	Clarksburg Cultural Center (formerly the Clarksburg Methodist Episcopal Church)	34	13.02	512 STAGE COACH RD	Fee Simple Holding	Yes	Yes	0.53	
9	White Birch Open Space & Trail	39.01	19.01	96 BACK BONE HILL RD	Fee Simple Holding		Yes	30.41	
10	Livak Farm and Trail	42	3.08	FORMAN RD	Easement	Yes	Yes	17.6	Yes
11	Shield Road Open Space & Trail	43	15.02	SWEETMANS LN/REID LN	Easement		Yes	32.75	
12	Shield Road Open Space & Trail	43.01	1	SHIELD RD	Fee Simple Holding		Yes	34.72	
21	Rocky Brook Watershed	12; 14; 29	50; 18, 43; 12.02	PERRINEVILLE RD; HAMPTON HOLLOW RD; MILLSTONE RD	Fee Simple Holding		Yes	3.56; 38.2, 1.44; 1.17	
27	Thomas Baird Homestead	24.04	6	24 BAIRD RD	Fee Simple Holding	Yes	Yes	7.35	Yes
29	Unnamed Open Space	46	5	111 BACK BONE HILL RD	Fee Simple Holding		Yes	19.02	
32	Unnamed (Perl Acres North)	54	5.05	TRENTON-LAKEWOOD RD	Fee Simple Holding	Yes	Yes	16.33	Yes

3. *Open Space tracts held solely for conservation purposes, with no active recreational improvements or passive recreational accommodations.*

There are approximately 480 acres of Township-held open space that are pure conservation lands without any recreational component. There are also additional privately-owned lands which provide a similar service. Table 19 details the location and size of these facilities.

TABLE 19: Public Parkland and Privately-Held Land, Conservation Open Space Only (no recreational component of any kind)									
Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	New	ROSI	Acres	Partial Lot
20	Orchard Buffer / RB Watershed	12	37	280 DISBROW HILL RD	Fee Simple Holding		Yes	14.81	
22	Farmland (Leased)	13; 13.01	2.01; 1	756-770 PERRINEVILLE RD	Fee Simple Holding		Yes	22.77; 10.09	
23	Millstone River Watershed (north)	20.01; 40.01	18, 30; 15	ALGONQUIN TER, WINDING CREEK DR	Fee Simple Holding		Yes	4.27, 1.12	
24	Millstone River Watershed (south)	40.01	15	ROONEY CT	Fee Simple Holding		Yes	2.08	
25	Conover Road Buffer	23	13.02, 13.26	29 CONOVER RD	Fee Simple Holding		Yes	1.08, 1.01	
26	Hickory Drive Forest	23	13.15	17 HICKORY DR	Fee Simple Holding		Yes	23.28	
28	Unnamed Open Space	35	8	12 EPHRAIM RD	Fee Simple Holding	Yes	Yes	31.07	
30	Lebers Lane Open Space	47	7	LEBERS LN	Fee Simple Holding		Yes	15.68	
31	Gravatt Circle Open Space	47	9.01, 9.09	60-70 BROOKSIDE RD	Fee Simple Holding		Yes	11.77, 5.5	
33	Trenton Road Buffer	55.01	6	BRUERE DR	Fee Simple Holding		Yes	5.01	

Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	New	ROSI	Acres	Partial Lot
34	Stagecoach Road Open Space	62	13.02	105 STAGE COACH RD	Fee Simple Holding		Yes	1.3	
35	Manalapan Branch Watershed	62.02	28	16 LUCAS LN	Fee Simple Holding		Yes	5.83	
36	Wolcott Drive Open Space	62.04	1	1 WOLCOTT DR	Fee Simple Holding		Yes	5.01	
37	Wetherill Drive Open Space	62.05	1	3 WETHERILL DR	Fee Simple Holding		Yes	5.15	
39	Livak Farm	43	12.06	FORMAN RD	Easement	Yes	Yes	12.59	Yes

#### 4. Permanently Preserved Linear Trails

One of the unique aspects of Millstone's parkland development strategy is the equal weight that the Township gives to creating a system of linear greenways as linkages between traditional parkland parcels. The Township has an active bridle / multi-use trail easement acquisition program, and has thus far obtained easements that total 20 acres of additional preserved land that is listed on the ROSI. These linear pathways are multi-use, available for horseback riding, walking, cross-country skiing, snow shoeing, and bicycling. They also perform the important ecological task of providing corridors for wildlife that moves across the Township between larger natural areas. Table 20 provides the inventory of these linear parklands.

TABLE 20: Linear Parkland, Trails and Corridors Independent of Open Space									
Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	Facility Type	ROSI	Acres	Partial Lot
A	Ridings Wildlife Corridor	6	6.02, 6.04-6.06	3-8 DRESSAGE CT	Easement	15' Wildlife Corridor	yes	1.71	yes
B	Rosemont Farms Trail	12	1.23-1.26, 1.33-1.35	10-16 VAUGH CT, 1-3 BURNS CT	Easement	15' Bridle/Walking Path	yes	1.2	yes
C	McFie Trail	14	13	8 AGRESS RD	Easement	50' Bridle/Walking Path	yes	0.58	yes
D	Galloping Hills Trail	17	14.01-14.07, 14.22-14.29	1-12 DANSER DR, 1-15 PALMER CIR	Easement	15' Bridle/Walking Path	yes	1.58	yes
E	Buono Bridle Trail	17	24.03	116 BAIRD RD	Easement	15' Bridle/Walking Path	yes	1.55	yes
F	Bright Meadows Trail	17	26.24	8 PRODELIN WAY	Easement	10' Bridle/Walking Path	yes	0.19	yes
G	Riverbrook Trail	23	25.09-25.15	1-11 COOK CT	Easement	15' Bridle/Walking Path	yes	1.03	yes
H	Trail	25	1.08, 1.09	BAIRD RD	Easement	30' Bridle/Walking Path	yes	1.47	yes
I	Agress Rd Wildlife Corridor	31.02	15	REAR OF ALPINE DR	Fee Simple Holding	Wildlife Corridor/ Bridle Walking Path	yes	1.26	
J	Jacob Wildlife Corridor	37.01	8, 12-14	AGRESS RD, JACOB DR	Easement	15' Wildlife Corridor	yes	0.55	yes
K	Robbins Wildlife Corridor	37.02	25	38 S ROBBINS RD	Easement	20' Wildlife Corridor	yes	0.18	yes
L	Horzepa Bridle Trail	42	2.04-2.08	ROBERTS RD, 35-41 FORMAN RD	Temporary Easement	15' Bridle/Walking Path	yes	0.96	yes
M	Monmouth Meadows Trail	45	5.34	CHARLESTON SPRINGS RD	Fee Simple Holding	Bridle / Walking Path	yes	1.16	



Map ID	Name	Block(s)	Lot(s)	Location	Ownership Type	Facility Type	ROSI	Acres	Partial Lot
N	Hoffman Trail	45	9	45 CHARLESTON SPRINGS RD	Easement	15' Bridle/Walking Path	yes	0.34	yes
O	Riordan Trail	45	10.06	STAGE COACH & CHARLESTONE SPRINGS	Easement	15' Bridle/Walking Path	yes	1	
P	Paddocks Trail	45	11.08, 11.09, 11.12	DOCTORS CREEK CT, STILLHOUSE RD	Easement	15' Bridle/Walking Path	yes	0.45	yes
Q	Boyken Trail	46	4.01	320 STAGE COACH RD	Easement	15' Bridle/Walking Path	yes	0.57	yes
R	Halka Trail	46	6	85 BACK BONE HILL RD	Easement	10' Bridle/Walking Path	yes	0.56	yes
S	Restine Trail	46	9	240 STAGE COACH RD	Easement	Bridle / Walking Path	yes	0.46	yes
T	Wagner Trail	46	21	145 STILLHOUSE RD	Easement	10' Bridle/Walking Path	yes	0.68	yes
U	Infante Trail	54	2.11	OLDE NOAH HUNT RD	Easement	15' Bridle/Walking Path	yes	0.97	yes
V	Sawmill Trail	57	33	23 BURNT TAVERN RD	Easement	Bridle Path variable width	yes	3.58	yes
W	Troy / Hoffman Trail	64	5.06	54 CHARLESTON SPRINGS RD	Easement	Bridle Path variable width	yes	0.04	yes
X	Fredericks Trail	64	10.06	52 STAGE COACH RD	Easement	Bridle Path variable width	yes	0.48	yes
Y	Top Step Farm	38	1	279 MILLSTONE/BITTNER RD	Easement	Public Access Path/Area	Yes	11.94	Yes

The trails in Table 20 above are those which are linear and independent of other lands, situated outside of any existing open space tract. These trails are generally located along the edges of private property as conservation or bridle path/multi-use trail easements. In two areas in particular,

the Township has obtained easements consistently enough that a complete linkage has almost been obtained, with relatively small gaps to fill in the coming years. The trails in Table 21 below are routes within public open space and recreation properties. Some trails in this latter category are not precisely routed, as reflected in the inventory map (Map 19) in orange.

TABLE 21: Trails <i>within</i> Parklands and Privately-Owned Lands						
Map ID	Name	Block(s)	Lot(s)	Location	Owner	Ownership Type
aa	Orchard Buffer & Orchard Trail	12	53	805 PERRINEVILLE RD	Twp	Fee Simple Holding
bb	Orchard Buffer & Orchard Trail	14.01	31	800 PERRINEVILLE RD	Twp	Fee Simple Holding
cc	Scotto Open Space & Trail	17	18.06	5 SCOTTO FARM LN	Twp	Fee Simple Holding
dd	Lyle Farm Open Space & Trail	24.03	11.21	LYLE FARM LN REAR	Twp	Fee Simple Holding
ee	Wagner Farm Park & Trail	24.03	15.15	4 BAIRD RD	Twp	Fee Simple Holding
ff	Bairdsville Open Space & Trail	25	1.10	15 BAIRD RD	Twp	Fee Simple Holding
gg	White Birch Open Space & Trail	39.01	19.01	96 BACK BONE HILL RD	Twp	Fee Simple Holding
hh	Livak Farm and Trail	42	3.08	FORMAN RD	Private	Easement
ii	Shield Road Open Space & Trail	43	15.02	SWEETMANS LN/REID LN	Private	Easement
jj	Shield Road Open Space & Trail	43.01	1	SHIELD RD	Twp	Fee Simple Holding
kk	Unnamed Open Space	46	5	111 BACK BONE HILL RD	Twp	Fee Simple Holding
ll	Perrineville Park Trails	multiple		multiple	Mon Cty	Fee Simple Holding
mm	Charleston Springs Trails	multiple		multiple	Mon Cty	Fee Simple Holding
14	Millstone Park	multiple		multiple	Twp	Fee Simple Holding
18	Assunpink Wildlife Management Area	Multiple		Multiple	State	Fee Simple Holding
19	Prosperstown Wildlife Management Area	Multiple		Multiple	State	Fee Simple Holding

Map ID	Name	Block(s) / Lot(s)	Location	Owner	Ownership Type
42	Preserved Watershed Land	Multiple	Multiple	State	Fee Simple Holding
43	Unnamed Joint with State	multiple	Multiple	State	Fee Simple Holding

#### Board of Education Recreation Facilities

There are three public primary schools (grade K through 8) in Millstone Township, owned by the Millstone Township Board of Education. Secondary education (grades nine through twelve) is provided outside of the Township. The Township schools include a number of active recreational facilities as recorded in the facilities chart above (figure 6).

While school outdoor fields and indoor courts are not open to the general public on a regular basis, they do provide practice space and fields for active recreation that are utilized by large segments of the Township's school-aged population, and are sometimes used for Township recreation programs such as basketball and volleyball.

TABLE 22: Board of Education Buildings with Recreation Facilities							
Map ID	Name	B	L(s)	Location	Owner	Facility Type	Acres
qq	Millstone Elementary School	49	1, 2.01	SCHOOLHOUSE RD	BD OF ED - TOWNSHIP OF MILLSTONE	Active Rec	-
rr	Millstone Middle School	25	1.08, 1.09	BAIRD RD	BD OF ED - TOWNSHIP OF MILLSTONE	Active Rec	-

#### Private and Alternative Recreation

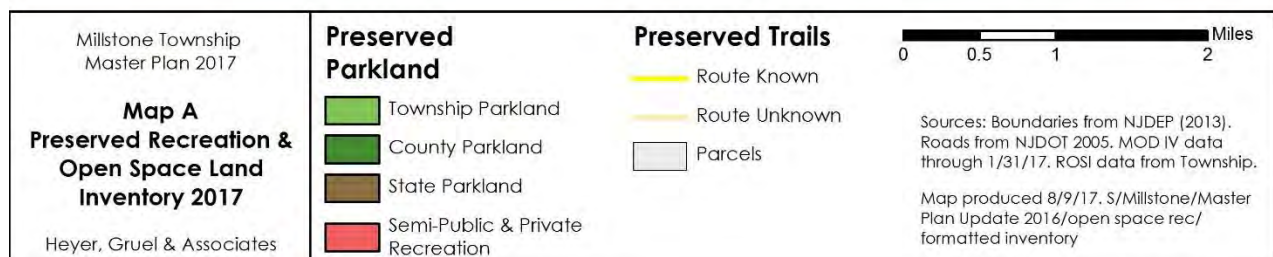
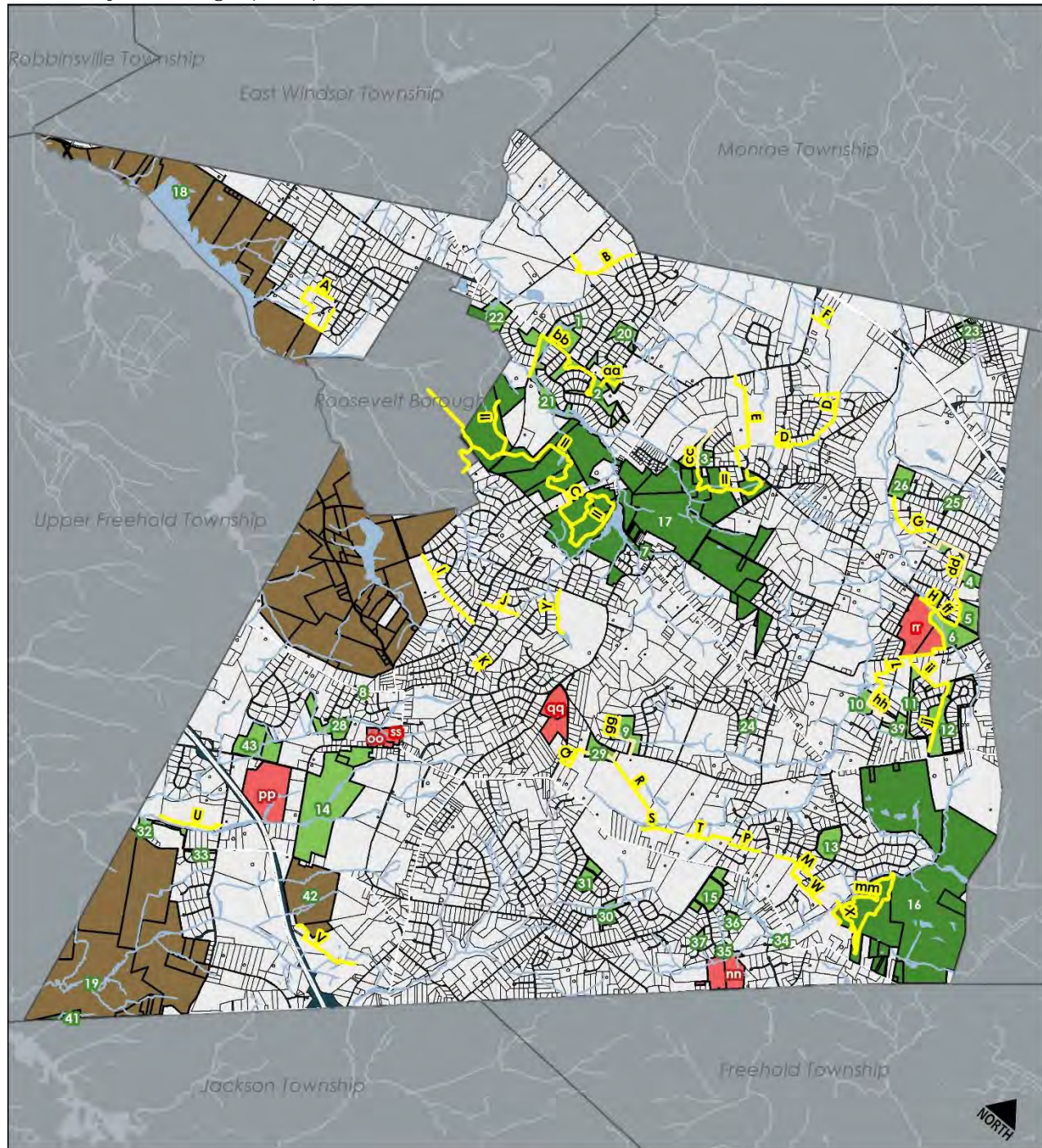
Private recreation facilities operating within the Township include the YMCA of Freehold, and two day camps. The 2007 Recreation and Open Space plan notes that Black Bear Lake Day Camp has allowed Little League teams to use a field on its property, but that the camp ground operators are concerned about liability issues. As of 2007, the YMCA has a soccer field, two multipurpose fields, and a combination baseball/softball field, and is interested in partnering with Millstone Township to allow for the use of its facilities by publicly-organized recreation leagues.

Finally, the Millstone Community Center is a public facility that provides some alternate forms of recreational activities, especially for senior citizens, which does not necessarily fit cleanly with the definitions for active and passive recreation areas, but should be mentioned as an “alternative Township space where light forms of recreation such as exercise classes could be programmed.

TABLE 23: Private and Alternative Recreation Facilities							
Map ID	Name	B	L(s)	Location	Owner	Facility Type	Acres
nn	YMCA of Freehold	62	23, 24	360-380 MONMOUTH RD	Y.M.C.A. OF FREEHOLD	Active Rec	25.82, 13.5
oo	Black Bear Lake Day Camp	35	17.01, 19, 19.02	RED VALLEY RD	BLACK BEAR LAKE REAL ESTATE CO LLC	Active Rec	8.39, 11, 2.11
pp	Frogbridge Day Camp	53	2	7 YELLOW MEETING HSE RD	SCENIC VIEW HOLDING COMPANY, LLC	Active Rec	85.28
ss	Community Center	35	18	463 STAGE COACH RD	TOWNSHIP OF MILLSTONE	Indoor Recreation	-



Map 19. Inventory of Existing Open Space/ Recreation Lands in Millstone



### Inventory of Current Open Space / Recreation Plans

Many of the jurisdictions listed above have current plans or imminently pending acquisitions for open space, linear greenways, and / or active recreation lands in Millstone Township. The following section inventories these existing plans and objectives, so that they are known and understood as the Township considers yet additional potential open space and recreation resources.

#### State Open Space and Recreation Planning

Over time, two greenway plans have been considered at the State. The current status of some of these projects is unknown. The Township includes them here to demonstrate their support if these plans do begin to come to fruition. Meant as a means for creating an east-west greenway axis from Trenton to the Jersey Shore at Wall Township, the *Capital-to-the-Coast* Greenway project included plans for a route across Millstone from the YMCA camp to the Assunpink Wildlife Management Area. This route has been shown on Map 20.

A second State greenway project was developed with the goal of preserving New Jersey landscapes and sites related to the American Revolution. Ideas for the *Crossroads of the Revolution* program included a greenway connection to Monmouth Battlefield State Park from the west and the south, with easement acquisitions extending south from the Battlefield in Manalapan, across Millstone, and into Crosswicks in Burlington County. An exact route for this project is unknown.

#### Monmouth County Open Space and Recreation Planning

Cooperative multi-jurisdictional efforts are often the most effective means of achieving open space and other parkland preservation goals. Recognizing this fact, Millstone Township is eager to work with the State and County in achieving coordinated preservation, maintenance, and programming.

The last adopted Monmouth County Open Space plan dates to 2006. At that time, the County had two major acquisition goals in Millstone Township; a 230-acre infill expansion around the Charleston Springs Park that would eliminate inholdings and fill irregular boundaries, and a 1,200-acre expansion of Perrineville Lake Park that would expand park capacity, protect the park from incompatible development, and preserve the stream corridors, trail corridors and forested areas of Rocky Brook.

The County plan had also supported the creation of a greenway along Millstone River from the headwaters in Millstone to the Middlesex County border through shared Township and County efforts. This greenway does not appear to have been implemented in full, though the Township has acquired linear conservation easements in block 23 along a portion of the River, which is currently referred to as the Riverbrook Trail.

The County's 2006 Plan includes a number of goals and objectives that are compatible with the Township's open space policies. The Township has taken concrete actions in keeping with many County goals, including the following:

1. Encourage municipalities to develop open space plans that address local issues of redevelopment, protection of natural, cultural and historic resources, recreation opportunities, preservation of community character, and green infrastructure.
2. Encourage municipalities and private developers to pursue creative development techniques such as cluster zoning and lot size averaging as a means to protect natural, cultural, and historic resources and protect and potentially create public recreation resources without the expenditure of public funds.
3. Encourage pedestrian and bicycle linkages between different open space areas and between open space areas, residential areas, schools, and other centers of activity.
4. Seek interagency cooperation to preserve open space of county significance and work to avoid interagency competition or conflict.
5. Consider and balance the need for public access and recreation with the needs of the working agricultural landscape.

As of spring 2017, the County had begun the process of updating its open space and recreation plan. Input on open space and recreation issues, opportunities, and areas of potential coordinated preservation activity was solicited at meetings between Township and County representatives.

The County remains committed to the as-yet unfulfilled acquisition goals for Millstone that were established in the 2006 plan.

Trail and connections between open space areas was a major topic of conversation between the Township and the County in this round of County open space planning. The following connections were discussed as priority linkages for development:



- Perrineville Lake Park to Charleston Springs Golf Course and Park through Pine Hill and Shield Road Trail
- Back Bone Hill to Charleston Springs Park
- Charleston Springs Park to the Turkey Swamp Park in Freehold Township
- Perrineville Lake Park to properties along Baird Road
- Perrineville Lake Park to the Perrineville neighborhood from Baird Road to Agress Road
- Perrineville Lake Park through the Assunpink Wildlife Management Area to the County-managed Union Transportation Rail Trail
- Pedestrian bridge on 527 at Charleston Springs Golf Course

The Township also supports deeding the McFie Trail easement (identified as Trail C in Map 19 above) to the County, which has more resources at its disposal to ensure proper trail maintenance. Such a transfer of easement ownership is logical given that this trail is the line of connection between two disjointed segments of Perrineville Lake Park.

The updated plan also considers the development of new County facilities within Millstone. The discussion of potential facilities included, but is not limited to, the following high priority items:

- Picnic areas and pavilions in existing County Park facilities;
- A park information center and office at Perrineville Lake Park;
- An environmental center in the Witch's Hollow area of Perrineville Lake Park; and
- A bicycle motocross and freestyle BMX park at former mine sites.

The Township is also interested in having certain activities and programs introduced to the County facilities in Millstone to promote usership, including, but not limited to, the following:

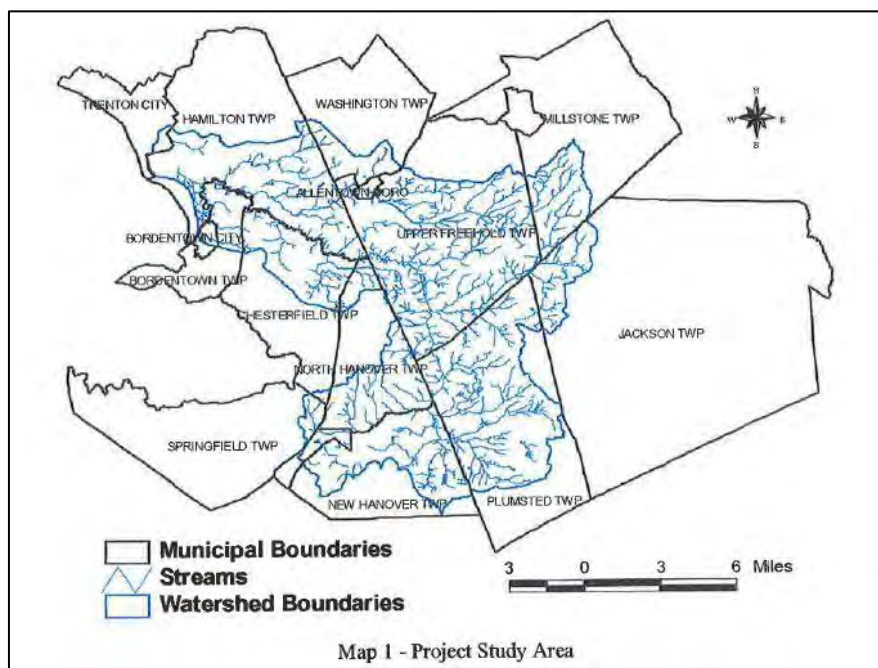
- Outdoor cooking demonstrations;
- Winter sports;
  - Cross-country skiing (with rentals available during peak season)
  - Snow shoeing
  - Outdoor ice skating;
- Nature walks and programs;
- Bird stewardship and watching;

- The development of a cooperative habitat management plan; and
- The development of a trail team for Millstone.

As the County develops the final updated plan document, Millstone Township representatives will continue to lobby for these projects and objectives. The approximate geographic locations of these trails and some of the suggested facilities improvements are included in Map C below.

#### Regional Open Space / Recreation Planning

Developed in 2004, the Crosswicks Creek / Doctors Creek Watershed Greenway Plan was prepared by a consortium of six municipalities consisting of Millstone, Allentown Borough, Hamilton Township, Plumstead Township, Upper Freehold Township, and Washington Township. Working together, this group developed a greenway trails system, serving the three purposes of water quality protection within the Crosswicks Creek Watershed, recreational trail development, and the preservation of historic vistas and site.



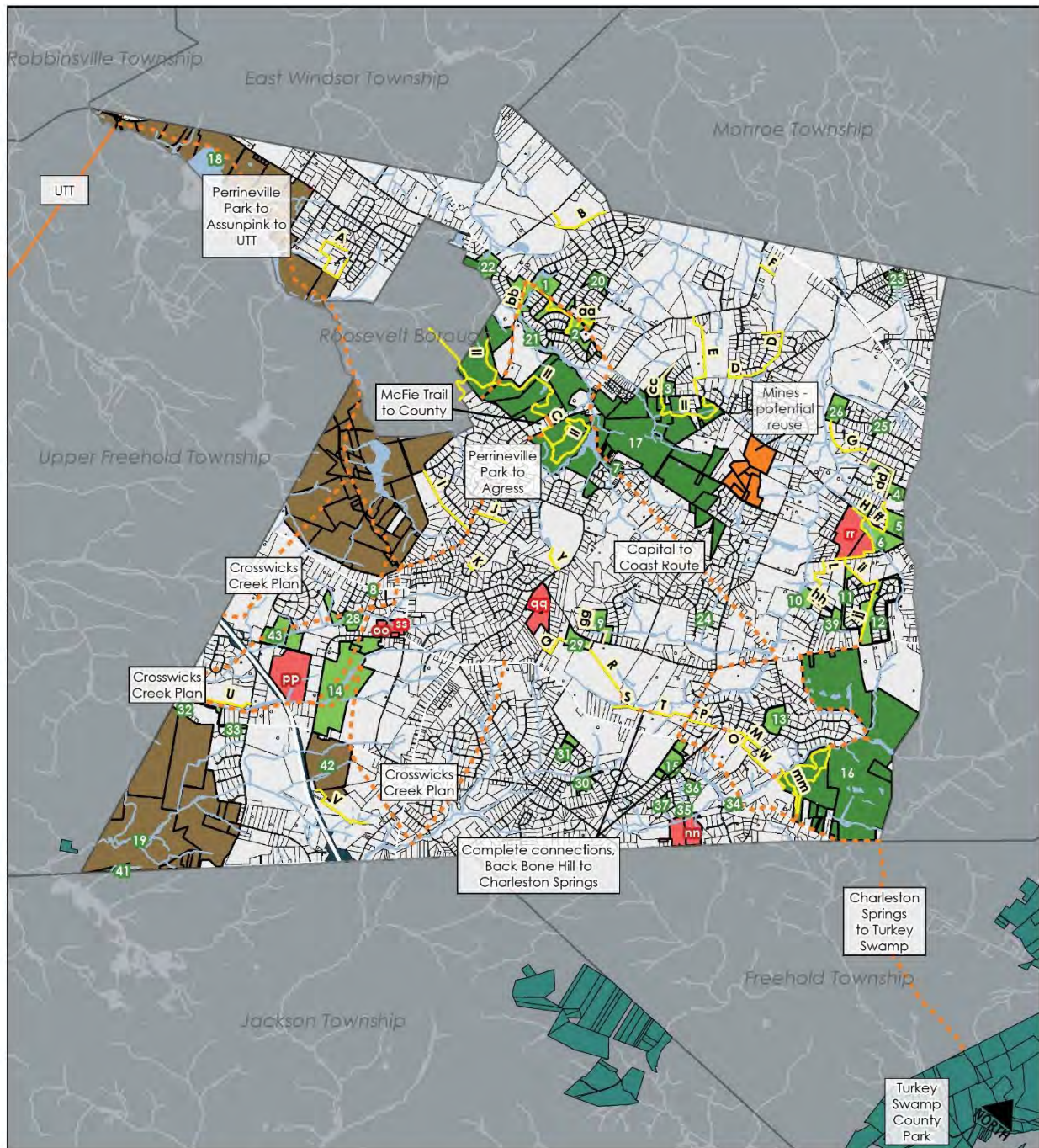
*Excerpt from the 2004 Crosswicks Creek Greenway Plan showing the watershed area*

An Amendment to the Millstone Township Open Space, Recreation, Conservation and Farmland Preservation Plan Element was made in January 2008, officially adopting the Crosswicks Creek / Doctors Creek Watershed Greenway Plan as part of the Millstone Master Plan. In addition to the proposed trail routings shown on Map 20, the Plan included other recommendations that would also support the purposes of greenway implementation, including the following:

- Stream corridors should be protected by conserving a 35-foot or greater buffer and by protecting steep slopes from development. Municipalities should adopt a riparian buffer ordinance.
- Municipalities in the watershed should implement the new NPDES Phase II permit regulations as soon as possible.
- New development plans should be reviewed for their effect on stormwater quantity (peak flow and volume) and quality.
- Environmental ordinances should be adopted by the municipalities. These new ordinances should include Steep Slopes and Stormwater Management.
- New zones should be created in the municipal zoning ordinances, such as a water quality protection zone (which would include floodplain protection, wetland protection, and riparian buffer protection).
- Historic preservation and historic vista protection ordinances should be adopted by municipalities. These ordinances should include design criteria for lessening the visual impact of new development.
- Municipalities should negotiate with developers to acquire easements, particularly for areas that are included in the greenway plan and areas that are environmentally-sensitive, such as wetlands.
- A feasibility study should be performed to identify the specific location of proposed trails and historic markers.

In Millstone, most of these recommendations have already been addressed.

Map 20. Proposed Trails in Millstone Township – State, County & Regional Jurisdictions



Millstone Historic Preservation Efforts

As a rural community with a long-standing agricultural tradition, Millstone Township includes a number of historic buildings and structures. In some instances, historic buildings are located on properties that are also appropriate for open space preservation designations.

*Cultural Resources*

The first inhabitants of Millstone were the Lenape Indians. European settlement expanded into Millstone during the colonial era from the Baptist and Quaker communities in eastern Monmouth County. Compared to other areas in Monmouth's western "panhandle", Millstone's development in the eighteenth century was slowed by its hilly terrain and sandy soils. During the American Revolution, Millstone's topography and hills provided a secret post, known as signal beacon #21, for the Continental Army. The Rising Sun Tavern in Millstone provided headquarters for General George Washington, commander of the Continental Army, as well as the British commander, General Sir Henry Clinton. The tavern, long since demolished but memorialized in the name of a Township road, also accommodated such notable wayfarers as Benjamin Franklin and Joseph Bonaparte, Napoleon's brother.

The Monmouth County Historic Sites Inventory describes the importance of taverns in Millstone's past:

*Clusters of 18th century settlement occurred at Gaston's Mill at Perrineville, and along the Burlington Road at Burnt Tavern (so named after the original tavern was destroyed by fire in 1806), later called Charleston Springs. Another early tavern, the Willow Tree Tavern, was located on Stage Coach Road near what later became Clarksburg.*

*Rural inns were important to the early development of Millstone Township because it was roughly mid-point on trans-Jersey routes between settlements on the Delaware River and the Navesink. In 1851, Millstone had at least nine hotels while having a population of under two thousand. Only the Smithburg Hotel remains. The Clarksburg Inn was lost to a fire on July 30, 2009. (Source: Monmouth County Historic Sites Inventory Summary Report 1983)*

By the first half of the nineteenth century, an agricultural land use pattern in the Township had been established with farmsteads throughout the Township and population clusters at Carrs Tavern, Holmeson, Smithburg, Sweetman, Bergen Mills, Bairdsville Stone Tavern, Clarksburg, and Perrineville. These were linked by a rural road network, much of which has survived to the present



day. Examples include Stage Coach Road which diverged at Clarksburg into Backbone Hill Road and continued north to Englishtown, Matawan, and South Amboy. The road names of the Township echo early experiences as described by the Township historian:

*Our surrounding roads contained stories and folklore filled with the riches of our past. On such road is called Paint Island Spring. It was named in the 1800's for its now long forgotten spring that rested on the side of the road. At one time it was used by the Indians for the attractive colors it produced. Later, doctors prescribed its waters for medicinal purposes. It was once so visited it became a park for all to enjoy. (Source: Dorothy Polhemus, Millstone Township Historian).*

Millstone was created as a separate Township in 1844 from Freehold Township and Upper Freehold Township. With the exception of the roads created in the post-World War II era by the residential subdivisions and by Interstate 195, nearly all the roads in Millstone can be located on the mid-nineteenth century maps of Monmouth County.

During the New Deal and the Great Depression of the 1930's, the Township's rural location and economy drew the attention of the "back-to-the-land movement" and the Federal Government. The Subsistence Homesteads Division and the Resettlement Administration planned and developed a new community within Millstone with the purpose of decentralizing industry and providing rural homesteads for urban workers. Jersey Homesteads, as it was originally called, was an agro-industrial cooperative populated by Jewish garment workers from New York City. The community separated from Millstone in 1937 and was incorporated as a separate Borough. It was eventually renamed Roosevelt. Roosevelt was listed on the State and the National Registers of Historic Places in 1983.

In 1993, the Township Environmental Commission compiled a Historic Resources Report that identifies and maps sixty-eight historic sites within Millstone. As a result of the report, the Township Master Plan recommended investigating opportunities for creating trail/greenway linkages between historic sites and open space areas to combine heritage education and recreation. Interpretive materials such as trail markers and brochures would be developed to provide education about historic and natural resources along the trail.

The following properties in Millstone combine the conservation of open space with historic preservation:

### *Clarksburg Cultural Center*

*(formerly known as the Clarksburg Methodist Episcopal Church)*

Located on Stagecoach road, the Clarksburg Cultural Center is listed on both the National and State Registers of Historic Places, and includes 0.53 acres of open space property that is listed on the Township's ROSI.

The Township is planning to continue pursuing complementary expanded recreational facilities at the Clarksburg Cultural Center. The Township is in the process of acquiring the adjacent "school house" property, at 510 Stage Coach Road (block 34 lot 13.01) to expand the site by another 0.495 acres. The additional property is a historic site in its own right, containing a one-room school house that is listed on the Monmouth County Historic Sites Inventory. The school will be used for public purposes, and the property will provide necessary facilities such as ADA bathrooms, parking, and a bicycle rest stop that promotes the use of Millstone's roadway network for long-distance cycling.

### *Thomas Baird Homestead*

The Thomas Baird Homestead, located at 24 Baird Road, adjacent to the Millstone Township Middle School. The homestead dates back to 1830, and the 7.5-acre site contains property that can be used for a number of passive recreation purposes and for community groups and activities. It is a unique asset, serving as a community space as well as an agricultural museum.

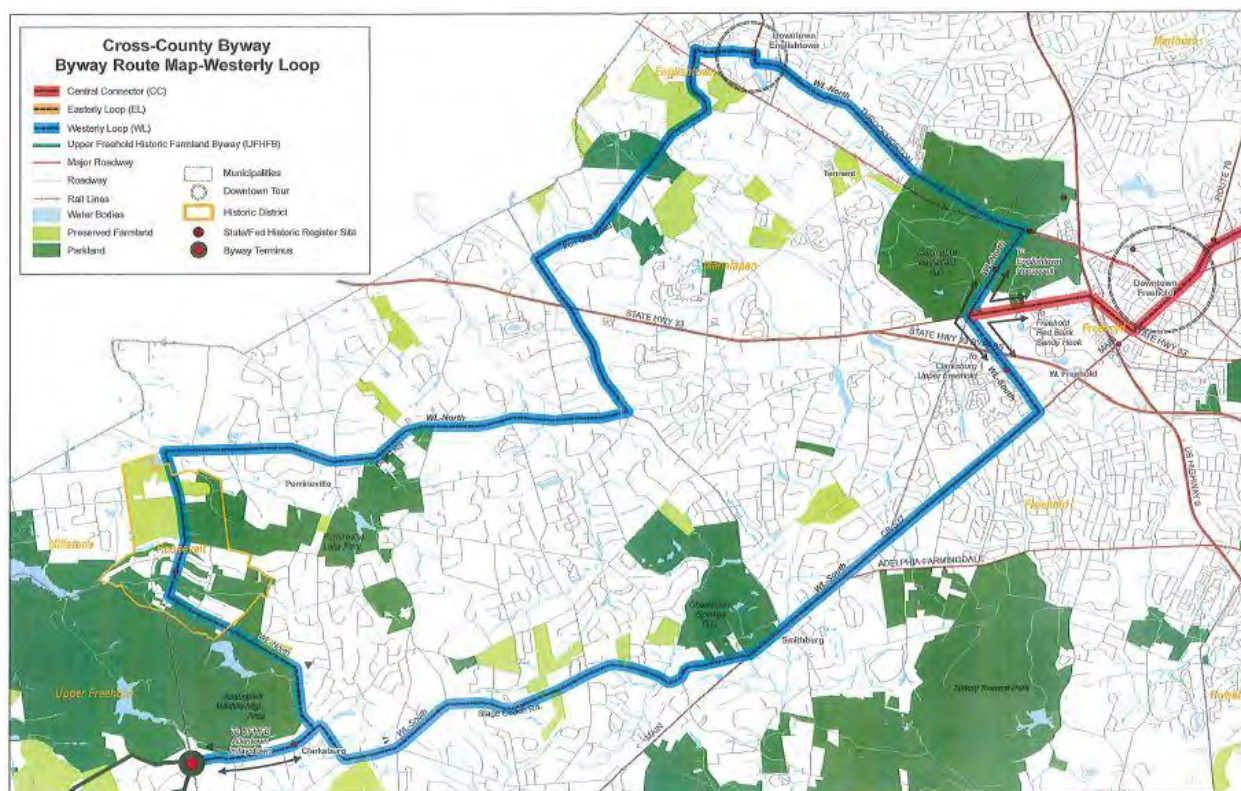
### Millstone Scenic Corridors Planning

Scenic Corridors, also known as scenic byways, are designated transportation networks that pass through high quality and unique natural, historical, or otherwise culturally significant areas. In its most recent Master Plan from 2016, Monmouth County included the objective of expanding the County-based scenic byway system. Thus far, the County has implemented a scenic byway loop in Upper Freehold Township and Allentown, which runs through twenty-four miles of the County's finest preserved natural, historic, cultural, recreational and architectural resources, and includes 68 identified points of interest.

The Upper Freehold Byway is the beginning of a larger Monmouth County Scenic Byways project, which is planned to ultimately include a route through 16 municipalities beginning at Upper Freehold and ending at Sandy Hook. The intended route through Millstone is along Stagecoach Road from Upper Freehold in the southwest to Manalapan in the northeast. The route would also



include a second alternate loop along Perrineville and Baird Roads connecting Roosevelt to Manalapan.



To support the County project, Millstone Township formed a Scenic Byways group, which did the work of identifying 49 potential viable historic sites of interest along these roadways. Monmouth County considered the identified points, and has requested that the Township group narrow the pool of potential sites to five to seven points per roadway. While no approval has yet been solicited from individual property owners, the following potential target sites have been identified for further exploration:

#### Stagecoach Road

- Stone Tavern
- Methodist/Episcopal church and Cemetery
- Original Clarksburg School
- Clarksburg Inn
- Clarksburg School
- Willow Tree Tavern
- Sweetmans Stone Bridge
- Smithburg Hotel/Tavern

#### Baird Road

- J.S . Ely House
- Farm House (Ely's Corner)
- Slack-Smith House
- Tollhouse, Distillery and Hotel (Prodelin Way & Baird Road)
- Perrineville Lake Park
- Samuel Wethrill House
- Emma Baird House
- David Baird House
- Thomas Baird House

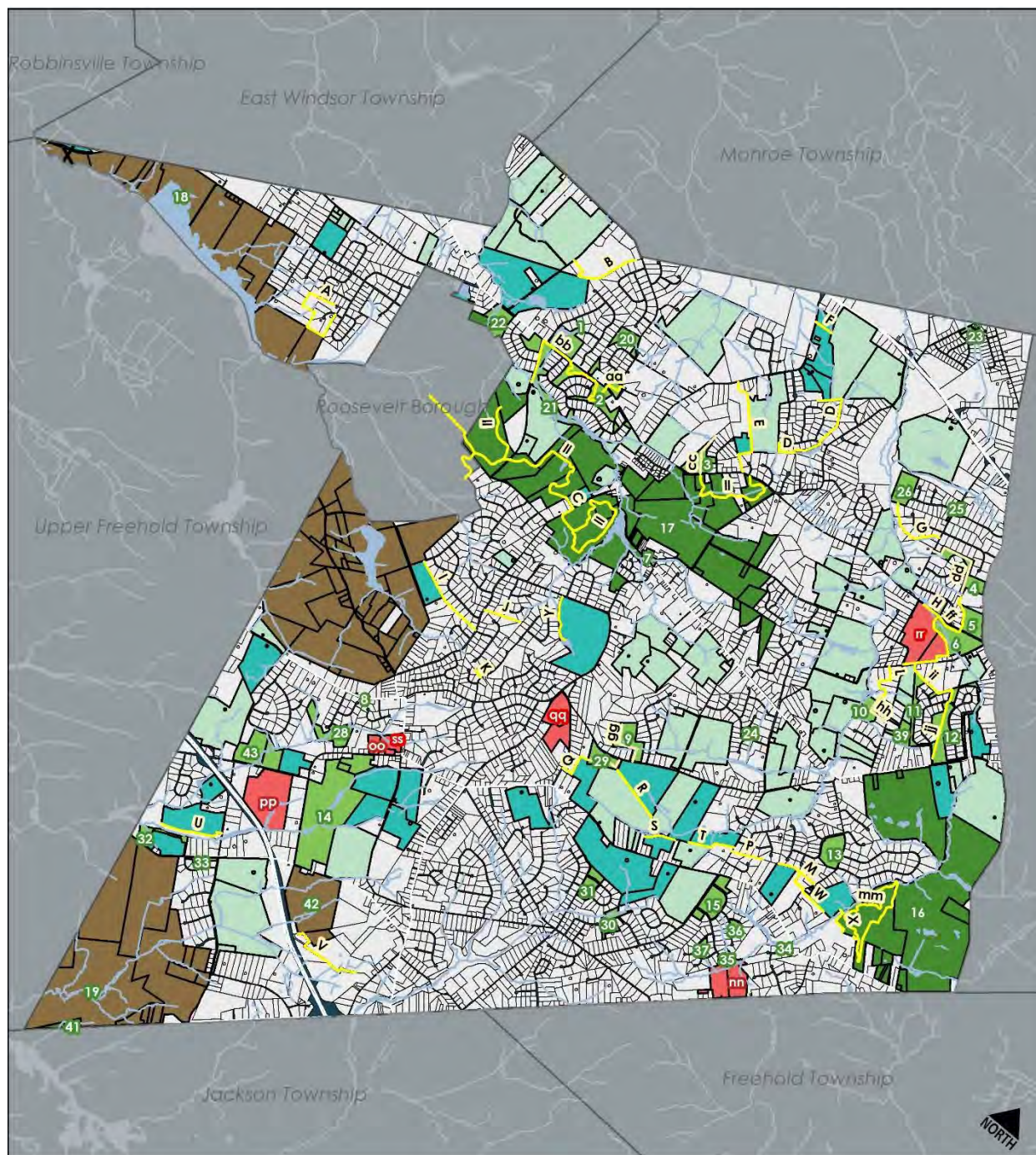
As the scenic byway designation is implemented, the Township has the option of creating opportunities for additional multi-modal transit infrastructure along these routes as recreational linkages, particularly for long-distance cyclists seeking extended rides through exceptional natural and aesthetic areas.

#### Farmland Preservation

Both farmland preservation and parkland/open space conservation are high priorities for the Township. At times these efforts are complementary, such as in instances when preserved farmland can include trail easements, providing for both future recreational and agricultural needs. In other cases, however, it makes sense to prioritize certain tracts for one category of preservation versus another, especially when preservation must be coordinated with other public entities, such as the Monmouth County Agricultural Development Board, Monmouth County Recreation Commission, State Farmland Preservation Program, or State NJDEP Green Acres Program. Map 21 shows existing parkland in the context of preserved and targeted farmland parcels.



Map 21. Open Space Preservation in the Context of Farmland Preservation



<p>Millstone Township Master Plan 2017</p> <p><b>Map D</b> <b>Preserved Parkland in the context of Farmland Preservation Goals</b></p> <p>Heyer, Gruel &amp; Associates</p>	<p><b>Preserved Parkland</b></p> <ul style="list-style-type: none"> <li>Township Parkland</li> <li>State Parkland</li> <li>County Parkland</li> <li>Semi-Public &amp; Private Recreation</li> <li>Parcels</li> </ul>	<ul style="list-style-type: none"> <li>Preserved Farmland</li> <li>Target Farms</li> </ul> <p><b>Preserved Trails</b></p> <ul style="list-style-type: none"> <li>Route Known</li> <li>Route Unknown</li> </ul>	<p>0 0.5 1 2 Miles</p> <p>Sources: Boundaries from NJDEP (2013). Roads from NJDOT 2005. MOD IV data through 1/31/17. ROSI data from Township. Preserved Farmland Data: Monmouth County</p> <p>Map produced 8/15/17. S/Millstone/Master Plan Update 2016/open space rec/ formatted inventory with farmland</p>
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## Inventory of Natural Features and Resources

Often times open space/recreation and conservation planning mutually support one another, and support related Township initiatives and policies. The following section relates some of the findings and recommendations of these particularized studies, and their relationship with open space and recreation planning. An inventory of ordinances that support open space and conservation efforts is also included.

### Millstone Natural Resource Inventory (2006)

Natural resources and open space areas often overlap, as permanent land preservation is an effective method of protecting environmentally sensitive features and natural areas. As a community, Millstone is concerned with preserving its environment, and has taken steps to identify the significant natural areas within its jurisdiction as a first step in protecting these areas from development impacts. The Township's most recent Natural Resource Inventory (NRI) dates to 2006, and includes surveys of land use, wetlands, vegetation, wildlife, threatened and endangered species, open space and conservation easements, critically sensitive areas, existing contaminated sites, surface water, ground water, soils, septic systems, wells, climate, and air quality. While the NRI contains a multitude of important information regarding the Township's natural environment, some of the most relevant findings related to open space and conservation preservation are summarized below.

### *Major and Unique Vegetation Communities*

Millstone Township is comprised of various vegetation community types. Major vegetation communities or habitats can be characterized as terrestrial and aquatic/semi-aquatic. The terrestrial or land-based habitats within Millstone are further divided into subcategories. Figure 7 identifies the habitats with dominant vegetation species noted for each. Figure 8 provides a breakdown of the semi-aquatic/aquatic habitats or lowlands present in the Township.

Land use coverage information obtained from the Department of Environmental Protection indicates that the Township contains the following vegetation types:

- cropland and agricultural
- fruit tree orchards
- deciduous upland forest
- deciduous wooded wetlands
- non-tidal emergent marshes
- brush dominant/scrubland wetlands
- reservoirs/ponds/open water areas
- old field uplands

Figure 7. Habitats and their Dominant Species

LAND BASED HABITATS			
Terrestrial Vegetation Habitats	Deciduous Woodlands	Successional Fields	
<ul style="list-style-type: none"> <li>• Orchards</li> <li>• Agricultural Lands</li> <li>• Mixed Oak, Mature, Deciduous Forest</li> <li>• Early Successional Forest – Sweetgum/Maple/Black Cherry/Sassafras</li> <li>• Early Successional Old Field</li> </ul>	<ul style="list-style-type: none"> <li>• Oak dominated forest (mixed oak)</li> <li>• White Oak</li> <li>• Red Oak</li> <li>• Scarlet Oak</li> <li>• Black Oak</li> <li>• Chestnut Oak</li> </ul>	Herbs	Woody Invaders
		<ul style="list-style-type: none"> <li>• Horseweed</li> <li>• Ragweed</li> <li>• Chickweed</li> <li>• Foxtail Grass</li> <li>• Goldenrods</li> <li>• Broom Sedge Grass</li> </ul>	<ul style="list-style-type: none"> <li>• Blackberry</li> <li>• Dwarf Sumac</li> <li>• Poison Ivy</li> <li>• Sweetgum</li> <li>• Red Maple</li> <li>• Black Cherry</li> <li>• Sassafras</li> </ul>

Figure 8. Semi-Aquatic / Aquatic Habitats / Lowlands in Millstone

Semi-Aquatic and Aquatic Habitats
<ul style="list-style-type: none"> <li>• Ponds, Lakes, Reservoirs</li> <li>• Streams, Tributaries and Ditches</li> <li>• Palustrine Forested Broad-leaved Deciduous Wetlands</li> <li>• Palustrine Emergent Wetlands</li> <li>• Palustrine Scrub-Shrub Wetlands</li> </ul>

Within the broad spectrum of all vegetative types found in Millstone, the 2006 NRI identified several “unique” communities of vegetation. A unique community refers to natural areas with a cluster of vegetation that is unique within Millstone due to their limited occurrence within the Township, with the following four unique communities identified:

1. The Pine Barrens community, located between Route 537 and Millstone Road, Carrs Tavern Road, and Brookside Road;
2. Mature upland forest “Area A,” located between Clarksburg Road, Millstone Road, Agress Road, and Bittner Road;
3. Mature upland forest “Area B,” located between Clarksburg Road, Stagecoach Road, and Millstone Road, which also contains the headwaters of Doctor’s Creek; and

4. Mature upland forest "Area C," located between Sweetman's Lane, Millstone Road, Backbone Hill Road, and Halka Road, contain the headwaters of Rocky Brook and the Millstone River and is also the location of two mines.

The type of vegetation community is directly related to the soil substrate and morphology, elevation, seasonal high water table, geologic patterns and climatic factors.

#### *Wildlife and Biological Diversity*

Different vegetation communities are utilized by various species of wildlife. Certain critical factors of habitat are necessary in order for a particular species to exist and thrive. The presence of a water source, cover, and adequate food supply are all vital components of preferred habitat for wildlife species. The importance of each is dependent upon the species use of a particular habitat. Many species are year-round inhabitants for all stages of its life (breeding, resting, foraging, and nesting); other species may be transients or require a particular habitat just for breeding. These latter wildlife species may be dependent on larger or regionally diversified habitats to meet its specific needs. Therefore, the diversity of wildlife is a function of the variety of plant communities.

All vegetation communities go through ecological succession. These natural communities have patterns associated with time and space within major regional plant communities. The types of animals found in each community are typically dependent on the types of plants present. The number of different species in an area is termed species richness. Species diversity within a particular habitat or plant community is a combination of richness and abundance (number of individuals of various species). The stability of any species and its habitat is based on maintaining a constant population without a decline of the species.

Wildlife diversity in Millstone Township is based on the various types of habitats. Unique or important wildlife habitats are areas typically associated with the floodplains and freshwater wetlands of the various streams that cross the Township. Species diversity is reliant upon the availability of sufficient habitat to support a species and to sustain it through its life cycle.

Lands within Millstone also provide habitat for several threatened and endangered species, and species of special concern. The 2006 NRI identified the following specific species as referenced within Millstone:



TABLE 24: Endangered, Threatened, and Special Concern Species with Habitat in Millstone	
ENDANGERED SPECIES	
Common Name	Habitat
Bog Turtle	Emergent Wetlands & Forested Wetlands
Timber Rattlesnake	Forested Wetlands & Forest
Vesper Sparrow	Grasslands
THREATENED SPECIES	
Northern Pine Snake	Forest & Grassland
Pine Barrens Treefrog	Emergent Wetlands, Forested Wetlands & Forest
Wood Turtle	Emergent Wetlands, Forested Wetlands, Grassland & Forest
Frosted Elfm	Emergent Wetlands, Forested Wetlands, Grassland & Forest
Barred Owl	Forested Wetlands & Forest
Bobolink	Grasslands
Cooper's Hawk	Forested Wetlands, Forest & Grassland
Savannah Sparrow	Grasslands
Grasshopper Sparrow	Grasslands
SPECIES OF CONCERN	
Black-throated Green Warbler	Forested Wetlands & Forest
Eastern Box Turtle	Grassland & Forest
Fowler's Toad	Emergent Wetlands & Forested Wetlands
Northern Parula	Forested Wetlands & Forest
Spotted Turtle	Emergent Wetlands & Forested Wetlands
Yellow-breasted Chat	Forested Wetlands & Forest
American Kestrel	Grasslands

Several specific areas have also been identified as environmentally significant due to the presence of habitat for threatened, endangered, or at-risk species listed above. These areas include:

1. The area of the Township in the vicinity of Roosevelt marsh and the Assunpink Creek corridor, which provides habitat for numerous reptile and amphibian species, as well as plant species; and
2. The forested wetlands areas along Ivanhoe Brook, which provide habitat for many migratory birds and which have been identified as having high ornithological significance by the group Herpetological Associates; and
3. Stream corridors and associated wetlands along the headwaters of Doctor's Creek, Assunpink Creek, Ivanhoe Brook, Rocky Brook, Manalapan Brook, Metedeconk Creek, Toms River, and Millstone River, which provide essential habitat for wildlife, including



threatened and endangered species, and which also positively contribute to water quality and flood control; and

4. The JCP&L Swamp state-designated Natural Heritage Priority Site, which is partially located within Millstone, along its eastern border.

Language in the NRI points out that these are not the only areas of the Township that might contain threatened and endangered vegetation and wildlife. Tools used for the identification of habitat, such as the NJDEP Landscape Project and Natural Heritage Program identify suitable habitat, not necessarily a definitive survey of the presence of these species. The NRI supports mandating intensive surveys in proposed development areas if suitable habitat exists on site.

Open space and conservation planning can support populations of threatened and endangered species by targeting known and likely habitat areas for land preservation. As can be seen in Map 22, many environmentally sensitive areas are situated within preserved lands such as the Assunpink and Prospertown Lake Wildlife Management Areas. Unique Community Upland Forest Areas A and B appear to be largely developed, but large lot areas still exist in Upland Forest Area C, which may be a candidate for targeted preservation efforts. Other large tract and minimally developed, unpreserved environmentally sensitive areas are concentrated in the northern portion of the Township near the border with Monroe Township, along Rocky Brook, the Millstone River, and Bentley Brook.

The Township has gone above and beyond typical efforts to preserve wildlife and biodiversity, threading concerns for threatened and engendered species across multiple areas of its zoning and development review ordinance. The Township enacted several amendments to its development review ordinance regarding threatened and engendered species in May 2010 that had the following effects:

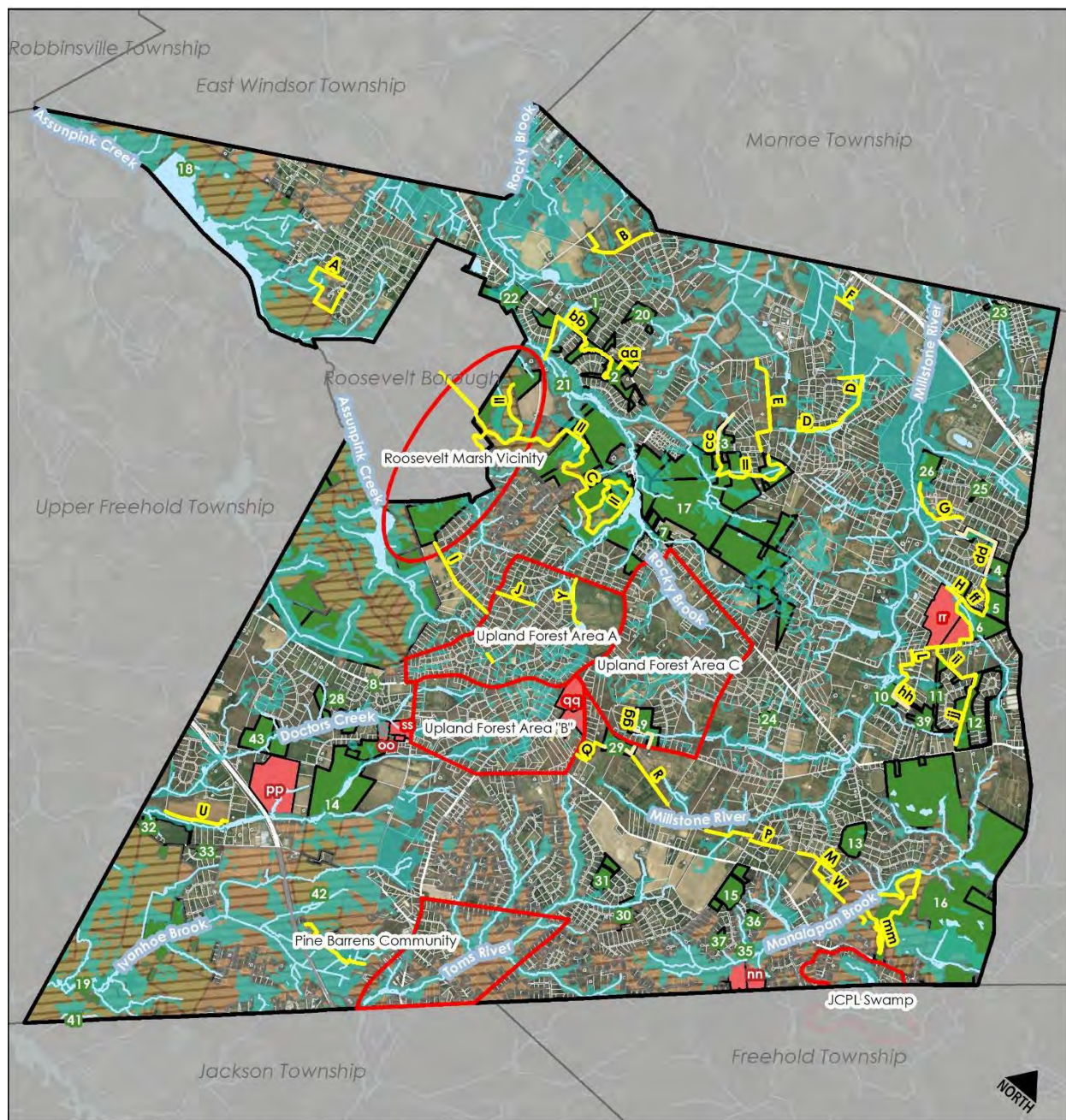
- Added endangered species, suitable habitat and threatened species definitions;
- Included endangered or threatened species as a natural feature to be retained in the Preservation of Natural Features section of the Township's Land Use Ordinances;
- Added the presences of threatened and endangered species as an additional criterion to be included in the Land Use Development Application for Determining the Need for a Statement of Environmental Impact and Assessment (SEIA);
- Adds additional criteria to be included in the development application Completeness Checklist regarding threatened and endangered species;

- Included endangered or threatened species habitat to be preserved in the RU-P and RU-C zoning districts and in the Design Provision for Farmland/Open Space Conservation Clusters within those zones;
- Amended the requirements regarding easement and wildlife corridors located in various types of easements located within the Township and further provided certain prohibited activities within the various easements;
- Created a Threatened and Endangered Species Ordinance within the Township's Land Use and Development Regulations.

The Threatened and Endangered Species Ordinance itself requires applicants for major or minor subdivision and site plan approval to complete a threatened and endangered species investigation prior to any development application being deemed complete by either the Township Planning Board or Zoning Board of Adjustment. It further requires that any area of a subject property located outside of a protected wetland where a threatened or endangered species or suitable habitat (defined as NJDEP Landscape Project Rank 3, 4, or 5) is identified shall be contained within a conservation easement including an extended 15' perimeter buffer.

In recognition of the unique commitment to preserving threatened and endangered species that this ordinance represents, the Association of New Jersey Environmental Commissions awarded Millstone Township an Environmental Achievement Award in October 2010.

Map 22. Parkland and Environmental Features



*Surface Water*

Concerning water resources, Millstone is located within 5 of New Jersey's 20 Watershed Management Areas. In 2002, The Township contracted with Shaw Environmental & Infrastructure, Inc. (Shaw) to perform a watershed assessment. Twenty sites were selected for assessment within Doctors Creek, Ivanhoe Brook, Manalapan Brook, Millstone River, Rocky Brook, Toms River and Bentley Brook. The watershed assessment found that the overall health and quality of the streams and their associated wetlands is good. Most of the streams that were visited were well buffered with well-functioning, high quality wetlands, however three sites selected for rapid bioassessment analysis found moderately impaired water quality based upon biological criteria.

Several management practices were recommended including stabilization of a portion of Rocky Brook; yearly inspection of stormwater detention basins; providing buffers and "no mow zones" along streams; limit the removal of vegetation on parcels; restricting excessive use of pesticides and herbicides within riparian corridors. Some of these recommendations, particularly stream corridor buffers, can be supported by open space and conservation planning that prioritizes these areas for preservation and acquisition, as well as by land development regulations prohibiting intensive activity in these areas.

*Air*

Air quality is monitored by the NJ Department of Environmental Protection, Bureau of Air Monitoring. Millstone falls into the Northern Coastal monitoring region, where there are three monitoring sites located in Colliers Mills, at Monmouth University, and in Freehold. These stations monitor for carbon monoxide and ground-level ozone. In general, the air quality in the vicinity of Millstone Township is stable. Carbon monoxide does not exceed national thresholds. Unhealthy levels of ozone often occur in the summer months. Unhealthy ozone levels were observed on two days at the Monmouth University monitoring station and on eight days that the ozone level exceeded the standard at Colliers Mills during 2004.

Open space and conservation planning is helpful in maintaining air quality within the Township. The preservation of trees, through the regulation of tree removal during development; the requirements of conservation easements and horse trail easements; the acquisition of open space; and preservation of farmland ensures that natural areas will be preserved throughout the Township. These efforts help to limit the overdevelopment of the Township thereby minimizing the associated increase in pollutants.

## Inventory of Conservation-Oriented Plans, Groups, and Ordinances

Millstone Township Community Forestry Management Plan (2015)

Shade trees in public parks and along public right of ways contribute to the environmental quality and aesthetic beauty of open space and recreation areas, as well as other public zones. To maintain the quality of its shade trees, the Township's Shade Tree Commission prepared its second Five-Year Community Forestry Management Plan with a time horizon through December 31, 2019.

The Plan's Mission Statement provides the basis for its goals and objectives, reading, "Millstone Township is an environmentally concerned community with a mission to create and promote a sustainable, productive, healthy and safe community forest and shade tree resource which will improve the quality of life for our residents." A series of goals and objectives are then advanced in order to achieve this mission, related to the topics of hazardous tree reduction, street tree inventory, public education and awareness, Arbor Day celebration, tree maintenance, care and removal, training and education, tree recycling, Community Forestry Program compliance and grant opportunities, and protecting the Township's rural character and existing tree resource. Specific objectives related to open space and recreation tracts include the following:

1. Continue to identify and remove hazardous trees on municipally-owned properties including: parks, schools, municipal building lots and open space property, prioritizing from high use to low use areas.
2. Ensure trees planted on Township owned properties are properly watered and maintained by Township employees, Shade Tree Commission members and/or volunteers.
3. Provide Gator Bags or the equivalent on newly planted trees in municipal parks and open space areas where water supply is limited.
4. Under supervision by the DPW, the Township will maintain a storage area for wood chips which can be utilized by residents on private property. The Township will allow volunteer groups to utilize wood chips for trails within the municipal open space and trails program.
5. Require, when possible, a conservation easement in areas of existing specimen trees on proposed development sites.
6. Preserve specimen tree species on municipal open space property that is proposed for future recreational development.
7. Create a Heritage Tree Ordinance for Millstone Township.

8. The Shade Tree Commission in conjunction with the Township tree professional, and Township officials will develop and maintain a comprehensive tree disaster plan including: Insect and Disease Management Program and a Storm Damage Assessment and Response Plan.
9. Purchase quality trees and ensure proper installation on municipal building lots, parks, open space properties and schools.
10. Develop an arboretum on Township owned property which can be expanded during Arbor Day celebrations.
11. The Shade Tree Commission will assist the Township on the creation of a Rain Garden at one of the municipal properties to be utilized for educational purposes. Many residents within the Township have drainage issues that may be alleviated with the creation of a rain garden on their own property to properly manage stormwater from impervious surfaces and roof gutters.

This Master Plan element adopts these goals from the Community Forestry Management Plan, and any Township department working on open space and recreation projects will take these goals and objectives into consideration.

#### Inventory of Related Land Development Ordinances

Beyond the enumeration of goals and policies, the Township has implemented a number of land development ordinances that support the ongoing preservation of land and conservation of environmentally sensitive areas. These ordinances are in effect and apply to major development applications that come before the Planning Board and Zoning Board of Adjustment, and are also used by other reviewing boards such as the Environmental Commission and Shade Tree Commission. The following inventory lists those conservation-oriented standards and practices presently in place:

#### *Open Space Trust Fund*

Millstone residents have demonstrated that the Township open space preservation effort is a community-wide endeavor. In 1994, responding to growing development pressures, the Township established an Open Space and Farmland Preservation Council. Township voters subsequently approved a dedicated tax of one cent to preserve its farmland. In 1997, Township voters approved an additional levy of two cents and expanded its objective to include the conservation

of lands for open space and outdoor recreation. In 2000, Township voters added another two cents to the levy, and then another one cent in 2006. The levy for open space and farmland preservation is currently at six cents per hundred dollars of assessed valuation, and its scope has expanded. It currently generates approximately \$1.1 million per year for open space, conservation, recreation, farmland preservation, and historic preservation purposes.

In 2000, Millstone also applied for and was approved under the Green Acres Planning Incentive Grant (PIG) Program for funding from the Green Acres Preservation Trust to acquire land for outdoor recreation and open space use. Funds from the Township levy continue to be used to leverage funds from the Green Acres Preservation Trust to preserve open space in Millstone.

#### *Active Citizen-Led Committees*

A number of citizen committees focus on issues related to open space preservation, recreational facility development, and environmental conservation. The Environmental Commission takes an active role in reviewing proposed development to determine potential environmental impacts, with the mission of being "concerned with the protection and preservation of our environment and its natural resources by fostering environmental awareness, understanding and appreciation. The MTEC recognizes the importance of sound environmental policies and activities in maintaining the highest possible standards and best management practices. Integral to our mission is our advocacy of preservation of the qualities of life afforded by a rural environment."

The Township's Shade Tree Commission engages in similar activities to the Environmental Commission, but with a focus on landscaping and tree health. Shade Tree reviews the landscape plans for major subdivisions and commercial sites and make recommendations to the planning Board regarding the suitability of the proposed plantings. It also prepares and executes a 5 Year Community Forestry Management Plan that is charged with updating regulations, identifying community activities to promote awareness of tree health and guiding the planting, care and control of shade and ornamental trees and shrubbery upon and in Millstone's streets, highways, public places, parks, and parkways.

The Parks and Recreation Commission focuses on active recreation development, with the goals of providing instruction and opportunity equally to all participants in recreational activities, and cultivating a variety of recreational opportunities available to as many Township residents as possible.



The Open Space and Farmland Preservation Council has assumed a number of responsibilities, including the promotion of open space and farmland preservation, the acquisition of conservation and trail easements, and oversight of the open space land stewardship program. As part of the Open Space Stewardship Program, members of the Open Space and Farmland Preservation Council are in the process of photographing Township-owned properties and easements dedicated to the Township for the purpose of ensuring their continued maintenance.

The Agricultural Advisory Council also plays a role in land preservation. It serves several functions, including compiling and maintaining an inventory of farming and agricultural lands within the Township, encouraging and promoting farming and agricultural-related activities, recommending to the Open Space and Farmland Preservation Council lands for farmland preservation, assisting farmers in making applications for farmland preservation programs, and promoting the Right to Farm Act (N.J.S.A. 4:1C-1 et seq.) including educating the community about the Act and assisting in mediating right to farm issues. Subject to the preexisting approval of the Township Committee, the Agricultural Advisory Council is empowered to complete, review and, if appropriate, approve farm applications pursuant to State Agriculture Development Committee (SADC) regulations and policies, including N.J.A.C. 2:76-17A.3 "Grant eligibility" and N.J.A.C. 2:76-17A.9, "Committee review of an application for the sale of a development easement." The Council Chairperson may execute the "Affidavit of Municipal Advisory Committee Verification."

A Watershed Council is also listed on the Township's website, but its exact mission and the purview of its activities has not been provided.

#### *Conservation-Oriented Zoning Districts*

Maintaining the rural character of the Township, preserving farmland and open space, and protecting the environment are three main objectives of Millstone's Land Use Plan. In order to achieve these goals, two conservation-oriented planning areas were adopted in 2003; the RU-P Rural Preservation Area and the RU-C Rural Conservation Area.

The RU-P Zone covers approximately 47% of the Township's land area. These areas consist of large tracts of existing farmland and prime agricultural soils, typically at least 10 acres in size. To maintain this development pattern, the RU-P Zone requires a minimum of 10 acres per dwelling unit. Lot size averaging and residential clustering are permitted on qualifying parcels. As an incentive to utilize the cluster provision of the ordinance, bonus lots are offered in exchange for dedicating 70% of the land area to farmland and/or open space. In an effort to ensure that buildable land is

preserved, a condition is placed that a minimum of 50% of the open space area cannot contain freshwater wetlands, wetland buffers, 100-year flood plains, areas of topographic slopes 15% or greater and/or stream corridor buffers required by Delaware & Raritan Canal Commission, Millstone Township, Monmouth County and/or the State of New Jersey.

The RU-C Zone covers approximately 2% of the Township's land area. Regular and qualified farms represent the largest percentage of this zone; however, it also includes some substantial tracts of vacant land associated with environmentally sensitive areas such as wetlands, floodplains and headwater areas. The RU-C Zone requires a minimum of 6 acres per dwelling unit. Lot size averaging and residential clustering are permitted on qualifying parcels. As an incentive to utilize the cluster provision of the ordinance, bonus lots are offered in exchange for dedicating 75% of the land area to farmland and/or open space. Like the RU-P Zone, in an effort to ensure that buildable land is preserved, a minimum of 50% of the open space area cannot contain freshwater wetlands, wetland buffers, 100-year flood plains, areas slopes 15% or greater and/or stream corridor buffers required by Delaware & Raritan Canal Commission, Millstone Township, Monmouth County and/or the State of New Jersey.

The Township's zoning ordinance also includes specific protections for riparian and Flood Hazard Areas through its FHSC Flood Hazard and Stream Corridor Overlay Zone. The purpose of the FHSC Overlay Zone is to improve the management, care, and conservation of water resources; protect significant ecological components of stream corridors such as floodplains, woodlands, steep slopes and wild life and plant life habitats within stream corridors; prevent flood damage; complement existing State, regional, County and municipal stream corridor and flood hazard protection and management regulations and initiatives; coordinate the regulation of development within stream corridors; reduce the amount of nutrients, sediment, organic matter, pesticides, and other harmful substances that reach watercourses, and subsurface and surface water bodies; regulate the land use, siting and engineering of development in stream corridors; conserve natural, scenic, and recreation areas within and adjacent to streams and water bodies; support the water resource policies of the New Jersey State Development and Redevelopment Plan; and advance the purposes of the New Jersey Municipal Land Use Law.

*Conservation-Oriented Land Development Requirements*

The following chart lists the chapter, title, and a brief description of the purposes of the major land development regulations in Millstone that concern environmentally sensitive features and open space preservation.

TABLE 25: Conservation-Related Township Ordinances		
Ordinance Section	Title	Purpose
35:4-7	Preservation of Natural Features	Limits building in drainage or conservation easement areas, building in floodplains, and the retention of natural features such as rock formations, trees, endangered or threatened species habitat, vistas, streams, and drainage channels.
35:4-14	Stormwater Management (system design)	Implements stormwater management best practices with an emphasis on non-structural or low impact design techniques over structural/engineered controls. Non-structural measures include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.
35:9-3	Statement of Environmental Impact and Assessment	Requires a Statement of Environmental Impact and Assessment to be submitted with development applications for major subdivisions and site plans, and for other applications for development or uses of land on sites within the Township which contain endangered / threatened species as identified by the NJDEP Landscape Project Habitat Ranking or the Natural Heritage Program Database; a 100-year floodplain; wetlands or wetlands transition areas (per N.J.S.A. 13:9B-1 et seq.); slopes above 15%; and/or open waters
35:11-12	Floodplain Regulations	Implements land use rules and regulations promulgated by NJDEP for floodways and the flood fringe portion of flood hazard areas in order to discourage construction, encroachments, and pollution conveyance within the flood hazard areas.
35:11-13.2	Easements and Wildlife Corridors	Requires that development on tracts where conservation values relating to scenic vistas, floodplains, wetlands and associated buffers, open space, historical areas, soil types, steep slopes, tree preservation, protection of watercourses, protection of endangered or threatened species habitat, protection of

		animal life and elimination of excessive noise are deemed to require special protection, said areas shall be located within a conservation easement.
35:11-13.3	Conservation Easement Monumentation	Requires conservation easements to be delineated in the field with posts. The monuments will help to prevent homeowners from clearing woodlands that are contained within a conservation easement on their property.
35:11-13.4	Wildlife Corridor Easements	Allows the Planning Board to require the dedication of a strip of land around the interior perimeter of all portions of a subdivision tract.
35:11-13.5	Horse Trail Easements	Allows the Planning Board to require the dedication of an easement around the perimeter of a subdivision or site plan tract pursuant to the goals of developing a horse trail network as described in the Township's Master Plan.
35:11-20	Natural Features	Requires that natural features such as trees, hill tops and views, natural terrain and natural drainage lines, shall be preserved whenever possible in designing any subdivision containing such features. Open water shall be recognized as community assets.
35:11-24	Steep Slope Buffer Requirement	Limits the disturbance of steep slopes above 15% and the area immediately surrounding.
35:11-25	Tree Preservation	Mitigates the indiscriminate, uncontrolled and excess destruction, removal of and cutting of trees upon lots and tracts of land by requiring review of proposed removal and replacement of trees.
35:11-30	Site Investigation and Soil Sampling	Requires soil sampling for all development applications due to historic pesticide contamination associated with agricultural uses.
35:11-32	Tree Clearing	Requires a Tree Clearing permit whenever a person or entity intends to remove more than 1,000 square feet of trees and/or vegetation.
35:11-33	Threatened & Endangered Species	Requires a threatened and endangered species investigation prior to any development application being deemed complete by either the Township Planning Board or Zoning Board of Adjustment, including major or minor subdivision and site plan approvals.
35:16	Stormwater Management (pollution control)	Requires property owners to appropriately dispose of yard waste, pet waste, litter, wildlife feeding, etc.
35:17	Riparian Zone Regulations	Designates and regulates activities in the riparian zone around streams, lakes and other surface waterbodies.

## NEEDS ANALYSIS

The needs analysis for open space in Millstone has two distinct components. The first component estimates the land area which should be owned and controlled by the Township and dedicated for public use and access as part of a local park system for municipal outdoor recreation. The second component is the need for open space to protect the important natural resources of the Township. Each of the need components is reviewed in this section.

Recreation needs assessments determine whether a community is adequately served by existing park and open space facilities as defined by commonly-held recreation and open space standards. Performing needs assessments on a regular basis is an important method for elucidating service gaps. These analyses provide snapshots of recreation and open space areas that can be compared across time.

### Need for Public Outdoor Recreation Areas

Some land and water features in Millstone Township have already been preserved as public open space by the State and County. In addition, there are recreation facilities at public school sites and on private land developed for recreational use. State and County park facilities and school and private recreation areas satisfy some, but not all, of the community need for recreation and open space. The largest preserved parcel in Millstone, the Assunpink Wildlife Management Area, contains 1,559 acres, or 6.6% of the Township land area. It is a wildlife conservation reserve. It provides opportunities for resource based recreation such as fishing, hunting, boating, horseback riding, nature observation, and hiking.

State and County parkland as well as school and private recreation facilities are not controlled by the Township. School land is not dedicated to permanent open space and recreation use. Schools and private recreation facilities can limit public access and may, over time, be redeveloped for non-recreational uses. Consequently, to ensure that the Township can provide residents with a variety of needed recreation programs and facilities, there should be a core system of lands owned and controlled by the Township and dedicated to local public recreation use.

Population characteristics and growth are important considerations in recreation planning. The Township population has grown continually since 1970, but at a decreasing rate. Age and household characteristics influence individual and family recreation activity and the use of public parks. As individuals and households age, the types of recreation that they engage in will change.

Most people, over their life span, will use a local public park or participate in a publicly sponsored recreation activity. Use of public park and recreation facilities is significant in all age brackets. Households with three to four members are more likely to use parks than single person households. Households with children age 12 and under are most likely to use parks frequently.

The benefits of public parks have been categorized as personal, social, facility/activity, environmental, and economic. The specific personal benefits include exercise-fitness conditioning, fun and entertainment, learning and education, relaxation, and health. The social benefits consist of getting to know people, group participation, interaction of children and adults, community awareness, and team spirit. The benefits associated with public recreational facilities include instructional classes, the joy of playing, having a place to go, having a place to recreate, exposure to arts, crafts, and watching organized sports. The economic benefit is the affordability of local park and recreation facilities.

To analyze the current and future need for close-to-home public park and recreation land controlled by the Township, the Township has considered the balanced land use standards of the State Green Acres Program as well as the core system standard of the National Recreation and Park Association.

It should be noted, however, that while historically, parks and facilities per population standards have been popular metrics, they have generally fallen out of favor. Evaluation measures have moved toward place-based planning that emphasizes community specificity and input from community members as opposed to positivist applications of "universal" standards. Though provided here for comparison with earlier analyses, these standards should not necessarily be given greater weight than general input from community members and needs observed by parks and recreation staff and coordinators. The Township has also considered the public demand for Township recreation and participation in municipal recreation programs.

#### *1. Estimates of Need for Public Outdoor Recreation Based Upon Balanced Land Use Standards*

To achieve consistency with state and regional goals, this element also considers local recreation land in light of the Balanced Land Use Standard (BLUS) that are established in the New Jersey Green Acres 2013-2017 Statewide Comprehensive Outdoor Recreation Plan. The concept treats land as a finite resource. The product of this method is an estimate of the minimum land area in Millstone which should be dedicated as Township public open space. The approach takes into

account that recreation and open space demands are generated by development which will occupy the remaining land area of the Township. Per this standard, municipalities should strive to permanently preserve 3% of their total developed and developable land area as recreation and open space areas. In this context, "open space" refers to lands that could be developed for recreation purposes. The 2013-2017 plan reads:

*Need figures derived by the Balanced Land Use method represent the minimum amount of land that should be permanently preserved and owned by local governments as public open space and available for appropriate direct public recreation uses. Open space that is protected for environmental or agricultural purposes through conservation easements, land use regulation or other means that do not provide for direct public use is not considered as part of the public reaction land supply [emphasis added].*

Developable acreage is defined as the land area of the municipality minus slopes over 12%; wetlands; and preserved open space and farmland, which, given the discussion above, we take to mean open space preserved for conservation purposes, since these are the preserved open space areas which will never provide for direct public recreation uses. The BLUS analysis for Millstone was conducted using GIS software. The basic framework of the analysis involves calculating the undevelopable land area, subtracting this amount from the total land area, and calculating the existing recreation and open space available for direct recreation acreage.

### Results

Millstone Township is comprised of 23,800 acres. Approximately 7,863 acres of land are undevelopable according to the definition in the BLUS, with undevelopable acreages falling into the following categories:

- 1,218.9 acres of preserved farmland
- 2,600.8 acres of state parkland
- 1,820.8 acres of county parkland
- 4,584.6 acres of water, wetlands, and steep slopes *outside* of the three categories above, and
- 238.7 acres of water, wetlands and steep slopes *within* Township parkland.

Subtracting the amount of undevelopable land from the total area of the Township yields a developable and developed total of 15,937 acres.



In order to comply with BLUS guidelines, Millstone Township should have ownership and control of 478.1 acres in either recreational parkland, or open space that could be developed into active recreation parkland. As discussed in the Open Space Inventory portion of this report the Township has developed 292.7 acres into active recreation parks. While the Township owns approximately 574.3 additional acres of unconstrained open space, the development potential of some of the property tracts into which these acres falls is restricted based on their current use classification as natural resources areas or special use facilities. The following chart differentiates these areas, and provides their developable land area, if any. Categories are defined as follows:

General Open Space: Undeveloped lands that have no improvements, but which also do not contain environmental constraints.

Constrained Open Space: Undeveloped lands that are undevelopable in perpetuity through conservation deed restrictions.

Special Use Facility: Open space or recreation lands that are undevelopable due to unique use constraints, such as historical status or farmland preservation, but which also have open space components.

Natural Resource Area: Undeveloped lands that are undevelopable due to the presence of sensitive environmental features and constraints.

TABLE 26: Classification of Open Space Areas to determine Developable Capacity				
Map ID	Name	Use Type	Total Acres	Developable Acres
2	Orchard Buffer & Orchard Trail	Constrained Open Space	50.59	0
3	Scotto Open Space & Trail	Constrained Open Space	21.95	0
4	Lyle Farm Open Space & Trail	General Open Space	22.5	17.1
6	Unnamed Open Space & Trail	General Open Space	40.56	27.39
8	Clarksburg Methodist Episcopal Church	Special Use Facility	0.53	0
9	White Birch Open Space & Trail	Natural Resource Area	30.41	0
10	Livak Farm and Trail	Special Use Facility	17.6	0
11	Shield Road Open Space & Trail	Constrained Open Space	32.75	0
12	Shield Road Open Space & Trail	Constrained Open Space	34.72	0
20	Orchard Buffer / RB Watershed	Natural Resource Area	14.81	0
21	Rocky Brook Watershed	Natural Resource Area	44.37	0
22	Farmland (Leased)	Special Use Facility	32.86	0
23	Millstone River Watershed (north)	Natural Resource Area	5.39	0

24	Millstone River Watershed (south)	Natural Resource Area	2.08	0
25	Conover Road Buffer	General Open Space	2.09	2.09
26	Hickory Drive Forest	Natural Resource Area	23.28	0
27	Thomas Baird Homestead	Special Use Facility	7.35	0
28	Unnamed Open Space	Natural Resource Area	31.07	0
29	Unnamed Open Space	General Open Space	19.02	12.51
30	Lebers Lane Open Space	Constrained Open Space	15.68	0
31	Gravatt Circle Open Space	General Open Space	17.27	15.05
32	Unnamed (Perl Acres North)	Constrained Open Space	16.33	0
33	Trenton Road Buffer	Constrained Open Space	5.01	0
34	Stagecoach Road Open Space	Natural Resource Area	1.3	0
35	Manalapan Branch Watershed	Natural Resource Area	5.83	0
36	Wolcott Drive Open Space	General Open Space	5.01	5.01
37	Wetherill Drive Open Space	Constrained Open Space	5.15	0
38	Top Step Farm	Conservation Easement	120.8	0
39	Livak Farm	Conservation Easement	12.59	0
40	Buono Conservation Easement	Natural Resource Area	28.45	0
Total Developable Open Space				79.15

Thus, the Township has a total of 292.7 active recreation properties, plus 79.15 acres of unrestricted, unconstrained open space land, for a total of 371.85 acres of preserved BLUS-qualifying recreation and open space land. Consequently, the Township should preserve, at a minimum, an additional 106 acres of open space developable for recreation purposes to comply with BLUS recommendations.

## 2. Estimates of Need for Public Outdoor Recreation Land Based Upon Core System Standards

The second estimation of need method is the core system standard. This method was developed by the National Recreation and Park Association (NRPA). The core system standard is used to estimate need based on existing and projected population. The NRPA standards, published in the NRPA Recreation/ Party and Open Space Standards and Guidelines/ provide guidance for developing a core system of public parks for local close-to-home recreation uses.

The National Recreation and Park Association (NRPA), in its 1995 report "Park, Recreation, Open Space and Greenway Guidelines," describes a system for park classification through which local entities can categorize parks by type, determine park service areas, and evaluate the adequacy

of facilities.<sup>8</sup> Per the NRPA description, park types are differentiated on the basis of size and function. Park types are defined as follows:

Mini Parks: This is the smallest park type. The mini park is typically less than one acre in size and usually offers a playground, and/or seating area. Mini parks are typically provided by local governments.

Neighborhood Parks: Typically, these parks range from 7-10 acres and provide a variety of active and passive recreation opportunities. These parks usually do not provide heavy athletic programming and, like mini parks, are generally offered by the local municipality.

School Parks: The school park reflects the trend toward joint use facilities. The school park may offer a variety of activities, but typically contain a variety of athletic facilities which are jointly used for school and park recreation activities.

Community Parks: These parks are a primary building block of most park systems, because they are large enough to provide a full array of recreation activities; including league play athletics. These parks also present opportunities for nontraditional types of recreation and/or passive recreation. Ideally, Community Parks should have varying topography and vegetative communities. One or more natural water features such as a lake or creek is also desirable.

Sports Complex: The sports complex is designed for heavily programmed athletic use. The sports complex is usually a minimum of 25 acres, with 40-80 acres preferred.

#### *Millstone Township Park Classifications*

Millstone Township has five parks that fit within the classifications cited above. A sixth Park, Millstone Park, is an active recreational facility that is currently under development. Together they comprise a total of 292.7 acres, and are listed individually in Table 27 below. Developing Millstone Park as an active recreational facility contributed a significant acreage to the Township's total active recreation inventory, more than doubling the previous active recreational total of 114.3 acres.

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<sup>8</sup> It should be noted, however, that although the report published a set of benchmarks, the NRPA also concluded that there was no "national standard" for park development. Instead, more recent NRPA studies acknowledge that each community is unique, and recommend the establishment of standards which reflect unique local qualities and circumstances.

TABLE 27: Improved Municipal Recreation Property			
Map Key ID	Facility Name	Acreage	Park Classification
1	Little League Fields	26.88	Sports Complex
5	Wagner Farm Park	23.31	Community Park
7	Rocky Brook Park	4.56	Neighborhood Park
13	Charles Abate Park	25.04	Community Park
14	Millstone Park	179.23	Community Park
15	Brandywine Soccer Complex	33.68	Sports Complex
TOTAL		292.7	

With relatively large lot sizes due to environmental and infrastructure constraints, as well as the Township's desire to maintain a rural character, the construction and maintenance of mini parks and neighborhood parks are lower priority endeavors for parkland development, if appropriate at all as a recreational facility type in Millstone.

The Township's acreage to population ratio for community park facilities and sports complexes is 21.7 acres per 1,000 persons and 5.7 acres per 1,000 persons, respectively. Both of these figures are above the acreage to population ratio benchmarks set for these types of facilities in the NRPA standards.

The NRPA's "core system" standard is used to estimate overall recreational need based on existing and projected population. The core standards suggest that neighborhood and community public park and recreation areas be provided to local residents at the ratio of 6.25 to 10.5 acres of parkland per 1,000 people. There has been a trend away from such an approach however, in favor of instead relying on community self-direction where the number of acres for park and recreation land is based on what citizens determine to be best for their own community.

#### Core System Calculation

Standard = 6.25 to 10.50 acres of local park space<sup>9</sup> per 1,000 people

TABLE 28: Current and Predicted Per-Population Recreation Needs (NRPA CORE System)		
Year	Population	Calculated Need (Acres)
2010	10,566	66.0 to 110.9
2020 <sup>10</sup>	10,722	67.0 to 112.9
2030 <sup>3</sup>	11,114	69.5 to 116.7

<sup>9</sup> Defined as community or neighborhood parks.

<sup>10</sup> Projections from the North Jersey Transportation Planning Authority (NJTPA)

Applying the rigid standard of 6.25 to 10.5 acres per 1,000 persons indicates that Millstone currently exceeds the recommended parameters for satisfying its current recreational needs. Based on the 2030 population projection, the Township's needs are satisfied through 2030. This projection may change, however, if a large section of the Millstone Park facility is not developed as active recreation in the years to come, and should be reevaluated on a continual basis.

#### Facilities Assessment

More specific than park type, the NRPA also published national standards for specific recreational offerings, based again on a facility-per-population metric. The table below shows the number of facilities of each type recommended per 1,000 residents and the actual number Millstone currently provides.

TABLE 29: National Standards as compared with Millstone Facilities			
Facility Type	NRPA Standard <sup>11</sup>	Calculated NRPA Quantity	Existing or Scheduled
Full Basketball Courts	1 per 5,000	3	4.5
Baseball	1 per 5,000; 1 per 30,000 lighted	3; 1	2; 1
Little League	1 per 5,000; 1 per 30,000 lighted	3; 1	2; 2
Football Fields	1 per 20,000	1	1
Multi-Purpose Field	1 per 10,000	2	7
¼ Mile Running Track	1 per 20,000	1	0
Youth Soccer	1 per 10,000	2	8
General Softball	1 per 5,000	3	2
Tennis	1 per 2,000	6	7
Volley Ball	1 per 5,000	3	0
Practice Tennis Wall	1 per 22,000	1	1
Horseshoe Pits	1 per 15,000	1	0
Shuffleboard Courts	1 per 20,000	1	0

<sup>11</sup> NRPA standard is to be used as a general guide only. The current trend is away from generalized standards and toward a community-specific approach where the number and types of facilities are demand based according to level of service needs.

### 3. Level of Service Standard Estimation of Need

Local experience with the demand for park and recreation land is an important factor in identifying the need for local parks. Communities with recreation programs for youth and adults need facilities to accommodate peak demands for fields and courts sports. While local participation rates in recreation activities vary from community to community based upon the composition of the population and specific recreation programming, communities such as Millstone typically experience high demand for fields and courts to accommodate youth activities such as soccer, softball, baseball, and basketball. The Township Board of Recreation Commissioners has expanded its recreation programming to meet the demand for both youth and adult recreation. The emphasis should be on developing a Township park system that can support diversified recreation activities. From the standpoint of development and maintenance, smaller parks and playgrounds are more expensive than larger parks.

As an alternate to the generic formula-based facility-per-population standards, the NRPA and other recreational groups have begun to advance the concept of **"level of service" standards** that are based on the observed needs in a particular community. Involvement of the community is essential to this process. The systems approach emphasizes locally determined values, needs and expectations in applying the guidelines.

Level of service amounts to a quantification of the park and open space philosophy of the community. As a first step, a recreation activity menu is developed from a list of activities, programs and facilities that are needed to satisfy current needs as determined by community participation. Needs are then converted to facilities, which are converted into spatial requirements. The level of service is then calculated based on the present supply of the recreation activity choices, the expressed demand for the choices, and the minimum population service requirements. The level of service for each individual park and the recreation and open space system as a whole is then determined. The level of service reflects the minimum amount of park land and recreation facilities needed to meet the demand as determined by the needs assessment.

The initial stages of the level of service process involve soliciting input from both the public and stakeholders. In 2007, the Township's last Recreation, Parks and Open Space Plan identified a number of needs from the anecdotal observations of staff and other stakeholders. The status of these issues has been examined during this plan update, and combined with new observations to yield the following set of pressing recreational needs.

1. There remains a lack of fields for little league practice during the spring season. This observation corroborates the shortage of little league and baseball fields found in the NRPA facilities standards. It may be possible for additional fields to be introduced to Millstone Park in later phases of its development.
2. Shade is lacking at Abate Park, and would improve user experience if added to areas such as the basketball courts and playground.
3. Park security has been a focus in recent seasons, and the Recreation Commission has become interested in installing security systems in all parks.
4. Parking has been an issue at the Brandywine facility.
5. While the Township has made great progress in acquiring bridle path / multi-use trail easements, the maintenance of these trails has been inconsistent. Creating "trailhead" areas where people can park to access these trails would improve utilization, as would educating the public and residents of adjacent communities about the availability of these trails.
6. Invasive species are a new issue that must be **addressed by the Township's conservation** and open space planning efforts. Especially where these species appear within public parkland, the Township should take action to accomplish their removal.

In addition to these observations, future recreation planning will be influenced by the changing characteristics of Millstone's population, and by trends in the popularity of various sports and leisure activities.

As with the State and County as a whole, Millstone is seeing its population age over time. Median age increased in the Township from 37.1 to 42.6 years between 2000 and 2010. In the face of this trajectory, the Township will benefit its growing senior population by prioritizing the development of additional low-impact recreational activities. Currently, there is a senior citizen group that runs activities in the Community Center such as lunches, holiday celebrations, bingo, and crafts.

Activities for seniors can be expanded beyond the scope of the Community Center. For example, the recreational activities inventory indicates that there are no shuffleboard courts within the Township, one example of a lower impact activity that would still give seniors the opportunity to get outside and be active. If an outdoor court is impractical at this time, adding an indoor shuffle



board court at the Community Center could provide an intermediary solution. Other suggestions made in this plan, such as the lighting of tennis courts and the cultivation of birdwatching facilities and Millstone's State and County parklands would also cater to senior populations. The Township can draw on these and other activities in expanding recreational offerings for seniors.

In addition to new kinds of recreational facilities, the Township can benefit senior recreational users by ensuring that each park and some trails have amenities that make recreation more comfortable for and accessible to seniors, such as benches, shade, water fountains, and the like.

Senior friendly facilities and amenities include but are not limited to:<sup>12</sup>

- Parks that incorporate natural elements into the design
- Clean spacious restrooms
- Comfortable benches with backrests, arm rests, and shaped to support the back and waist
- Sufficient space around benches for those with walkers or wheelchairs
- Picnic tables designed for the comfort of seniors
- Location of rest areas under trees, canopies or gazebos to provide shade
- Walking paths marked with distance travelled
- Paths and trails be made of rubbery non-slip materials, have handrails, provide adequate lighting, and be landscaped in a way to provide clear visibility
- Low-impact exercise machines and/or stations that are easily accessible
- Providing recreational programs such as outdoor yoga classes or Tai-Chi
- Safe, clean and quiet environment

As can be seen in the Township's **current age distribution population pyramid**, the 10-19 age bracket is also one of the largest groups within Millstone. At present, the basketball program is the only Township-run youth program offered to high-school aged children. The Township can also focus efforts on researching the recreational preferences of this age group, and providing new facilities accordingly. One idea is to work with the County on converting the former mine properties in to a BMX course, which provide obstacles and ramps that are commonly used in conjunction with bicycles.

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<sup>12</sup> Source: "Placemaking for an Aging Population: Guidelines for Senior-Friendly Parks," UCLA Complete Streets Initiative, Luskin School of Public Affairs, and Lewis Center for Regional Policy Studies. June 2014.

Recreation opportunities should also be considered for each season. For example, the Township could utilize one of its as yet undeveloped and unconstrained open space areas as the location of an outdoor winter ice-skating rink, which can be accomplished with relatively few resources by flooding undeveloped greenspace. This activity is another example of one which may appeal to a wide age range, including high-school aged children.

#### Resource Protection Needs

In addition to public recreation, the Township needs open space to preserve environmentally critical lands and natural and cultural resources. Land needs for resource protection are in addition to the land needed for public recreation. The balanced land use and the core system standards are applicable only for estimating the acreage needed for land for public recreation and access. For resource protection, the amount and location of land that should be conserved is variable and depends upon the resource to be protected. Recreational use of resource protection lands is a secondary objective. Other factors, such as growth management, can also influence the amount of land area needed for resource protection.

#### Water Resources

The waters of New Jersey are important for water supply, recreation, and biodiversity. Water quality is strongly influenced by land use and development and the associated stormwater runoff. Both water quality and water use are major public policy and resource protection concerns. Water resources in Millstone include surface water (streams, ponds, rivers, etc.) and ground water resources. Groundwater is found in water bearing rocks or sediments. It is vital both as a water supply source to communities and residents relying on wells and to maintaining the base flow of rivers and streams.

Surface and groundwater resources are vulnerable to pollution from point and non-point sources. Nonpoint sources that may result in contamination and degradation of water quality include storage tanks, failing septic systems, surface runoff from impervious surfaces such as roads and parking lots, land application of pesticides, and spills and leaks.

Millstone is the rural headwaters location of five (5) major surface watercourses in New Jersey - the Millstone River, the Assunpink Creek, Crosswicks Creek, Toms River, and the Metedeconk River. Consequently, Millstone is an origin for one-quarter of New Jersey's twenty watershed areas identified by the State Department of Environmental Protection. Since Millstone lacks sewer and water infrastructure and is the headwaters location of five major streams, the proposed State

Development and Redevelopment Plan has designated the entire Township as a rural environmentally sensitive planning area of productive farmland and valuable ecosystems and wildlife habitats.

Given the regional importance of the Township to the watershed areas of Central New Jersey, the Township has prepared a comprehensive Watershed Identification, Protection and Management Plan for the following Township watersheds:

Millstone River - The Millstone River flows north in the Raritan River at Manville and finally into the Raritan Bay. The Millstone River Watershed Management Area includes the Millstone River and its tributaries, Rocky Brook and Manalapan Brook. It is part of the Raritan Watershed Management Region.

Assunpink Creek - The Assunpink Creek flows westward into the Delaware River at Trenton. The Assunpink Watershed Management Area is part of the Northwest Watershed Management Region. In Millstone, the State classifies the Assunpink surface water quality as Category 1, high quality and meriting protection from any measurable change.

Crosswicks Creek - Crosswicks Creek flows westward into the Delaware River south of Trenton. The Crosswicks Creek Watershed Management Area includes Crosswicks Creek, Doctor's Creek, Ivanhoe Brook, and Lahaway Brook and is part of the Lower Delaware Watershed Management Region.

Metedeconk River - The Metedeconk River flows eastward into the State coastal zone and Barnegat Bay. The Metedeconk Watershed Management Area is part of the Atlantic Coastal Watershed Management Region.

Toms River - The Toms River flows eastward through the New Jersey Pinelands Management Area and then into Barnegat Bay. The Toms River Watershed Management Area is part of the Atlantic Coastal Watershed Management Region.

#### *Aquifers*

Water resources are related to water bearing geologic formations called aquifers. Millstone's water resources include confined and unconfined aquifers of the buried sand and gravel deposits of the inner and outer coastal plain. Confined aquifers are recharged at the ground surface along

the outcrop area in aquifer recharge areas and by the vertical leakage of groundwater through confining layers. Unconfined aquifers are recharged at the surface.

### *Wetlands*

Wetlands are vital links in the ecological system. The soil and plant characteristics and habitat unique to wetlands depend on the land being periodically covered or saturated with water during the growing season. Wetlands provide a measure of flood control by storing floodwaters during storm events and releasing them slowly over time. Water stored in wetlands can be particularly important during droughts. Wetlands help water quality by serving as a sink for excess sediments, nitrates, phosphates, and organic matter. They also act as a buffer between land and water by intercepting nutrients and sediments contained in water. Wetlands are also important as habitat and overwintering areas for birds and waterfowl as well as habitat areas for mammals, reptiles, amphibians, and fish. In Millstone, extensive wetland areas are found throughout the Township along the major streams and watercourses. The wetlands in Millstone are protected and regulated by the New Jersey Department of Environmental Protection pursuant to the New Jersey Freshwater Wetlands Protection Act. There are different types of wetlands in Millstone, each type being related to the topography, soil, and past use of the location. The types of wetlands found in Millstone are:

**Emergent Wetlands** - This type of wetland is usually situated in areas which are permanently flooded. Areas commonly referred to as marshes are categorized as emergent woodlands. Emergent wetlands frequently occur in small patches situated near larger patches of forested wetlands. There are many sites in Millstone which are wet, unplowed portions of agricultural fields categorized as emergent woodlands.

**Farmed Wetlands** - Soybeans and other wet-tolerant crops are grown in farmed wetlands. Due to lack of natural vegetation, farmed wetlands are difficult to identify and delineate. If farming practices were stopped in these wetlands, then vegetation similar to emergent wetlands would appear. Normal farming practices are not regulated in farmed wetlands.

**Forested Wetlands** - Forested wetlands are commonly found in floodplains, headwaters of streams, and major stream corridors.

**Scrub/Shrub Wetlands** - Generally, scrub/shrub wetlands are situated in wet areas which are less frequently flooded. Scrub/shrub wetlands can be present in areas between emergent and

forested wetlands. Shrubs are the dominant vegetative growth for this type of wetland. It is common to see the intermingling of emergent, scrub/shrub, and forested wetlands in Millstone.

#### *Biological Resources - Wildlife and Vegetation*

Millstone includes a wide variety of wildlife habitats and a multitude of animal and bird species. Fish and wildlife resources are important for economic, recreational, aesthetic, and biological reasons. Wildlife protection can be a significant factor in determining the size and extent of the open space areas that need to be protected. Healthy and productive wildlife populations indicate a clean, healthy, and safe environment. The forest areas of Millstone include hardwood forests characteristic of New Jersey's Inner Coastal Plain as well as Pine Forests typical of the Outer Coastal Plain.

Open space and farmland preservation and protection of forest areas is needed to protect wildlife habitat and to preserve the aesthetic qualities of a rural landscape. Farmlands can also be critical to certain wildlife species. Threatened, endangered, or declining grassland birds (savannah sparrow, vesper sparrow, grasshopper sparrow, upland sparrow, meadowlark), are affected by the presence or absence of open spaces for feeding or nesting. Certain types of agricultural practices and crops are conducive to these species. Interspersing habitats in monocultured crop areas can be beneficial. In many cases, large contiguous suitable tracts would be needed to support useful populations of grassland birds.

Interior forest nesting birds, including the goshawk, Cooper's hawk, barred owl, bald eagle, redshouldered hawk, and many dozens of songbird species depend on large tracts of forest to sustain breeding populations. Large tracts of forest are also critical to insectivorous neo-tropical migrants that feed in the forest canopies on their spring and fall migrations.

Interior nesting raptors need from 600 to 1,000 contiguous acres to feed and breed.

Interior nesting songbirds need smaller forested tracts, 100 acres minimum, without clearings, including homesites, to sustain their existence. The species are vulnerable to avian parasitism, predation, and competition from species associated with edge habitats. Once a forest is broken by clearing, competitive species thrive.

Woodlots, farmland, and wetlands interspersed provide excellent habitat for a diversity of wildlife. Stream corridors near large forested areas are important links to small, fragmented woodlands

and help maintain species diversity and wildlife. A stream corridor of up to 300 feet on each side of the stream is sufficient to provide the needed habitat elements of food, cover, and water.

### *Steep Slopes*

Millstone is notable for its topographic features with some of the highest hills in the central New Jersey area of Monmouth, Mercer, and Ocean Counties and the southern portion of Middlesex County. The highest point in the Township is Pine Hill in the east central area of Millstone, west of Stillhouse Road. Pine Hill tops off at 372' above sea level. The lowest points in Millstone are along the streams around the perimeter of the Township with the lowest being found on the Assunpink Creek at an elevation of 98'. The remaining land of Millstone has gently rolling hills and a relatively level landscape.

A series of steep slopes or "cuestas" in the central portion of Millstone dominate the overall landscape of the Township. A cuesta is a ridge or hill with a steep slope on one side and a gentle slope on the other side. The steep slopes in Millstone are generally located in the area of Pinehill Road, surrounding Perrineville Lake, and from the intersection of Sweetman's Land and Backbone Hill Road westwardly toward Roosevelt Borough and Upper Freehold Township. Steep slopes are a prime factor in the processes of runoff and erosion, particularly over 10%, the greater the erosion hazard. Slope greater than 10% fail to form small depressions or swales to trap sediment. Where steep slopes are denuded of vegetation, adjacent land and water bodies may be inundated with sediment. Slopes greater than 15% are potentially critical environmental impact areas. To the greatest extent possible, such slopes should be left in their natural states.

### *Protecting Resource Conservation Land*

Resource protection areas are suitable as passive open space and may provide opportunities for resource based recreation such as trails, fishing, camping, nature study, and scenic enjoyment. There is no set formula for calculating the land area that should be preserved in public ownership or governed by regulation for resource protection. The objective is to preserve sufficient land to protect the resource. Extensive resource protection areas are needed in the Township to conserve water resources, maintain the biological resources, and preserve the scenic values of a rural landscape. Since the State Plan designates the Township as an environmentally sensitive rural planning area, regulation in combination with some public land acquisition is needed to protect the natural and cultural resources of the Township. Resource protection measures in Millstone Township should include the following:

### *Township Regulation*

Development standards enacted by the Township should be applied over wide areas to protect stream corridors, woodlands, biological habitats, the rural landscape, floodplains, and steep slopes. As part of any development approval where a floodplain or stream is located, the floodplains and stream corridors should be protected by public conservation easement. Given its location as the headwaters of major streams, the Township should require stream buffers to protect the stream environments and habitat areas of the Township. Limiting development to uses that are low density or low intensity and applying standards to minimize the impact on resources is also an effective resource protection policy.

### *State Regulation*

Wetlands and wetland transition areas in Millstone are protected by State law. As part of any significant development where municipal approval is required, wetlands and wetland transition areas should be delineated and, where applicable, the developer should be directed to obtain any required disturbance permits from the State.

### *Public Acquisition*

Where public access and improvement are desired to a resource protection area, the Township may acquire a property interest in the area by purchase of easements or fee simple title, or by acceptance of dedication of land.



## RESOURCE ASSESSMENT

The Township has identified its open space and recreation resources and evaluated the lands that have the potential for meeting public needs. Based upon its evaluation, the Township has identified sites for future acquisition and development to expand the Township park and recreation system. It has also identified a greenway network to interconnect open spaces. Active farming areas, historic sites, and important environmental features in the Township have also been identified. The Township has mapped the open space system planned for Millstone (see Map 23). The open space system is described in this section.

### Additional Township Park and Recreation Sites

To achieve recreation objectives, the Township has identified sites for acquisition and development as additional Township park and recreation areas. The sites have been identified using the following criteria.

- Size and development capability.
- Location and access.
- Presence of environmentally sensitive features targeted for preservation
- Use restrictions. There are no apparent restrictions that would unduly constrain acquisition, development, or operation of the site as a public park and recreation area. However, prior to acquisition of any specific site, a Preliminary Assessment and Site Inspection (PASI) should be undertaken to ensure that there are no major impediments to park and recreation use.

The individual sites are identified in Map 23 and on the open space system map. Lands that are not acquired by the Township for park and recreation use should be eligible for farmland preservation funding. The municipal park sites will be interconnected by a greenway system that links local parks to State and County parklands and open space in the Township.

### Target Properties

In an effort to address the needs described above and realize opportunities presented in the resource assessment, the Township has identified specific properties targeted for open space or recreation acquisition. These properties have been identified on the basis of their value as natural resource conservation areas, proximity and connection to other recreation and open space parcels, and/or ability to accommodate the development of recreational facilities.

Most sites identified in Table 30 are being targeted for their value as natural areas and open landscapes for enjoyment of scenery. Select properties can be developed for active recreation facilities such as athletic fields, court sports, and playground equipment, or and improved with other amenities such as walking trails. Potential open space and recreation tracts are not limited to the list below. It is meant to provide prioritized targets, but not the full universe of possible properties.

TABLE 30: Target Open Space / Recreation Properties				
Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-1	17/6	Township	P	<p>Connect bridle paths F and D;</p> <p>Conserve a large area of environmentally sensitive land;</p> <p>Stream corridor protection along Bentley Brook;</p> <p>Preservation of forested area;</p> <p>Preserve land in vicinity of preserved farmland and target farmland.</p>
FT-2	24.03/12 & 13	Township	W	<p>Conserve areas of environmentally sensitive lands;</p> <p>Stream corridor protection along the Millstone River tributary;</p> <p>Connect the Lyle Farm Open Space tract and Wagner Farm Park;</p> <p>Connect bridle paths dd and ee.</p> <p>ACTIVE RECREATION TARGET</p>
FT-3	23/3	Township	P	<p>Property is almost entirely made up of environmentally sensitive land;</p> <p>Stream corridor protection along the Millstone River;</p> <p>Preservation of forested area;</p> <p>Preserve land in vicinity of preserved target farmland and existing open space.</p>

Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-4	14/2.02	County	W	<p>Conserve large areas of environmentally sensitive land;</p> <p>Conserve large areas of threatened/endangered species habitat;</p> <p>Preservation of forested area;</p> <p>Stream corridor protection along Rocky Brook;</p> <p>Extension of Perrineville Lake Park, targeted for an environmental center.</p> <p>Provide new trail connections in accordance with the Capital to Coast trail plan.</p>
FT-5	13/3.04	County	W	<p>Conserve threatened / endangered species habitat;</p> <p>Land preservation within the Roosevelt Marsh Vicinity;</p> <p>Extension of Perrineville Lake Park, targeted for an environmental center.</p>
FT-6	41/1 & 2	County	W	<p>Conserve areas of environmentally sensitive land;</p> <p>Stream corridor protection along the Millstone River tributary;</p> <p>Provide new trail connections in accordance with the Capital to Coast trail plan.</p>
FT-7	35/9	Township	W	<p>Provide new trail connections in accordance with the Crosswicks Creek Greenway Plan.</p> <p>Provide open space in the vicinity of existing preserved land.</p>

Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-8	57.01/26	State	W	<p>Preserve large areas of environmentally sensitive land;</p> <p>Stream corridor protection along the Ivanhoe Brook;</p> <p>Preservation of forested area;</p> <p>Conserve large areas of threatened/endangered species habitat.</p>
FT-9	57.01/25	State	W	<p>Preserve large areas of environmentally sensitive land;</p> <p>Preservation of forested area;</p> <p>Conserve large areas of threatened/endangered species habitat.</p>
FT-10	35/34	Township	W	<p>Conserve areas of environmentally sensitive land;</p> <p>Stream corridor protection along the Doctors Creek Tributary;</p> <p>Preservation of forested area;</p> <p>Provide new trail connections in accordance with the Crosswicks Creek Greenway Plan.</p>
FT-11	60.02/5.06	Township	W	<p>Preserve large areas of environmentally sensitive land;</p> <p>Stream corridor protection along the Toms River;</p> <p>Preservation of forested area;</p> <p>Conserve large areas of threatened/endangered species habitat;</p> <p>Preserve natural features within the Pine Barrens Unique Community.</p>

Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-12	60.02/4.02	Township	W	<p>Preserve environmentally sensitive land;</p> <p>Stream corridor protection along the Toms River;</p> <p>Preservation of forested area;</p> <p>Conserve large areas of threatened/endangered species habitat;</p> <p>Preserve natural features within the Pine Barrens Unique Community.</p>
FT-13	60.02/11.02	Township	W	<p>Preserve large areas of environmentally sensitive land;</p> <p>Stream corridor protection along the Toms River;</p> <p>Preservation of forested area;</p> <p>Conserve large areas of threatened/endangered species habitat;</p> <p>Preserve natural features within the Pine Barrens Unique Community;</p> <p>Provide new trail connections in accordance with the Crosswicks Creek Greenway Plan.</p>
FT-14	27/16.02, 16.04, 16.05, 16.06 & 16.07	County	W	<p>Preserve areas of environmentally sensitive lands;</p> <p>Stream corridor protection along the Rocky Brook Tributary;</p> <p>Preservation of forested area;</p> <p>Provide open space in the vicinity of existing preserved land.</p>

Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-15	28/11 & 13.01	County	W	Preserve areas of environmentally sensitive lands;  Provide open space in the vicinity of existing preserved land.
FT-16	28/13.02, 14.01, 14.02, 19, 20 & 21	County	W	Preserve areas of environmentally sensitive lands;  Stream corridor protection along the Millstone River Tributary;  Preservation of forested area.
FT-17	39.01/7.01	County	W	Preserve areas of environmentally sensitive lands;  Stream corridor protection along the Rocky Brook Tributary;  Preservation of forested area;  Provide open space in the vicinity of existing preserved land;  Preserve natural features within the Pine Barrens Unique Community.
FT-18	39.01/21.04, 21.05, 21.06 & 21.07	County	W	Preserve areas of environmentally sensitive lands;  Preservation of forested area;  Provide open space in the vicinity of existing preserved land.  Preserve natural features within the Pine Barrens Unique Community.
FT-19	39.01/13.02, 15.02, 15.03, 15.04, 15.05, 16.04, 16.05, 20.02, 20.04, 20.05, 21, 21.01, 21.02, 21.03, 21.08, 21.10, 21.12, 30.02, 30.03 (all qfarm)	County	W	Preserve areas of environmentally sensitive lands;  Preservation of forested area;  Provide open space in the vicinity of existing preserved land.  Preserve natural features within the Pine Barrens Unique Community.

Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-20	39.01/ 28.01, 29 & 30.01 (and same 3 qfarm)	Township	W	<p>Preserve areas of environmentally sensitive lands;</p> <p>Preservation of forested area;</p> <p>Provide open space in the vicinity of existing preserved land;</p> <p>Preserve natural features within the Pine Barrens Unique Community;</p> <p>Coordinate preserving farmland and open space.</p>
FT-21	39.01/39 and 39.01/39.02	Township	W	<p>Preserve areas of environmentally sensitive lands;</p> <p>Preservation of forested area;</p> <p>Provide open space in the vicinity of existing preserved land;</p> <p>Preserve natural features within the Pine Barrens Unique Community.</p>
FT-22	44/ 2 & 2 qfarm	Township	W	<p>Preserve areas of environmentally sensitive lands;</p> <p>Coordinate preserving farmland and open space;</p> <p>Provide open space in the vicinity of existing preserved land;</p> <p>Stream corridor protection along the Manalapan Brook Tributary;</p> <p>Conserve large areas of threatened/endangered species habitat.</p>
FT-23	39.01/10, 15.01 (both qfarm)	Township	W	<p>Coordinate preserving farmland and open space;</p> <p>Preserve areas of environmentally sensitive lands;</p> <p>Stream corridor protection along the Rocky Brook Tributary;</p> <p>Preserve natural features within the Pine Barrens Unique Community.</p>



Property Name	Block/Lot	Administrative Entity	Lot area – portion (p) or whole (w)	Conservation, recreation, and open space goals furthered
FT-24	27/19 (qfarm)	County	W	<p>Preserve areas of environmentally sensitive lands;</p> <p>Provide open space in the vicinity of existing preserved land;</p> <p>Stream corridor protection along the Rocky Brook Tributary.</p>
FT-25	44/7 (qfarm)	County	W	<p>Conserve large areas of threatened/endangered species habitat;</p> <p>Provide open space in the vicinity of existing preserved land.</p>
FT-26	42/5.01 (qfarm)	Township	W	<p>Coordinate preserving farmland and open space;</p> <p>Preserve areas of environmentally sensitive lands;</p> <p>Stream corridor protection along the Millstone River and associated tributaries;</p>
FT-27	28/17, 18 (both Qfarm)	Township	W	<p>Preserve areas of environmentally sensitive lands;</p> <p>Stream corridor protection along the Millstone River Tributary;</p>

Maps of each of these properties have been included as Appendix A, which show their proximity to other parklands, as well as the presence of environmental features.

In addition to acquire new properties, the Township could also take action to permanently preserve those lands that are currently municipally-owned, unpreserved open space tracts over one acre in size. A list of such properties includes the following:

TABLE 31: Public, Township-Owned Property for ROSI Consideration				
B	L(s)	Location	Status	Acres
26	3.11	FURLONG	Drainage	5.65
36	49.13	1 MERCY MOUNT WAY	Open Space	4.98
57.01	21.02	14 NOVAD CT	Partially developed with Public Housing, but large area of environmentally sensitive undeveloped land remaining	7.3
12	1.18	MORSE DRIVE	Open Space	3.24
23	25.09	COOK CT	Open Space (with Riverbrook Trail running through it) / Detention Basin	7.55
27	23.03	5 EMORY CT	Retention Basin	2.64
43	4-6	237 / 227 WOODVILLE RD	Vacant Land – Tax Lien Foreclosure	2.33
52	2	72 RED VALLEY RD	Open Space	18.51
53.01	2.01	24 YELLOW MEETINGHOUSE RD	Open Space	12.3
57	14.03	17 BURNT TAVERN RD	Open Space	3.44
59	7	18 BURNT TAVERN RD	Open Space	2.27
62	26.11	CURTINS CORNER	Retention Basin	9.52

## Greenways and Bridle Paths

### Greenways

The open space system in Millstone will include a greenway network that provides natural habitat linkages, interconnects parkland, provides stream corridor protection, and creates opportunities for development of a trail system. Greenways shown on the open space system map tie State, County, and Township parks together to form an open space system in Millstone that could provide uninterrupted pedestrian, bicycle, or equestrian movement between parks as well as corridors for wildlife movement. The minimum recommended greenway width is fifty (50) feet; the desirable width is two hundred (200) or more feet. Any trail locations developed within a greenway will need to be compatible with adjacent land uses and habitat protection.

Some greenways may simply provide stream corridor and habitat protection and have limited public access or trail provisions. Other greenways can be developed with multi-use trails that link to trails outside of Millstone. Use of greenways for other than resource conservation and habitat protection will require the establishment of monitoring and maintenance procedures and responsibilities. Greenways that contain trails and connect to County or State facilities may

ultimately become the responsibility of the County Park System or the State. The actual alignment of trails and the development of trails within a greenway is subject to site specific analysis and design.

### Bridle Paths

The bridle network is envisioned as connecting County, state and municipal parks and facilities through a series of trails along greenways, stream corridors and property lines. Millstone is home to several large equestrian farms and facilities so the demand for such a facility exists in the area. The Township has been working with the Millstone Trailblazers, and equestrian advocacy group, in delineating a trail system.

It is important to establish a planned route for the network (see figure 9). Until now, applicants before the Planning Board have been asked to dedicate lands for the extension of the existing paths. So far, this type of piecemeal approach has been successful because most applicants have been amenable to the requests of the Planning Board. To ensure the network is seen through fruition,

Horse farms and equestrian activities have long been an important part of the "rural flavor" of Millstone Township. To preserve and encourage this activity in the Township, various existing and future trails in the Township have been identified as natural resources important to the Township.

Some of the benefits that the Township seeks to gain by including a bridle network in the Master Plan include:

- The encouragement of farming and farmland preservation;
- Recreation activities;
- The preservation of scenic vistas and pastoral farm scenery; and
- Support for the economic development of the local equine industry.

Bridal paths are an integral part of retaining the equine community in Millstone Township. The history of the Township is steeped in horses. Stagecoach Road was a major stage route through New Jersey and British and American forces skirmished along trails throughout the area. The Monmouth County Hunt, one of the oldest hunt clubs in the United States, still rides through parts of Millstone and the Assunpink. Goals and objectives of the Bridle Path Network Include:

- Identify, develop and preserve a network of bridle paths in Millstone Township, which will connect municipal, county and state recreation areas.
- Promote the preservation and conservation of natural resources in conjunction with bridle path greenways.

In order to effectively create a system of linking trails in Millstone, fee simple title and easements can be secured through the following means:

- Encourage the Bridle Path Network Plan of the Master Plan when the Township acquires property and when new applicants approach various Township Boards seeking land use approvals.
- Consider amending current regulations that would not result in lots becoming nonconforming if a bridle path is established in a proposed development.
- Adopt a policy to encourage property owners to participate in the bridle path plan through the donation or sale of trail easements in the Township.
- Notify the owners of targeted trail greenways that the Township would like an opportunity to discuss the public purchase of the greenway segment or easement on them prior to any private sales.
- Investigate and pursue sources of funding, including national, state, county and private, to be used for multi-use trail development.

#### GENERAL OPEN SPACE MAP

The General Open Space Map provided below shows a comprehensive view of the existing, planned, and potential recreation, open space, and conservation areas within Millstone Township as of the writing of this plan. It provides a general overview of **the Township's vision of future open space** character of the community. Intended bridle paths are shown in a separate figure for clarity.

Map 23. General Open Space Map

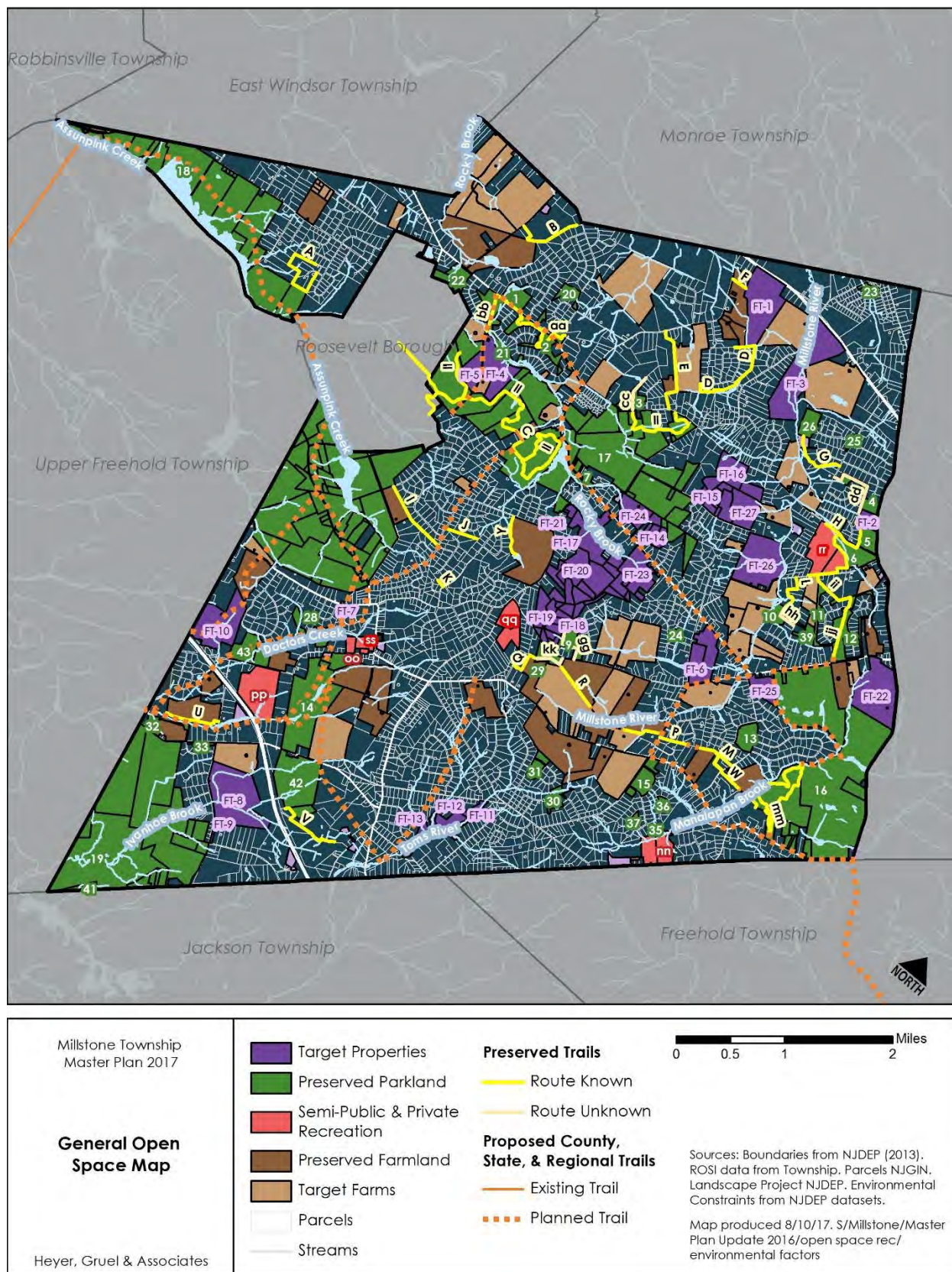
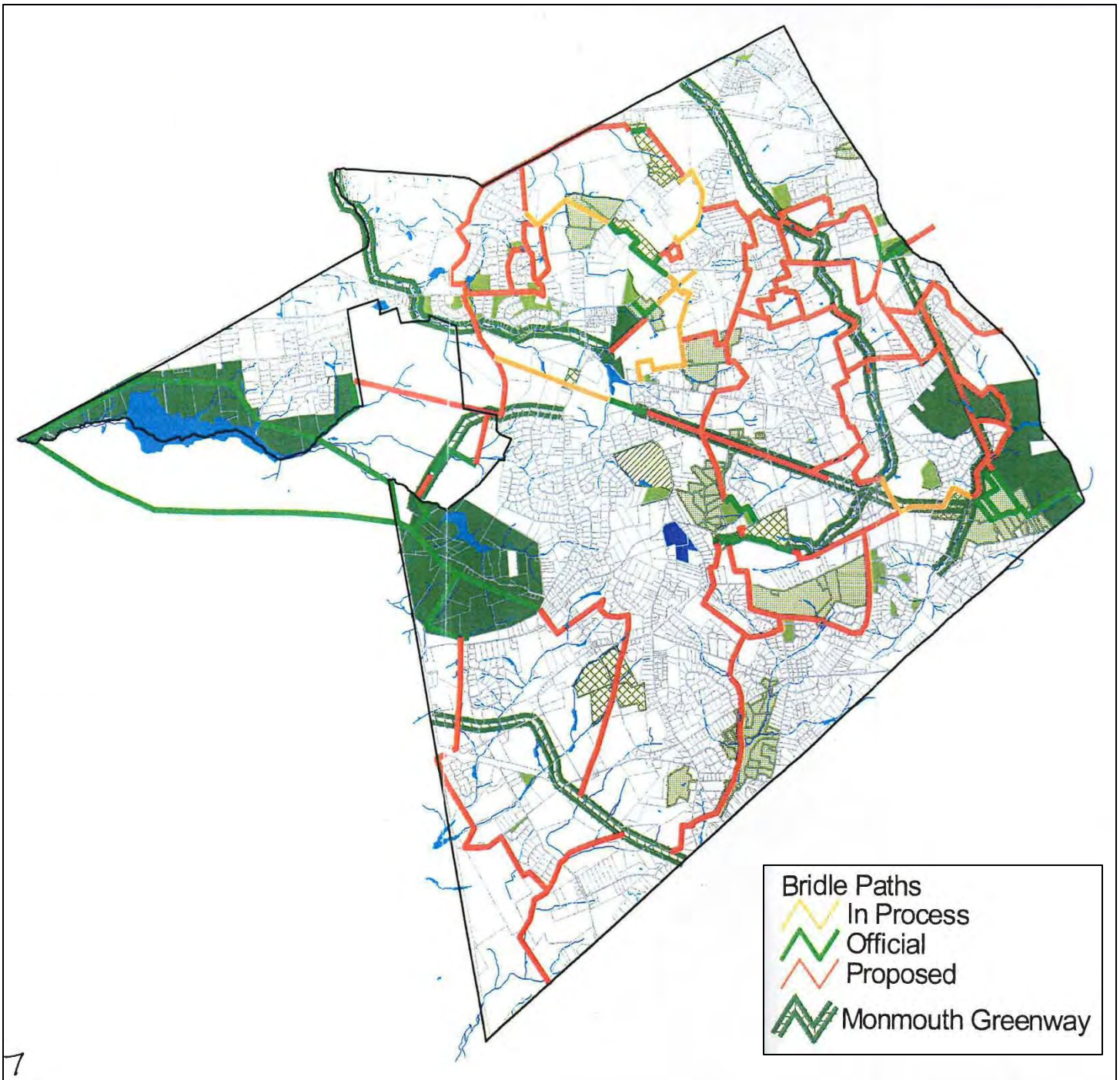




Figure 9. Planned Bridle Path Network



## ACTION PLAN

The action plan identifies the measures that should be taken to achieve the goals and objectives for the Township open space system. To implement the plan, the Township should coordinate a local program of land preservation, public recreation, and development regulation with State and County programs that finance the preservation of open space and farms. In addition, the Township should manage, regulate, and direct growth to ensure that development design and location are compatible with and support the open space plan for Millstone. The specific implementation actions are described below.

### 1. *Coordination with State Open Space Programs*

- The Township should submit the open space, recreation, conservation, and farmland preservation plan for approval by the Office of Green Acres in the New Jersey Department of Environmental Protection. The approved plan can then be used to secure grants and funds from the State Green Trust to assist the Township in preserving open space sites shown on the plan for outdoor recreation or resource conservation.
- A portion of local trust fund revenues could be used for local park and recreation development. The funds could be used to repay low interest State loans to develop recreation facilities or to leverage other available State and Federal funds for such improvements.
- The Township should work with the State to protect habitat and to preserve greenway connections from Trenton to the New Jersey Shore and to Monmouth Battlefield State Park.

### 2. *Coordination with County Open Space and Farmland Preservation Programs*

- The Township should cooperate with Monmouth County in the implementation of the County Open Space Plan once it is adopted.
- The Township, in cooperation with the Monmouth Agriculture Development Board, should market the farmland preservation program to local farmers. Information, assistance, and support should be provided to farmers who are interested in making application for preservation funding



### 3. Additional Township Action – General

- The Township should aggressively pursue an acquisition program to implement the open space, recreation, and conservation plan. The Township should negotiate with property owners for the acquisition or right of first refusal of land for additional park and recreation sites or greenways. The acquisition program should be reviewed annually by the Township to assess progress in implementing the open space, recreation, and conservation plan and to determine whether the sites identified for acquisition should be modified to reflect changes in the availability of land or new opportunities for meeting the plan objectives.
- The Township should limit development to low density and low intensity uses.
- To conserve open space, farms, and rural areas, the Township should continue to protect the Township's natural features as is envisioned by the State Plan 4B classification.
- To the extent permitted by law, the Township should continue to require that developers preserve open space and provide recreation facilities within new development.
- The Township should continue to allow residential cluster development where such development, compared to conventional development, reduces site disturbance, reduces impervious cover, preserves a significant area of upland and lowland open space, preserves important site features and natural resources, and helps achieve the objectives of the Township open space plan.
- The Township has developed a standard conservation / public access easement for greenways where trail construction occurs as part of development approval or as a result of Township acquisition. Where greenway trails are to be constructed as part of a development, the desirable development sequence is to develop the trail prior to the development of adjoining residences.

### 4. Additional Township Action – Open Space / Conservation

- Target lands for conservation that contain some or all of the following features:
  - Location within the unique communities identified in this plan;

- Threatened and endangered species habitat;
  - Stream corridors;
  - Wetlands;
  - Steep slopes;
  - Forested areas.
- When considering zoning changes, consult the Township NRI for a better understanding of which natural features may be disturbed or affected.
- Do not extend sewer or water service into environmentally sensitive areas. The entire Township has been classified "rural environmentally sensitive" by the State Development and Redevelopment Plan.
- Continue to actively engage the Township's Shade Tree and Environmental Commissions during development review.
- Maintain the Township's Forestry Management Plan and ensure that public parkland areas advance the goals of the plan as an example of proper implementation of its recommendations.
- Study the issue of invasive species in Millstone and develop a plan to address them, particularly on Millstone Township owned land.
- Coordinate the development of a cooperative habitat management plan with the County.
- Implement the recommendations of the Crosswicks Creek Watershed Greenway Plan.
- Prioritize the completion of planning for the conservation of open space tracts along the planned Scenic Byway in order to preserve the cultural and natural context that lend these areas their scenic character in the first place.
- Consider the permanent preservation of the 12 non-preserved, Township-owned open space tracts identified herein by adding them to the ROSI during the next update. The Open Space and Farmland Preservation Council should review these properties.

- The Open Space and Farmland Preservation Council and the Parks and Recreation Commission should produce a brochure called the “**Millstone Township Parks Guide**,” including a map of the Township with parks identified and categorized by type of parkland, general information, and a facility use key.

5. *Additional Township Action – Recreation*

- Study the current recreation activities available for seniors, and explore additional activities and facilities or changes to existing facilities to better accommodate this population segment. Site new outdoor facilities close to the senior center, since this is the existing central gathering point for senior recreation. Audit the existing parks for the presence of shade, bathroom, benches, and other amenities that make outdoor recreation more comfortable for seniors.
- Study the recreation preferences of high-school aged children, and explore additional facilities that would attract this population segment. In particular, study the possibility of converting former mine properties into BMX courses. Study the possibility of flooding one of the Township's open space areas as an ice rink in the winter.
- Make a commitment to ensuring that Township parks and activities comply with ADA requirements, and implement upgrades as necessary.
- Keep open lines of communication between the public and recreation staff, so that feedback can be continuously considered. Maintain clear departmental contacts on the Township's website.
- Prioritize trail maintenance. Develop a sustainable, on-going trail maintenance program that includes, but is not limited to, involvement by the Department of Public Works, the **County Sheriff's Office** Inmate Labor Program, local schools, and groups, such as boy scouts and girl scouts.
- Better advertise trails, so that they are also maintained through more consistent usage.
- Evaluate noise and light impacts from parks on surrounding properties.

- Coordinate the efforts of historic and open space preservation by studying opportunities for preserving all or portions of properties targeted along the planned scenic byway. Support historic preservation with recreation programs oriented toward engagement with historical topics.
- Make the best use of the Townships preserved natural and environmentally sensitive areas by working with the State and County to develop an environmental center that acts as a hub for learning about and directing visitors to all of the Township's preserved nature areas. Consider acquiring properties in the area of Witch's Hollow as the location of this center. Develop recreational activities associated with bird-watching and bird stewardship.
- The Open Space and Farmland Preservation Council should keep a running inventory both targeted open space and targeted farmland properties, and coordinate the two.
- Expand the network of bridle / multi-use trails to achieve fully-connected linkages between open space and recreation areas without gaps.
- Develop and implement a parks maintenance plan with short- and long-term goals.
- Keep park equipment out of flood zones and other environmental hazard areas. Target such areas for natural conservation instead of recreation.
- Include recreation objectives in the 10-year capital improvement plan.
- Fill in the identified gaps in active recreation provisions, particularly the need for the additional baseball fields, horseshoe pits, shuffleboard fields, and family-friendly activities.
- Acquire and develop an additional 56 acres of land for active recreation purposes in order to meet the New Jersey Balanced Land Use Standards.
- Implement the following facility improvements:
  - Provide shade at Abate Park.
  - Add security systems to all parks.

- Explore the issue of parking at the Brandywine facility, the Clarksburg Cultural Center, and the Thomas Baird Homestead.
- Create "trailheads" with limited parking for the bridle path linkages as they are completed.
- Work with state agencies to determine the status of the Capital-to-Coast and Crossroads of the Revolution Greenway programs. If these initiatives have stalled at the State level, consider their recreational value and the possibility of implementing similar routes through local and County planning.
- Engage the County in completing existing and starting new trail connections between open space areas. Pursue the linkages discussed in this element and between the County and the Township, particularly the linkages making east-west connections within Perrineville Lake Park, between recreation areas in Millstone and Turkey Swamp Park in Freehold, and the Union Trail Transportation Rail Trail in Upper Freehold. Deed the trail easement identified as letter "C" to the County, and cooperate with any other beneficial transfers.

## Resources

### Dedicated Public Funds

The Township should continue to apply for and explore the use of dedicated Public Funds. Following are several very popular funds:

1. Federal ISTEA Funds: The Intermodal Surface Transportation Efficiency Act is administered at the state level by the New Jersey Department of Transportation and provides funds relevant to projects such as bike paths and hiking trails.
2. NJDEP Green Acres Bond Funds: The Green Acres program includes a combination of grant and low interest loan options for municipalities, counties and private nonprofit organizations to acquire land for conservation or recreation purposes. In addition, a State acquisition program exists for fee simple acquisitions and/or easement purchases in selected project areas or critical habitats. The Green Acres Program also includes grants and low interest loans for recreation development.

3. County Farmland & Open Space Preservation Tax: New Jersey legislation allows counties and municipalities to implement a preservation plan for the purposes of acquiring farmland or open space for preservation purposes. These funds are available for recreational development projects or can be used to acquire land for recreational purposes.

#### Private Nonprofit Funding

Another funding option is Private Nonprofit Funding. There are many nonprofit organizations each with specific mission goals which determine what role they may or may not play in preserving land. These funding sources range from Federal and State programs and foundation grants to their own funds raised through membership events. Nonprofits may participate in land acquisition by the following methods.

1. Fee Simple Acquisition: The nonprofit can pursue fee simple acquisition with funds from a number of possible sources. Once acquired, the nonprofit may retain ownership or transfer ownership to another preservation entity, government agency, or nonprofit. They may also maintain ownership and have another entity manage the property, or vice versa.
2. Easement Purchase: Nonprofits may acquire an easement which limits the use of a property for the purposes of habitat protection or farmland preservation. Easements usually limit or eliminate the option to develop the property involved. The nonprofit may hold the easement or it may turn it over to another preservation entity. This also applies to management options.
3. Bargain Sale: Nonprofits may acquire a property or an easement through a bargain sale, when the property owner sells below the appraised market value. In this instance, the seller has the benefit of a possible tax deduction resulting from this donation.
4. Donation: Donations of land can be accepted by nonprofits with the benefit of a potential tax deduction for the donor. Depending on the donor's wishes and the nonprofit's strategy, the property may be preserved or may be developed, in whole or part, for the purpose of raising funds for the preservation of more critical areas.
5. Facilitation: Frequently nonprofits serve to facilitate acquisitions, easement purchases or habitat enhancement projects. This role may include creating funding resources through the development of foundation grant proposals. Similarly, preservation funds from

foundation or court settlements (where fines are stipulated to be used for land preservation) can be managed by a nonprofit. Often a nonprofit will serve to promote and coordinate a preservation project and may not contribute monetarily.

6. Partnerships: Projects are frequently carried out in partnership with other nonprofits, foundations and with federal, state, or local governments. In these cases, the nonprofit might pursue one of the following: acquire land and transfer ownership to another nonprofit, the state, or municipality, partially fund the project in conjunction with other funding agents, facilitate the project, be the entity that agrees to take ownership of the land, be the management entity, or assist in leveraging funds for the buyer through creative fiscal strategies such as zero-coupon bonds.
7. Partial Development/Sale Back or Lease: Nonprofit may acquire property, restrict or guide development through deed restriction and then resell or lease the property at a profit.
8. Land Exchange: Nonprofit may carry out or arrange for exchanges of land appropriate for development with land best suited for preservation.
9. Bequest or Reserved Life Estate: Nonprofit may accept bequests of land through a Will or may accept Life Estate bequests in which property owners maintain residence during their lifetime, but relinquish ownership. (Many variations on this theme involve significant tax advantages.)
10. Tax Foreclosure: Nonprofits can take advantage of tax foreclosure options. The nonprofit community can offer significant resources towards the accomplishment of a region's open space protection, recreational needs and farmland preservation goals.

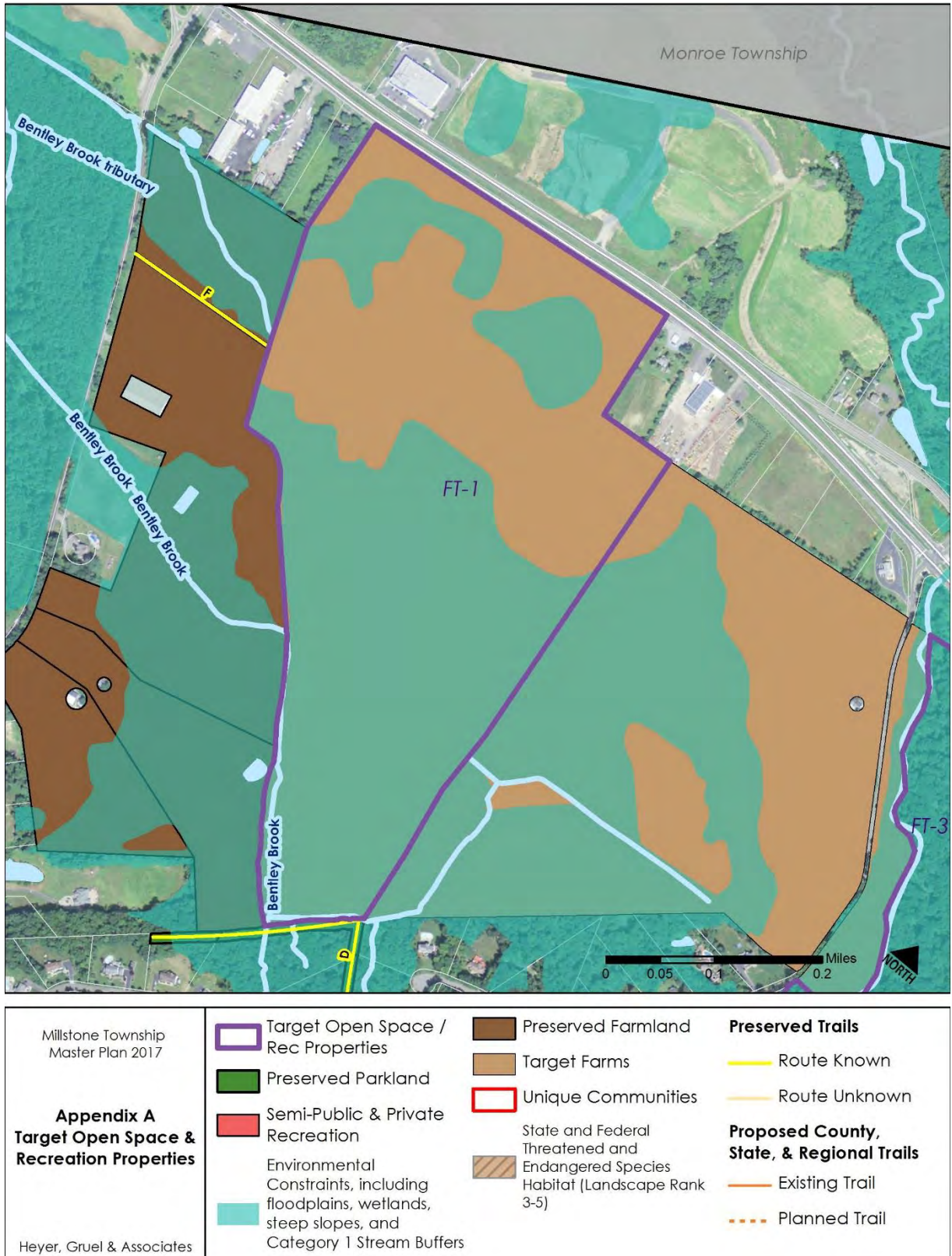
### Ecotourism

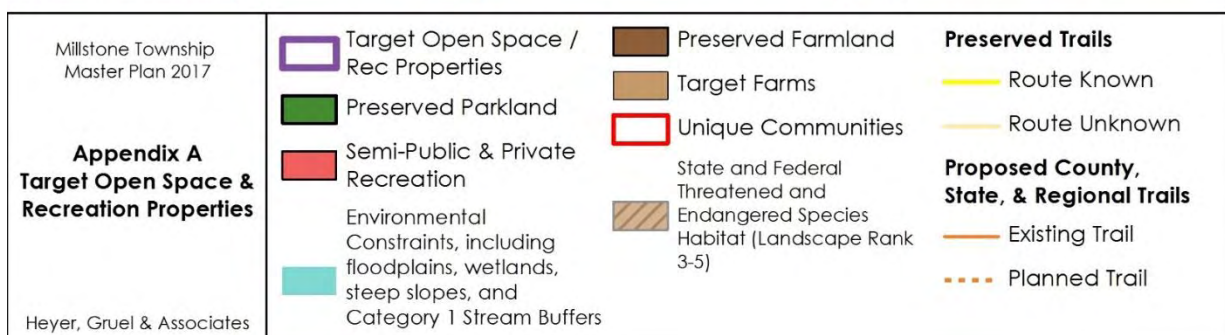
Ecological tourism is a strategy that encourages the preservation of natural resources and open space by focusing on the economic benefits of conservation activity. A community can boost its local economy by drawing on its natural resource base. Traditional tourism may include environmentally-related activities, but ecotourism focuses solely on the environment and its protection. Several counties in New Jersey have developed ecotourism programs. Cumberland County to the south recently adopted an Ecotourism Plan.



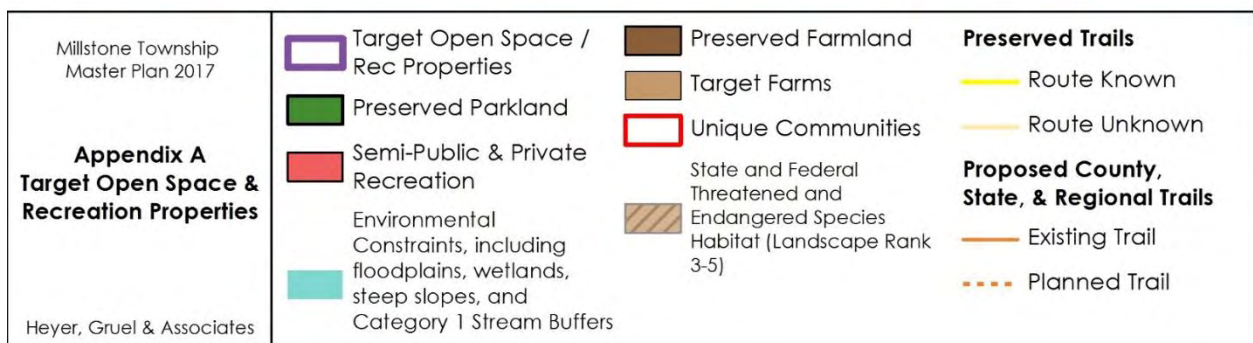
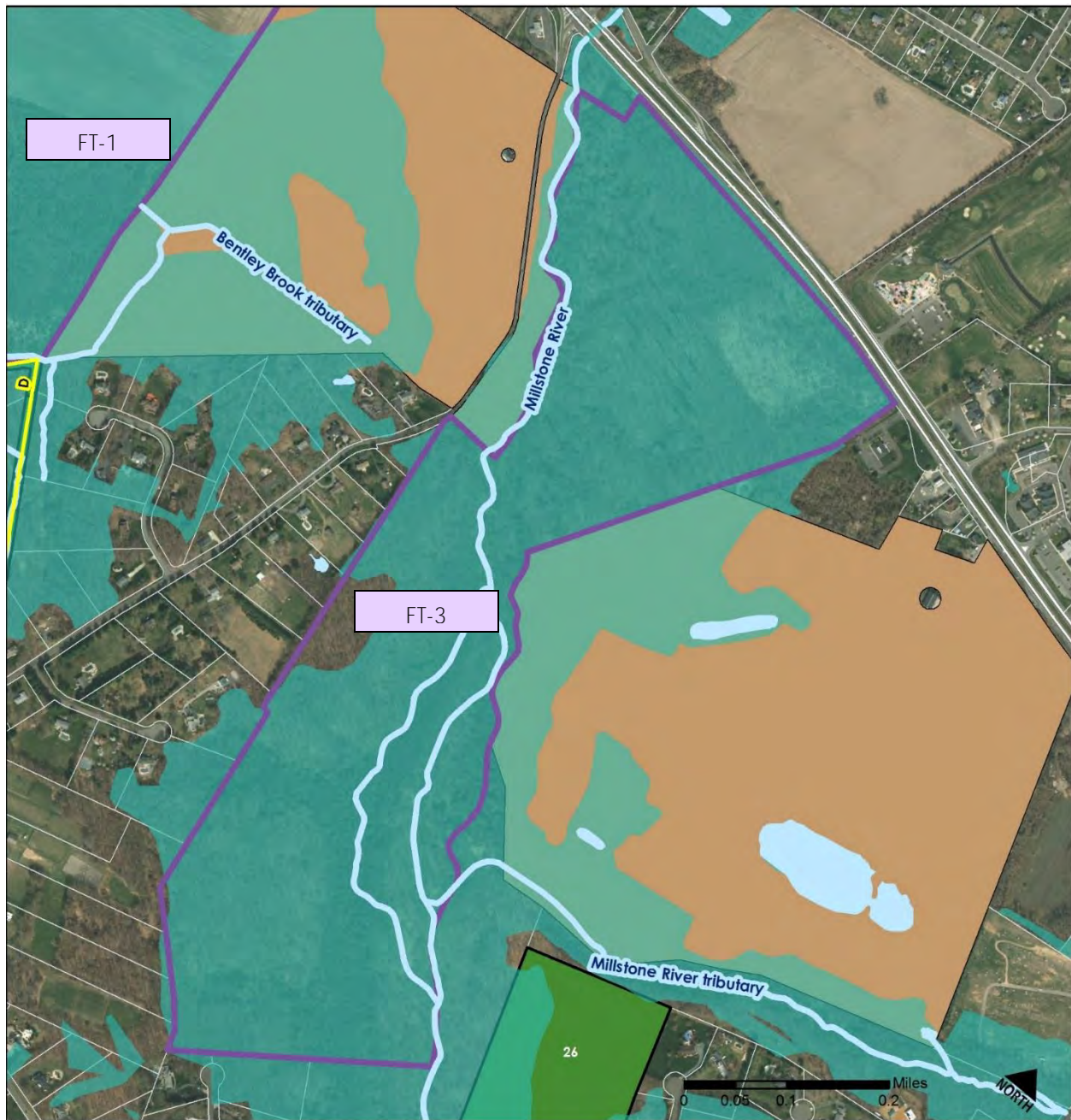
The specific elements of ecotourism in a given location depend upon the area's specific natural resources. For example, in Cape May County, birding has become a major source of ecotourism dollars. The Audubon Society's World Series of Birding, centered in Cape May, includes bird census taking throughout the State. Many regions have developed brochures and nature guides to help tourists experience the natural resources of the area. Examples of ecotourism business include boat rental services, restaurants, overnight accommodations, birding and outdoor equipment shops, guided nature walks, museums, and any endeavor that capitalizes on the protection and maintenance of the natural resources of an area as an economic good. Financial assistance for the start up or expansion of ecotourism-related business may be available through the County in the form of loans or grants through the Community Development Block Grant Program.

Appendix A – Maps of Target Properties

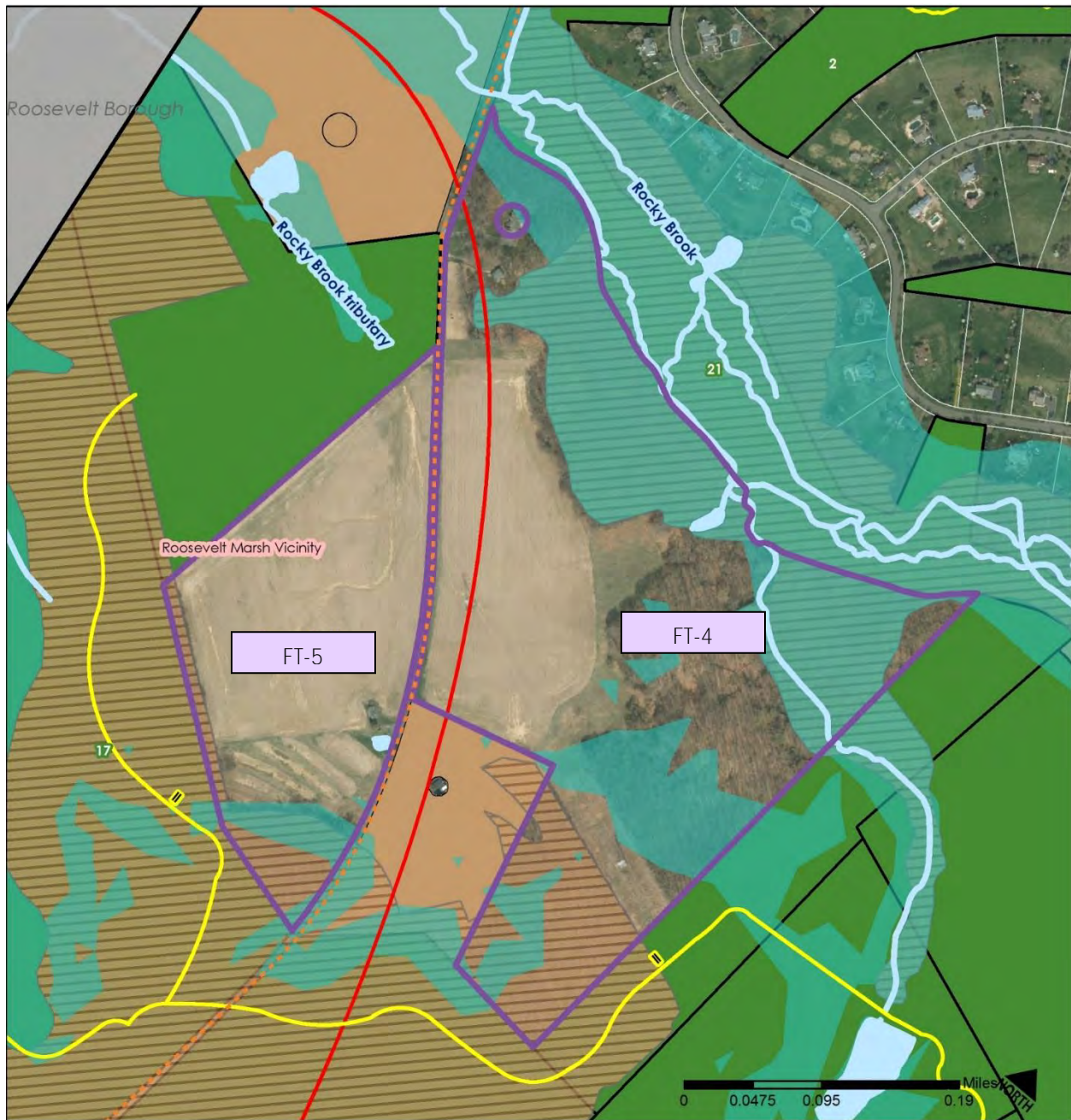






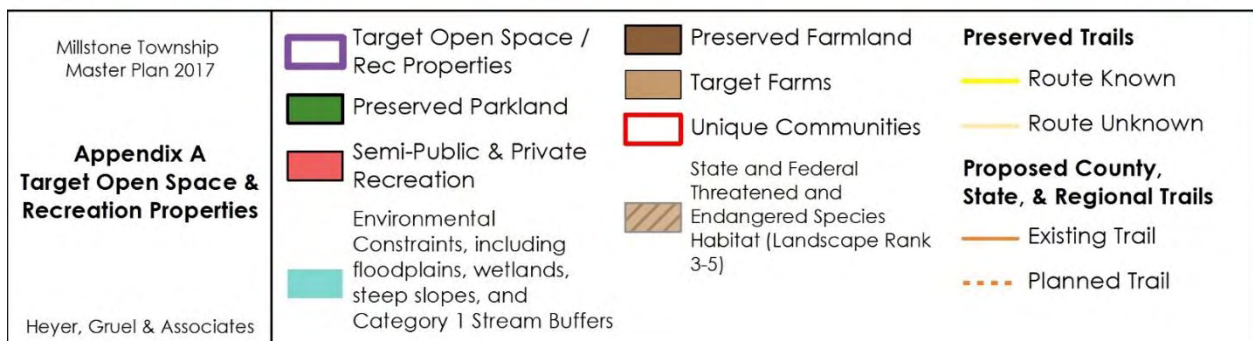
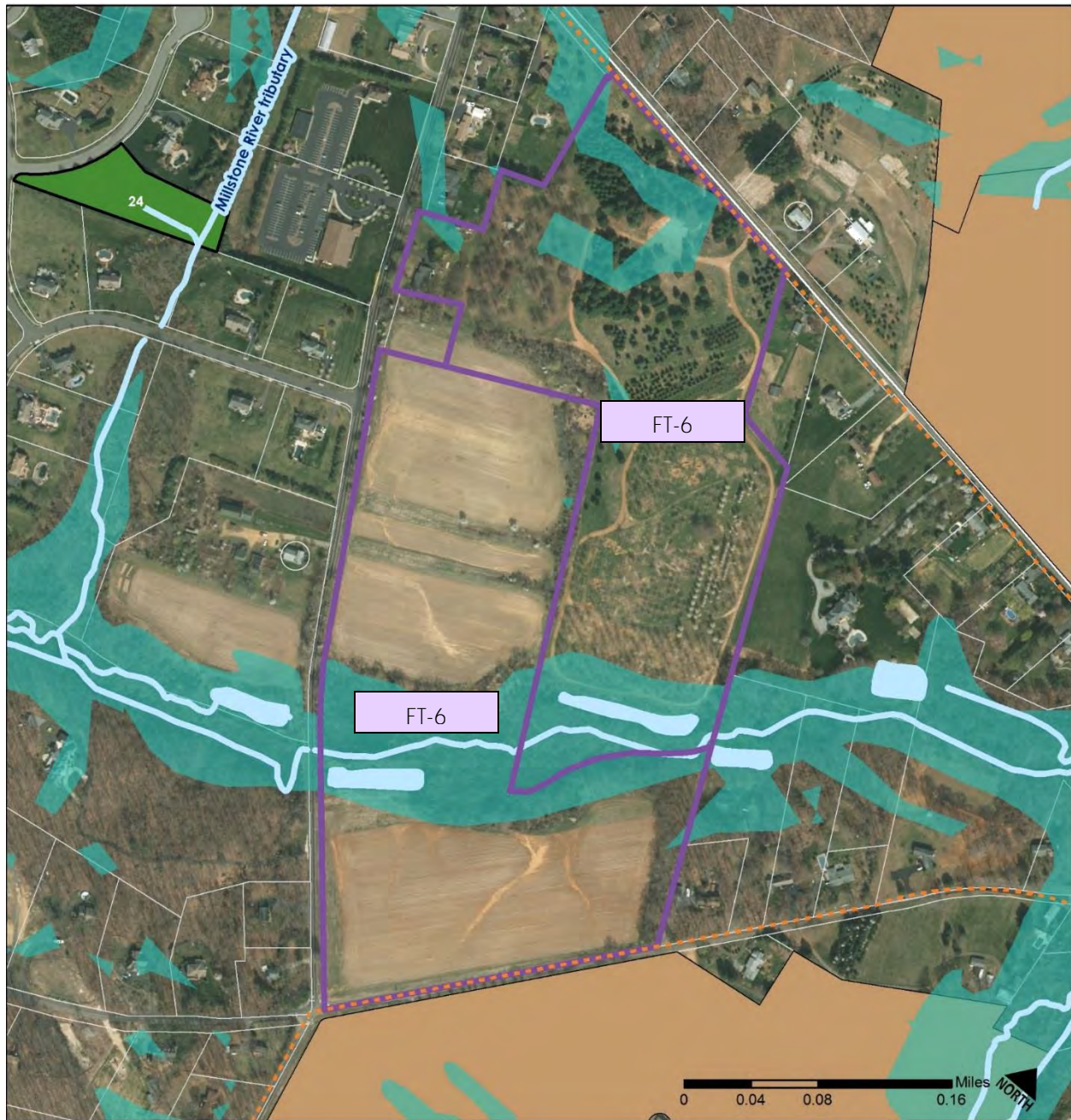




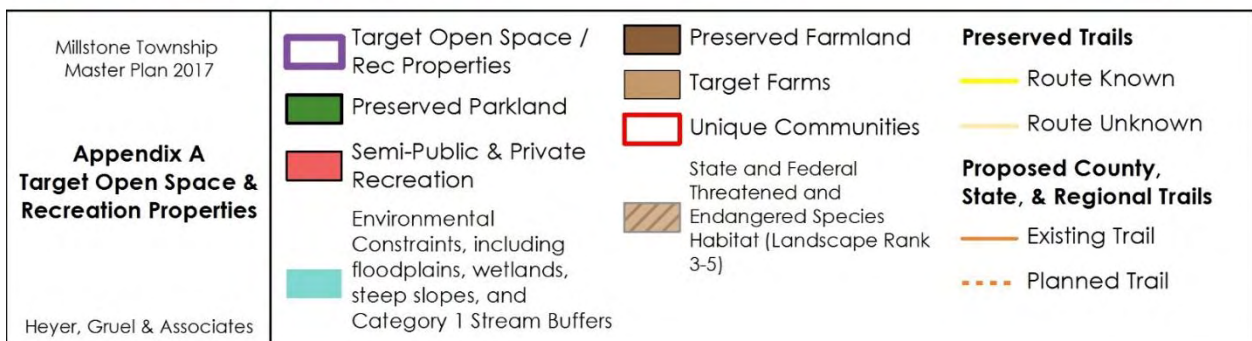


<p>Millstone Township Master Plan 2017</p> <p><b>Appendix A Target Open Space &amp; Recreation Properties</b></p> <p>Heyer, Gruel &amp; Associates</p>	<p> Target Open Space / Rec Properties</p> <p> Preserved Parkland</p> <p> Semi-Public &amp; Private Recreation</p> <p> Environmental Constraints, including floodplains, wetlands, steep slopes, and Category 1 Stream Buffers</p>	<p> Preserved Farmland</p> <p> Target Farms</p> <p> Unique Communities</p> <p> State and Federal Threatened and Endangered Species Habitat (Landscape Rank 3-5)</p>	<p><b>Preserved Trails</b></p> <p> Route Known</p> <p> Route Unknown</p> <p><b>Proposed County, State, &amp; Regional Trails</b></p> <p> Existing Trail</p> <p> Planned Trail</p>

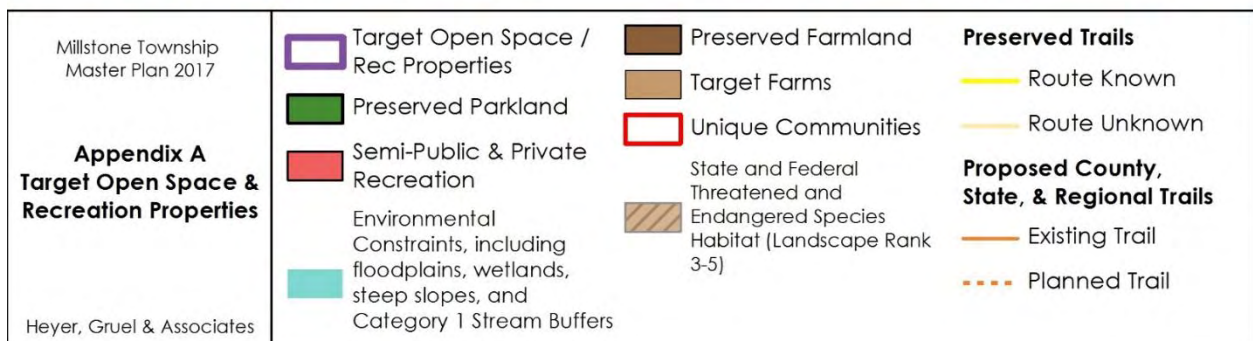
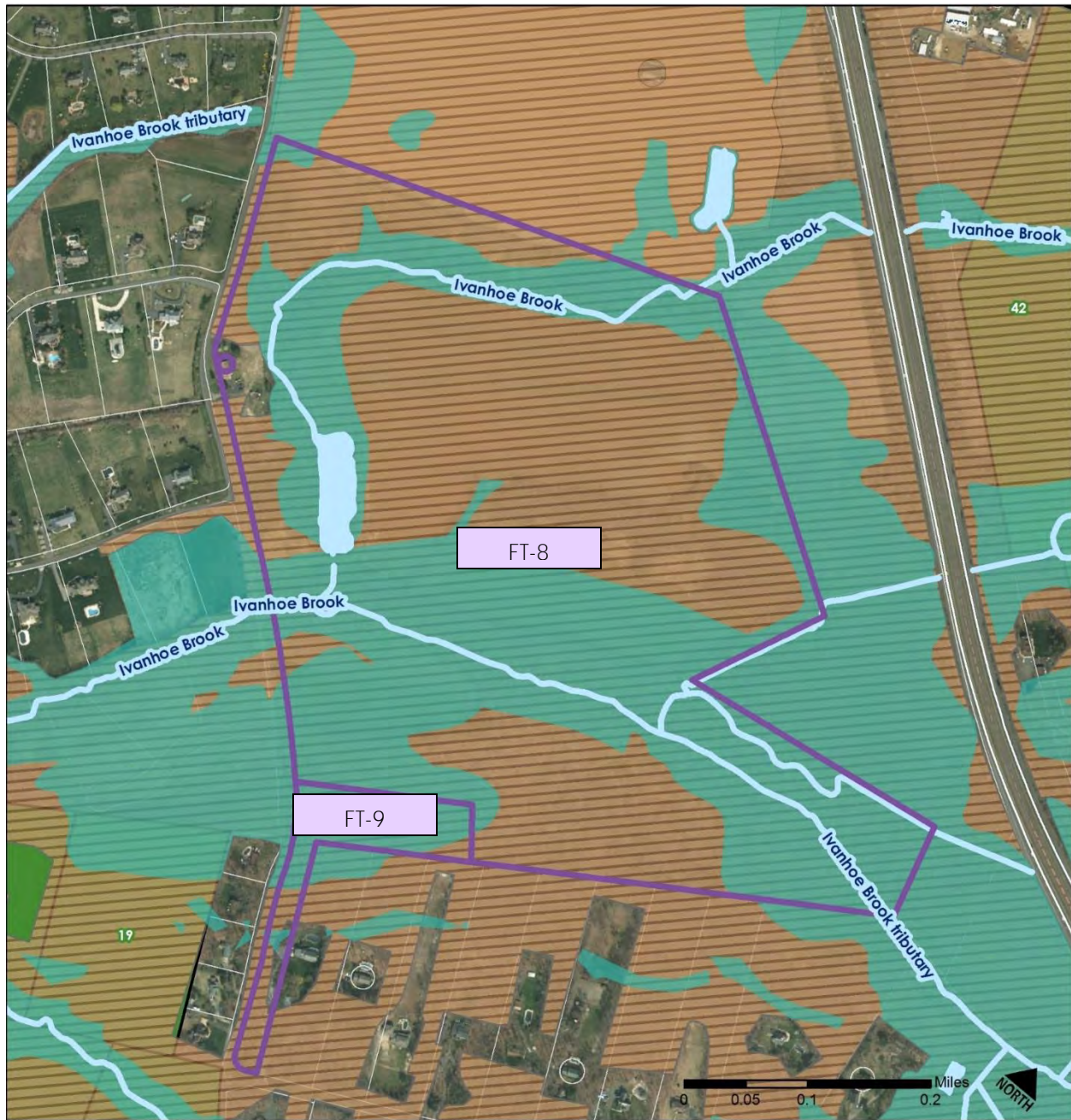




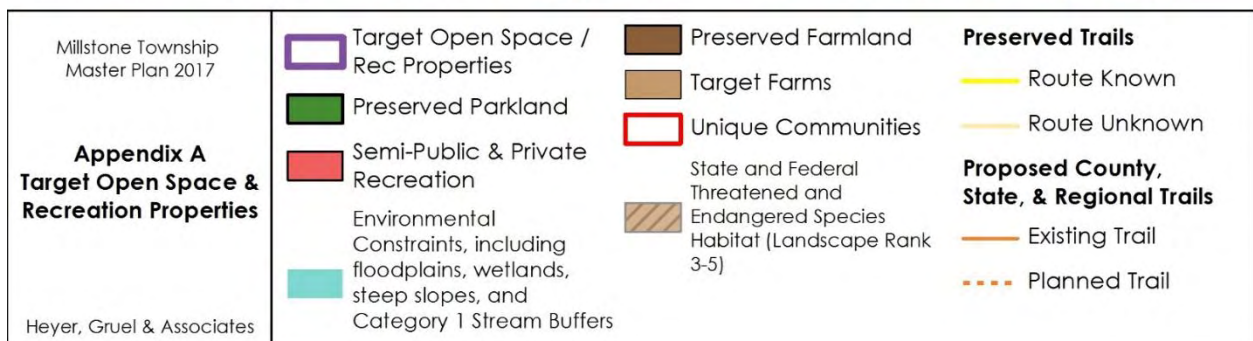
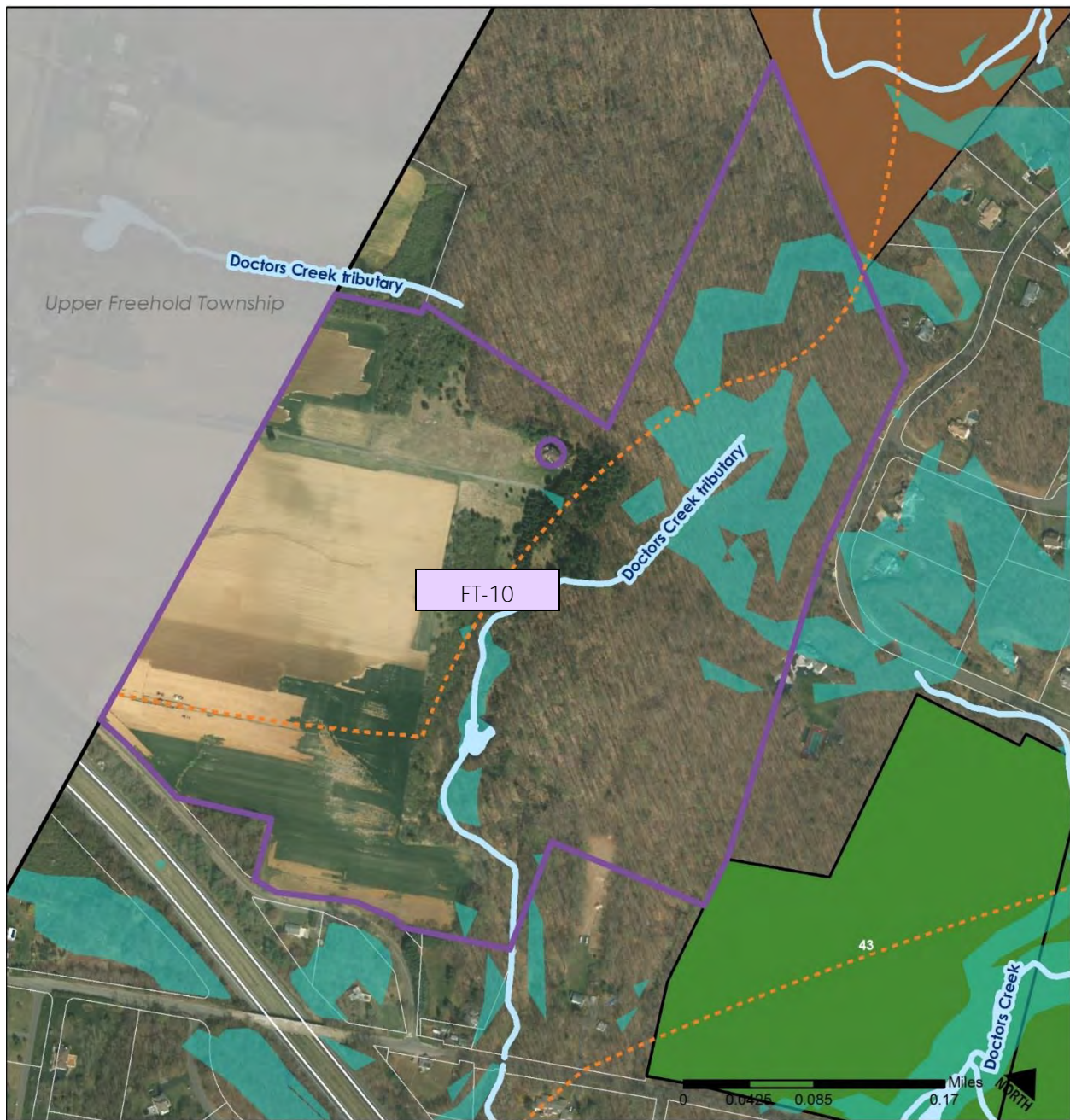




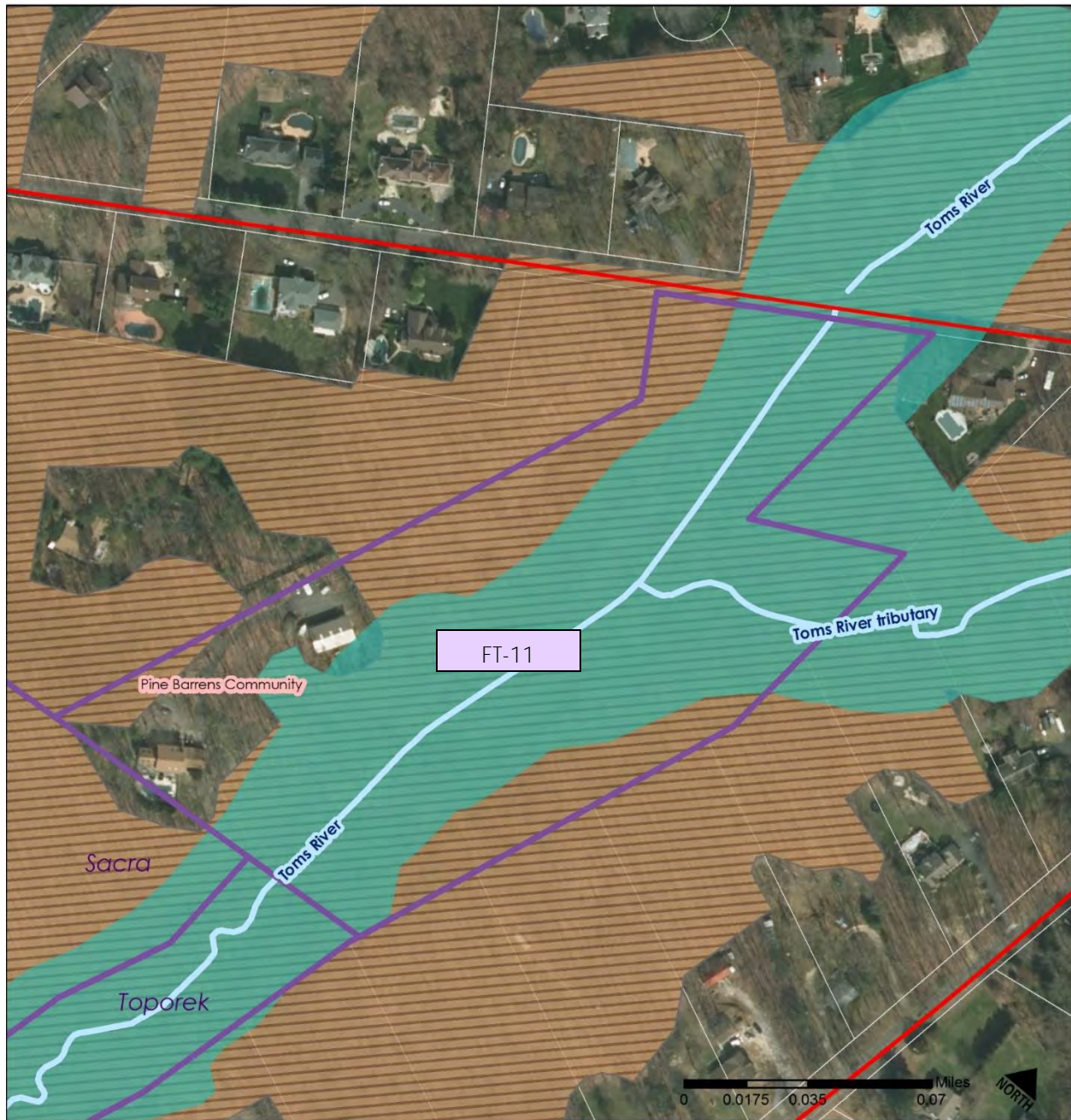






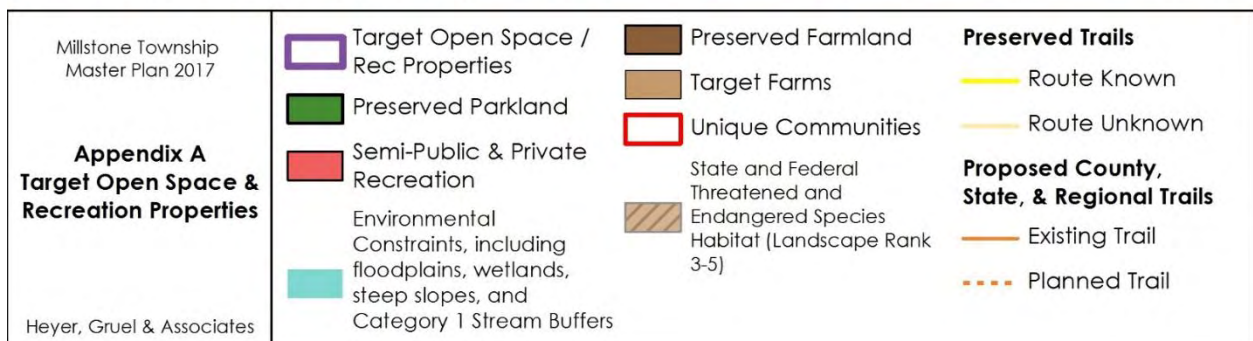
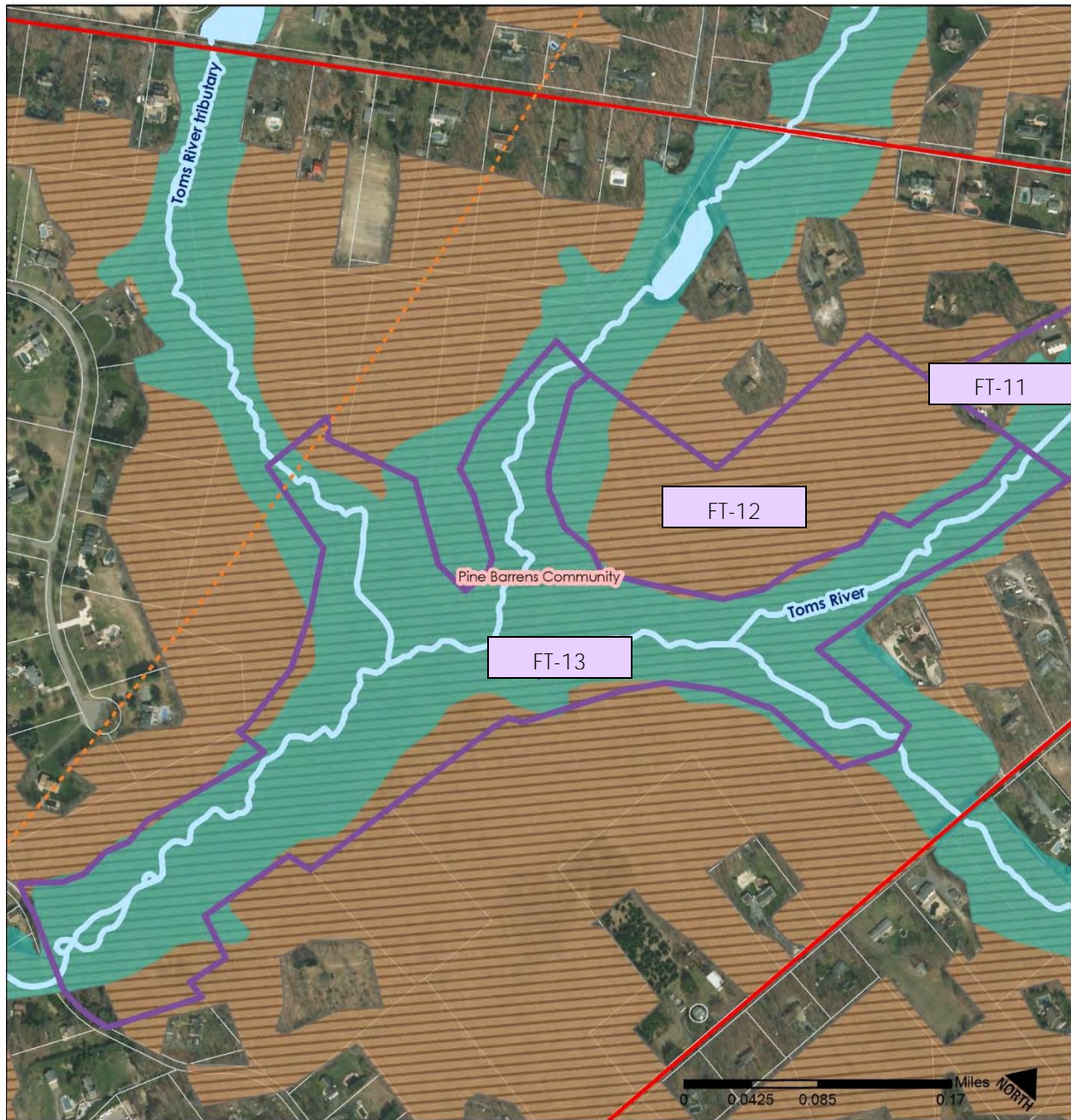




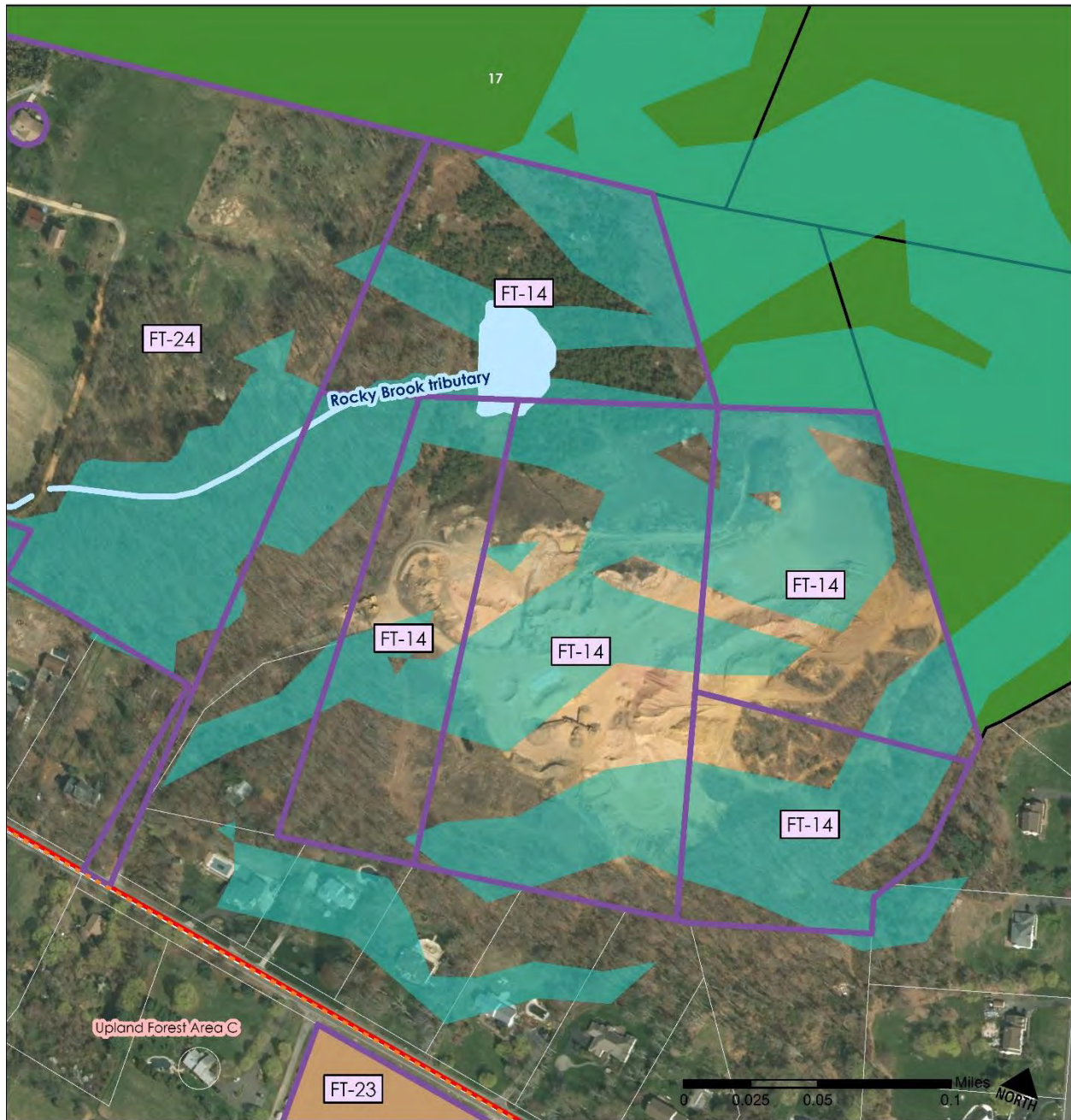


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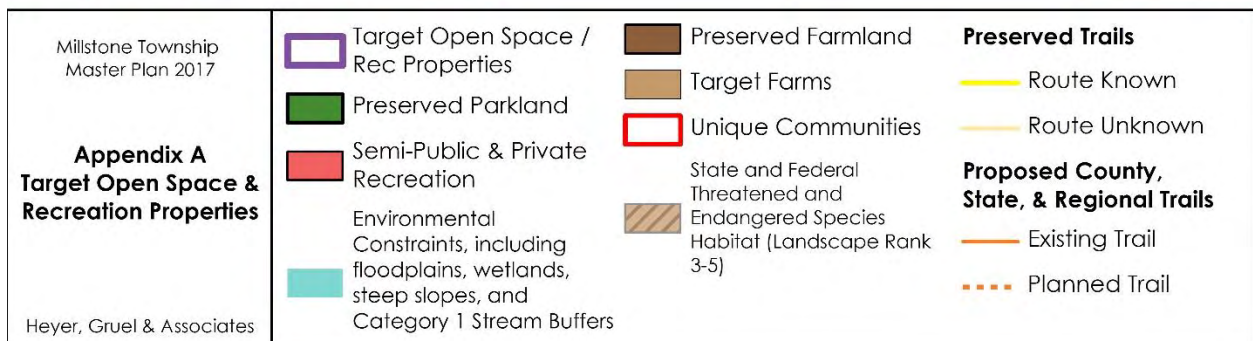
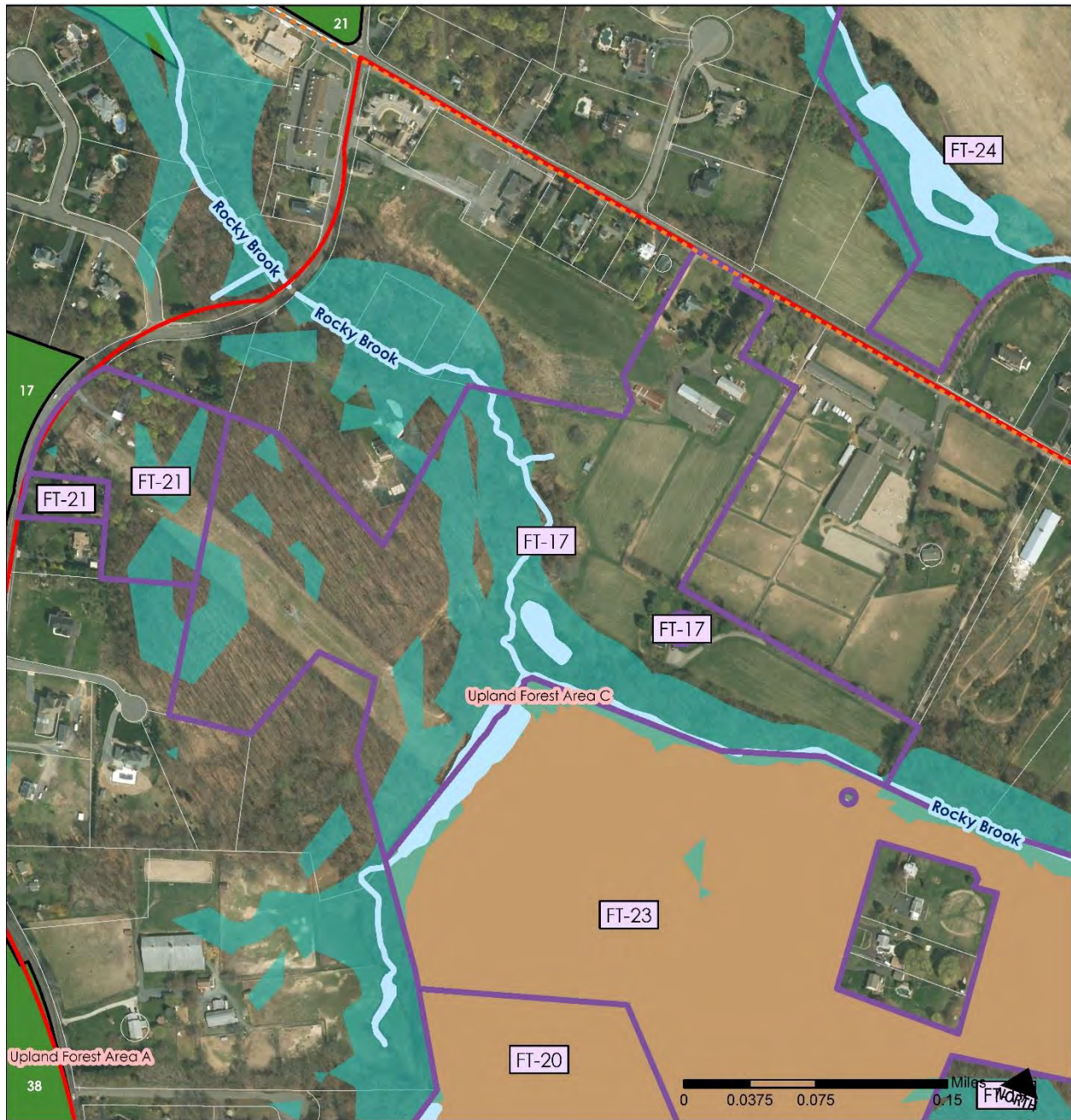




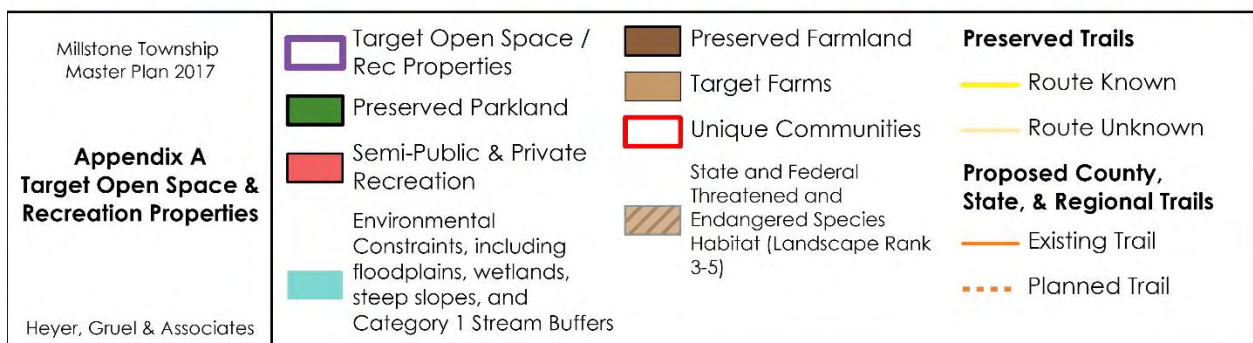
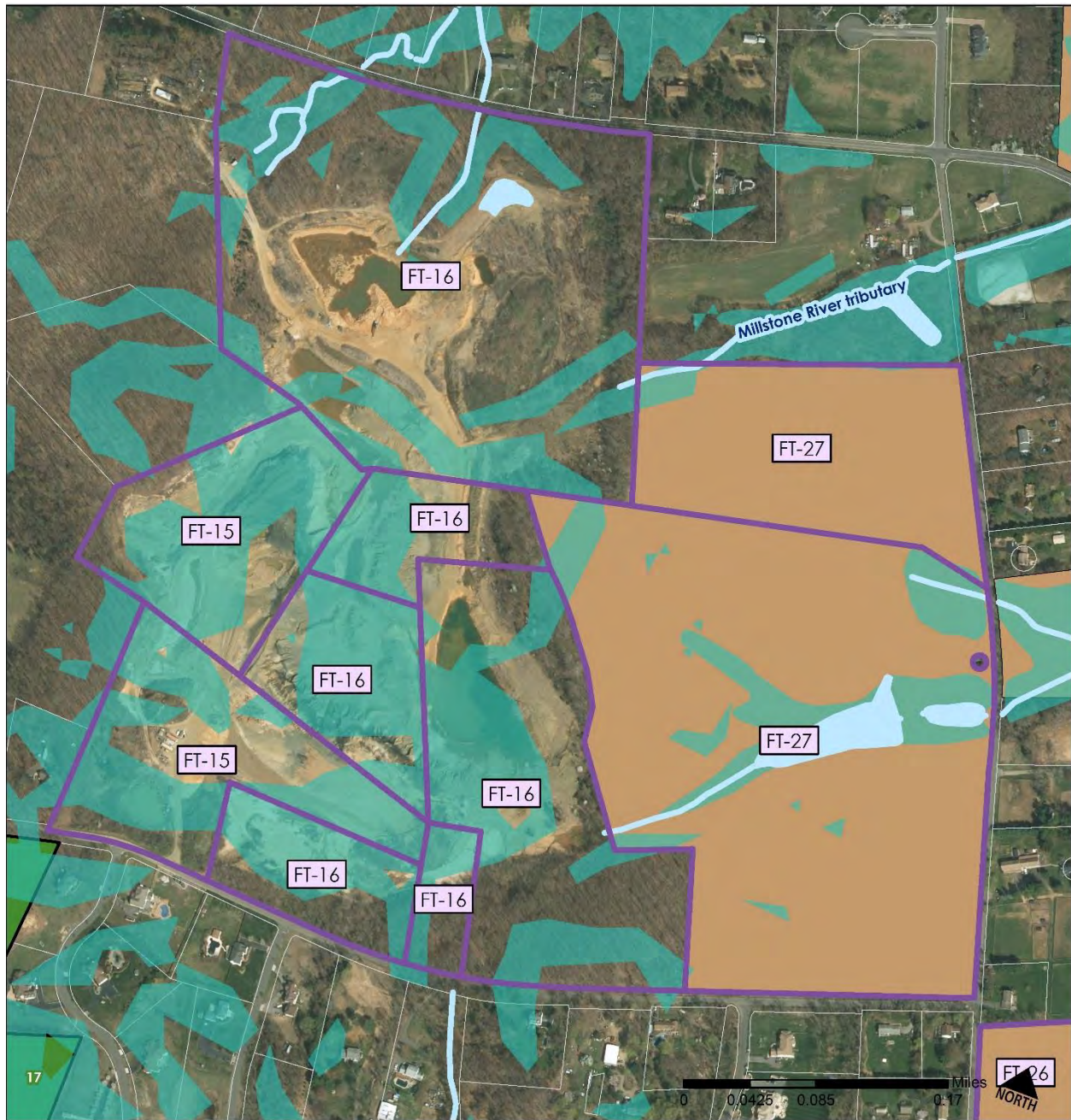


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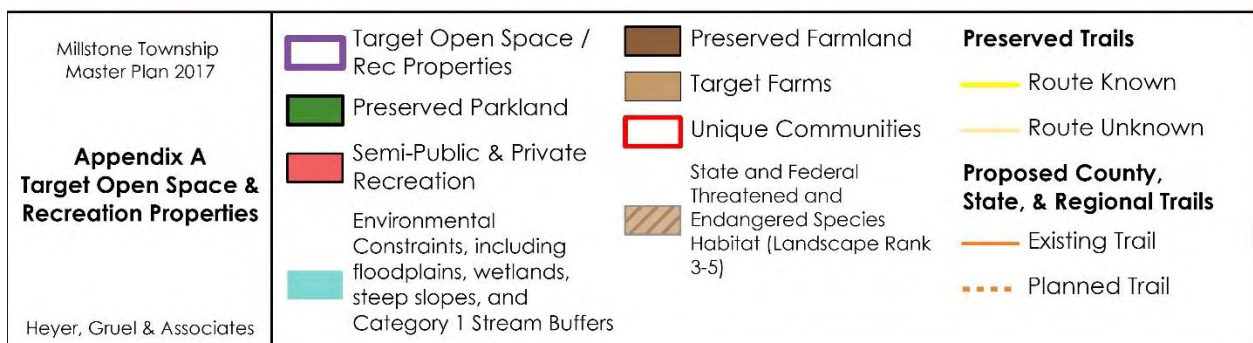
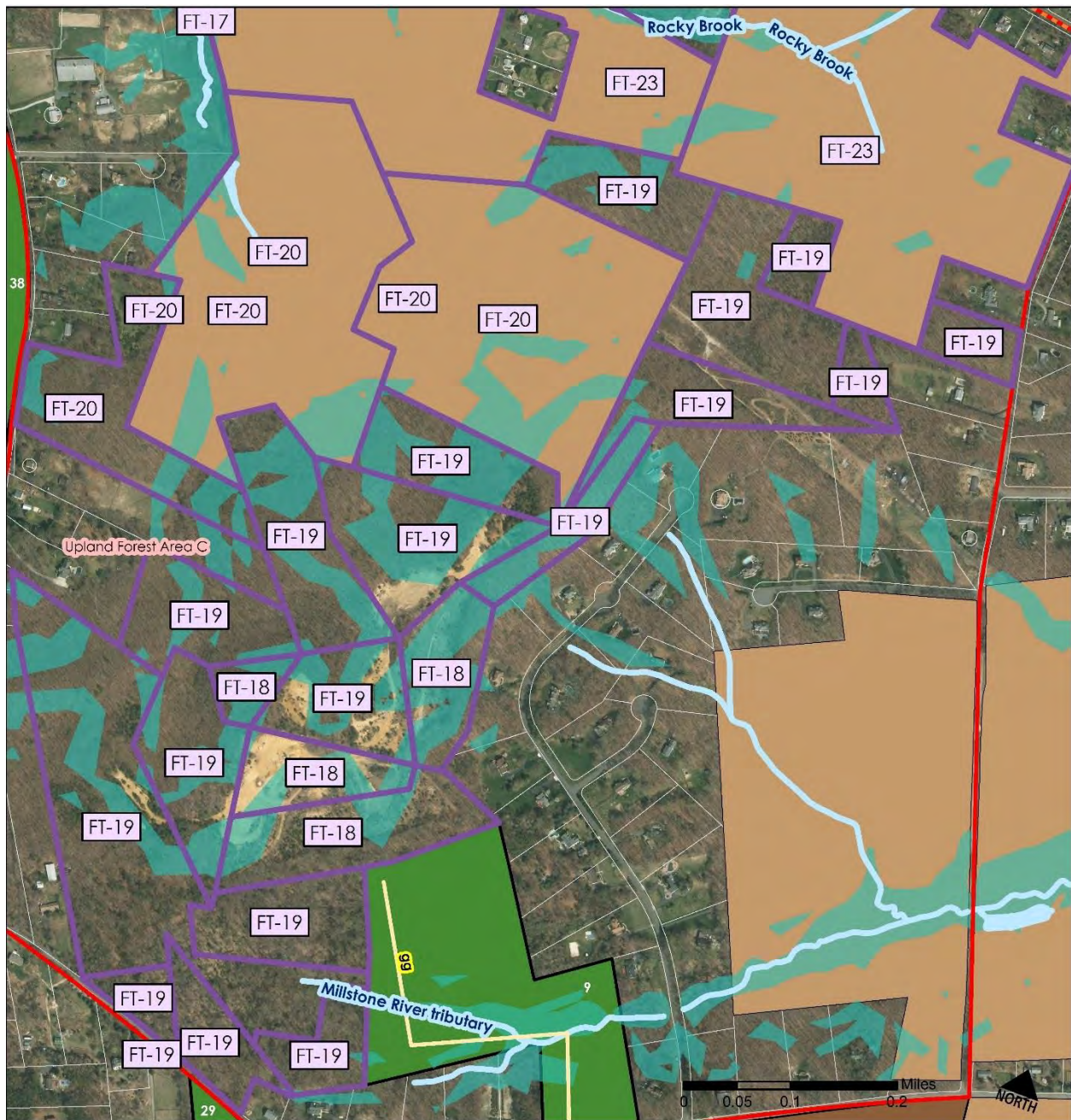




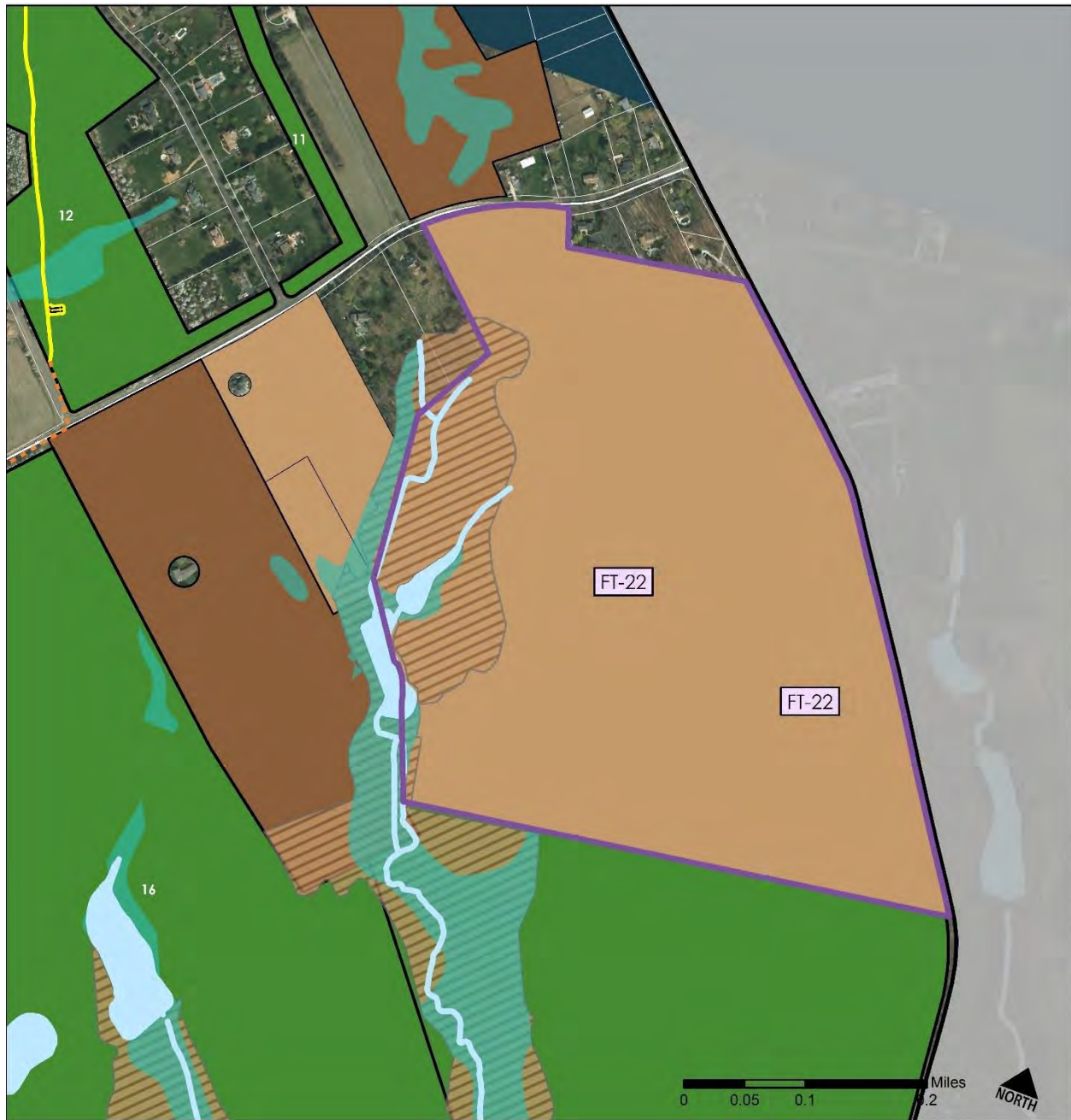






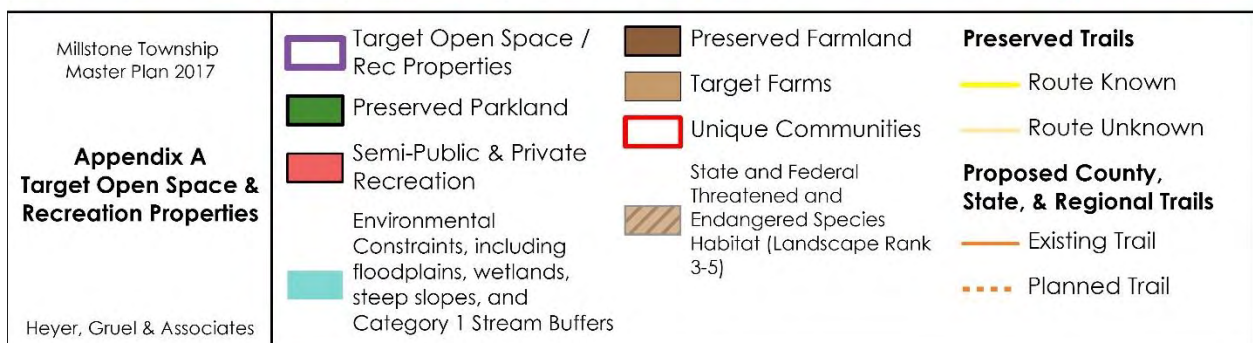
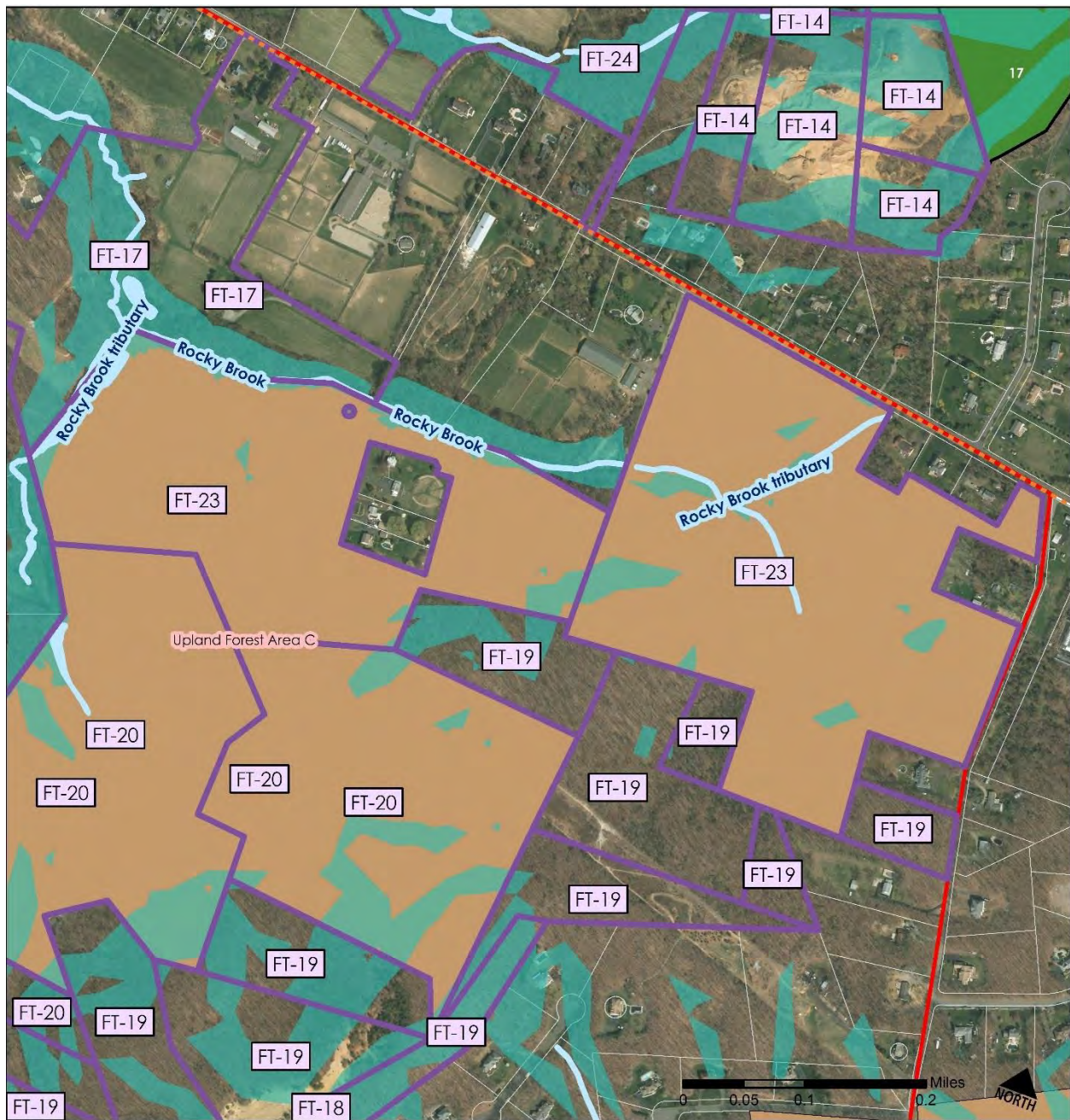




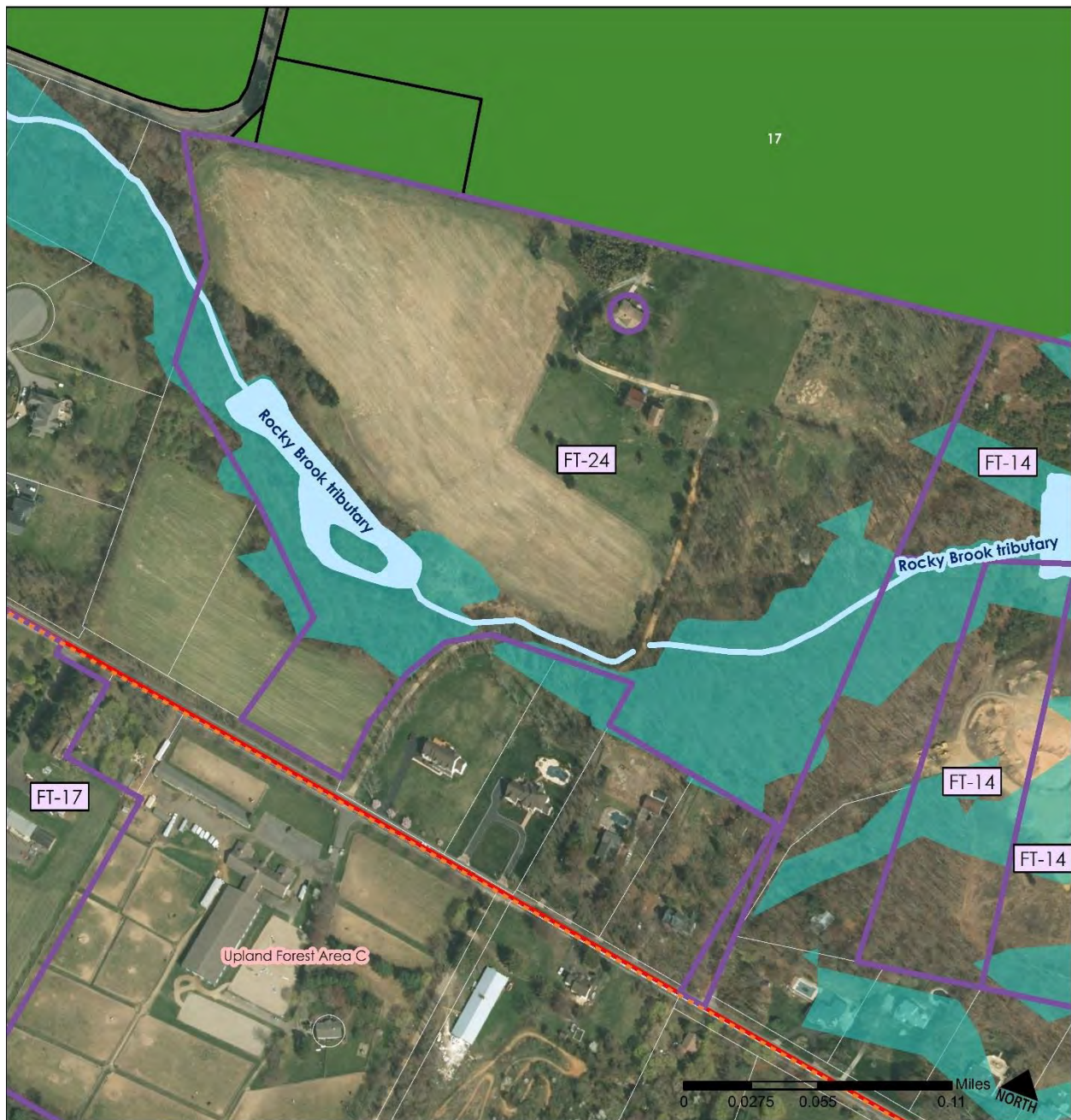


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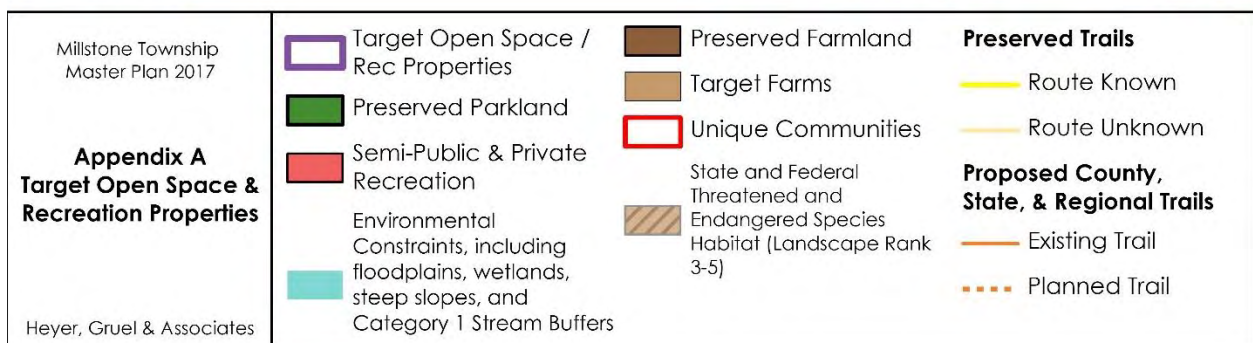






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## Economic Development

### Character and Type of Commercial Development

To diversify its economic base and to meet the needs of Township residents, additional commercial development is desirable. The Township recognizes that it has development limitations due to the lack of sanitary sewers and that the natural conditions in large portions of the Township, including freshwater wetlands, seasonal high water table, steep slopes, limited stream flows with high water quality, and soil conditions, restrict the use of on-site septic systems.

Given its environmental and infrastructure constraints, the Township needs to plan more effectively to promote patterns and types of commercial land use that expand the economic base of the community, are compatible with the road and highway infrastructure and maintaining the free flow of traffic, protect the environment, and promote a visual character that enhances the image of the Township as a community committed to conserving its environment, its scenic qualities and its rural character.

### Commercial and Light Industrial Development

The Township desires beneficial commercial growth, yet has concerns over the type of commercial use that may be attracted to Millstone without the availability of water and sewer. Some existing commercial facilities (fast food restaurants along Route 537 for example) are experiencing failure of their on-site septic systems. This failure is due in large part to the inadequate sizing of the wastewater treatment systems, and the much greater than anticipated usage as a result of the tourist industry. The Township recognizes that commercial entities, such as fast food restaurants, have grown in response to the tourist traffic in the vicinity of Great Adventure. However similar uses or patterns of use would be of little or no benefit to the other areas of Millstone Township. In fact, such patterns could substantially impair the existing or the desired character that the Township would like to promote or maintain. Consequently, the Township has studied and rezoned two major areas in Millstone for highway commercial use. The two areas are the Route 33 corridor and the Route 537 corridor.

The highway commercial area along Route 537 in proximity to Great Adventure has been placed in a new highway commercial zoning district (HC-1) that would recognize the existing land use pattern, and provide limited expansion for uses, including fast food restaurants. Strict use requirements, substantial buffers, and other design criteria are included in the HC-1 zone to ensure

that the protective measures for adjacent residential are maintained. Moreover, the HC-1 zone should remain be the only area of the Township that permits fast food restaurants.

Some of the commercial property along Route 33 has been designated for economic development purposes in accordance with the desire of the Township for beneficial commercial growth. These areas have been placed in a new zoning designation for planned commercial development that encourages larger lots, overall site planning and design, and places an emphasis on office and research uses and larger scale retail uses.

A Market Feasibility study of the economic potential of Route 33 was conducted in 2007, to better assess the types of economic uses that might be successful along the corridor. The analysis also included a locational assessment of development opportunities within the Corridor and conceptual development plans for several types of development approaches. Overall, the study found the following major conclusions:

- The Route 33 Corridor within Millstone Township is marked by newer retail strip centers, freestanding retail and community uses, and flex and industrial uses oriented away from the Highway.
- Based on market analysis, development opportunities include retail, office, flex, and age-restricted housing development even when considering future nearby retail development and the Township's septic system and water restrictions. These opportunities include:
  - Up to 252,000 SF of prime retail development opportunities, including community-serving goods and services, full-service restaurants, apparel stores, home furnishing stores, and other specialty store types.
  - Between 125,000 to 150,000 SF of office development
  - Between 350,000 to 500,000 SF of flex development.
  - 100 – 120 units of age-restricted housing.
- Township officials have identified approximately 370 developable acres within the Route 33 Corridor, of which an estimated 30 acres are in use for recently developed retail and commercial property. The remaining 340 acres could readily accommodate all the development opportunities detailed above: approximately 60 acres in new planned retail



use; 30 acres in office use; 30 acres for new flex development; and 70 acres for age-restricted housing. These uses would require a total of 190 acres, well within the available total of 340 acres.

Today, the 2007 study is 10 years old. The Township should consider an updated study for this portion of the Township in order to understand changed market conditions.

Light industrial development should be provided in business park areas. To minimize or eliminate potential conflicts, and to ensure that land is available for light industrial and business park development, the zoning regulations of the Township for business parks have been to eliminate residential development as a permitted use of the areas of the Township planned for business park use.

Since the Township lacks sewers and relies on on-site systems for treating wastewater, has sought an amendment to the Monmouth County Water Quality Plan and the Wastewater Management Plan so that the areas of the Township planned for business park and planned commercial development can be served by appropriate on-site systems. The low flow in streams in Millstone inhibit the use of traditional package systems. However, alternative systems such as a "cyclette system" may be possible and could support larger commercial uses.

### *Agriculture*

Agriculture continues to be an important economic feature of Monmouth County and Millstone Township. Millstone contains one of the highest concentrations of agricultural activity and prime farmland in the County. Consistent with State and County efforts to maintain and promote the agricultural economy of New Jersey, Millstone should maintain a large portion of the Township in agricultural land use. The Township should support County initiatives that support the agricultural industry, such as facilitating participation in the Grown in Monmouth program and designation for individual farmers.

## Utility Service Plan Element

The utility service element describes the provisions for water supply and wastewater treatment in Millstone. Millstone Township has development limitations due to the unavailability of sanitary sewers and water systems. In addition, major portions of the Township have significant on-site septic disposal constraints due to the presence of freshwater wetlands, seasonal high water table, steep slopes, and soil conditions. Development of package treatment plants is restricted by limited stream flows and costs for tertiary treatment requirements established for physiographic areas like Millstone Township by the New Jersey Department of Environmental Protection.

There is no public water system in Millstone Township. Township residents and businesses rely upon individual on-site wells for their potable water supply.

The State Development and Redevelopment Plan designates all of Millstone as the environs of Planning Area 4B- Rural/ Environmentally Sensitive. The intent of PA-4B is to accommodate growth in centers (the closest State Plan centers to Millstone are Freehold, Hightstown, Allentown, and Englishtown) and to confine sewer and water services to centers. There are no centers in Millstone that are candidates for sewer or water service.

Millstone supports the intent of the State Development and Redevelopment Plan for the Rural/Environmentally Sensitive Planning Area. The Township intends to plan and to manage its land use and its future growth and development so that it can continue to rely upon on-site systems for wastewater management and for water supply. The Township goal is to maintain the rural character of the community and secure the environmental, economic, and social benefits of a coordinated system of open space, outdoor recreation, and farmland. Public infrastructure extensions, particularly sewer service, are an inducement to intense growth and development that would conflict with this Township goal.

All of Millstone Township should be designated by the Monmouth County Water Quality Plan and the Wastewater Management Plan to be served by septic systems with the exception that the areas of the Township planned for business park and planned commercial development can be served by appropriate on-site systems so that alternative systems, such as a "cyclette system", may be possible to support larger commercial uses.

## Recycling Plan

### Existing Conditions

On April 20, 1987, the Governor of New Jersey signed a mandatory recycling law under which all New Jersey residents are required to separate materials like glass and newspapers from their household trash. The law recognizes that proper management of solid waste is an important matter of public health and safety. The source separation and recovery of certain recyclable materials serves the public interest by conserving energy and natural resources, and reducing waste disposal expenses. Millstone Township has a history of providing recycling services that has progressed and expanded over time as summarized below.

Millstone Township's first step toward implementing recycling was the enactment of Ordinance 86-20 in 1986, which created and established the position of Recycling Coordinator and initiated a recycling program based on municipal drop-off sites. Although the program was mandatory, the drop sites for newspaper, cans and glass were largely unsuccessful in reaching state-mandated goals.

In 1991, the Township addressed this issue by contracting with private solid waste/recycling haulers for the curbside collection of recyclables. This program also mandated source separation from solid waste for collection by all occupants of residential property for the following materials;

- Newspapers;
- Corrugated cardboard;
- Glass bottles and jars; and
- Aluminum cans, tin and bi-metal cans.

In 1994, a co-mingled program was started which enabled residents to combine aluminum, tin or bi-metal cans, and glass in recycling containers up to 32 gallons in size.

In 1995, Type #1 & #2 plastic containers were added to the residential curbside co-mingled program. At that time, commercial properties were also required to recycle the same materials as residential properties, as well as demolition materials and paper. In June of 1995, containers for mixed paper and corrugated cardboard were placed at the Community Center and the Municipal Garage as voluntary, supplemental collection sites for these materials. In 2002, these two locations were consolidated into one location in an effort to limit the type of material residents

were leaving in and around the containers. This location was secured with fencing, gates and closed-circuit cameras.

In 2013 the Township ceased providing for curbside brush collection. In lieu of the curbside brush collection the Township has opted to provide a drop-off location for brush that operates for up to twelve days a year. This drop off facility, located at 15 Baird Road, has a Class B Recycling Exemption through the New Jersey Department of Environmental Protection's Bureau of Recycling and Hazardous Waste Management. This Exemption limits the size of the municipality's brush pile. The accumulated material is to be ground and removed from the site on a yearly basis.

Today, the designated recycling contractor collects residential newspapers, glass bottles and jars, aluminum, bi-metal and tin cans, # 1 and #2 plastic containers and corrugated cardboard bi-weekly according to a schedule published at the beginning of each year. Table 32 shows the current list of recycled materials. Monthly reports showing collected tonnage by material type are required from the contractor to be submitted to the Township in a timely manner. The contractor is responsible for collecting and selling all recyclable material. Area markets are available for most materials in Monmouth County which will be the market of last resort for all recyclables.

Once a year each spring, the Township contracts a private solid waste hauler to provide curbside solid waste clean-up to residences. Each resident is limited to a single five-foot by five-foot by five-foot pile of refuse. Residents are informed of the Spring Clean Up procedures and prohibited items in the Township Newsletter.

All solid waste produced by municipal properties is collected and disposed of in a 40-yard container that is emptied on an as-needed basis. Millstone Township Board of Education is responsible for the collection of solid waste and recyclables at the schools. Collection of all residential and commercial solid waste is the responsibility of the individual owners, lessees and occupants as required by Ordinance No. 86-20, Chapter 19, of the Millstone Township Code.

The Township Committee, or the Recycling Coordinator, subject to the approval of the Township Committee, shall establish and promulgate reasonable rules and regulations as the manner, days and times of collection, sorting, transportation, sale and/or marketing of recyclable material while minimizing the cost of the recycling the program of the Township. It shall be the goal of the Recycling Coordinator to comply with the state and county recycling goals set forth in the state and county solid waste plans. Solid Waste Management, Chapters 19-1 & 19-2 Mandatory Recycling, and Solid Waste Collection of the Township of Millstone's Municipal Code Book and the

Monmouth County Solid Waste Management Plan should be referred to as the source information relative to this plan.

Enforcement of non-compliance with recycling rules and procedures is carried out by issuing a summons alleging a violation of this section, which may be issued by any official or employee of the Township, any law enforcement officer or by any civilian provided the summons is issued pursuant to the Rules of the Court.

Any person, firm or corporation who violates or neglect to comply with any provision of Chapter 19 of the Code of the Township of Millstone or any rule or regulation promulgated pursuant thereto, shall be liable to the penalty stated in Chapter 1, Section 1-5 of the Code of the Township of Millstone.

The Township has publicized the recycling program and notified residents and businesses and must continue to semi-annually reinforce this information to all occupants of residential and business property.

#### Recommendations for Recycling

In order to assure that future development is designed to accommodate the recycling of solid waste, the site plan and subdivision regulations of the Township should require the following:

1. Each application for residential development of single, or multi-family housing should include at least twelve square feet of floor area per family conveniently arranged and located as a holding area for a week accumulation of recyclable materials. Such an area may be within a hidden laundry room, basement or garage.
2. Each application for non-residential use which utilizes 1,000 square feet or more of land must include provisions for the collection, disposition and recycling or recyclable materials. Each application shall quantify the amount of recyclable material it will generate as part of its weekly generation including newspapers, mixed office paper, glass, aluminum, tin and bi-metal cans, corrugated cardboard, and #1 and #2 plastic containers. The application shall provide a storage area sized to contain a one-week accumulation of recyclable materials and be suitably screened from view if located outside a building.
3. An area of at least 2,000 square feet should be designated in the Township as a Recycling Facility to allow residents the opportunity to dispose of recyclables only. This facility is

staffed on selected weekdays and on the weekends, as a supplement to the county facility. Electronics devices, hazardous materials may be taken to the County Reclamation Center in Tinton Falls. Some items require an appointment.

Further information is provided to the residents via Township Newsletter, Municipal and/or Monmouth County Websites, PEG channel and public notices and flyers.

TABLE 32: Recyclable Materials List		
Type	Acceptable Items	Unacceptable Items
Aluminum (Material may be flattened)	Beverage Cans (aluminum only)	Foil, Foil Trays, Pie plates, Siding, Lawn Chairs, Screen Frames
Tin & Bi-metal (Material may be flattened)	Predominately Food Cans	Aerosol, Paint Cans
Pourable Plastic Containers (Material may be flattened)	Soda & Vegetable oil Containers, (PET, #1) Milk, Water, Juice, Detergent Containers (HOPE, #2)	Oil, Antifreeze, Ice Cream, Margarine, Yogurt, Paint & Thinner Containers, Deli Product Packaging
Glass (DO NOT Break)	Clear, Green, Brown Colored; Beverage Bottles, & Jars	Light Bulbs, Mirrors, Household Glassware, Ceramics, Window Glass
*Newspaper	News print type (daily, weekly, inserts)	
*Magazines	Coated Paper Type (catalogues)	
* Corrugated Cardboard (Material MUST be flattened and tied 3'x3')	Packing Box Type (Brown craft board)	Cereal Boxes, Egg Cartons, Pizza Boxes, Shirt, Gift boxes
Automotive and Household Batteries, Antifreeze, Motor Oil: Drop off site-Monmouth County Reclamation Center on Shafto Road in Tinton Falls.		

## Statement of Planning Relationships

Municipal Master Plans must include a policy statement which indicates the relationship of the municipal plan to the plans of contiguous municipalities, the Master Plan of Monmouth County, the County Solid Waste Management Plan and the State Development and Redevelopment Plan.

The policy of Millstone Township is to ensure that the Township's development does not conflict with the development and welfare of neighboring municipalities, the County, and the State as a whole. An analysis of the Millstone Township Master Plan shows that it is compatible with the plans of adjoining municipalities, the County, and the State.

### Municipal Plans

Contiguous municipalities for which a policy statement is required are East Windsor Township in Mercer County, Monroe Township in Middlesex County, Manalapan Township, Freehold Township, Jackson Township, Upper Freehold Township, and the Borough of Roosevelt in Monmouth County.

#### East Windsor Township

East Windsor Township, in Mercer County, adjoins the northwesterly border of Millstone. The portion of land in East Windsor which borders Millstone is zoned for rural and low density residential land use. This is compatible with the Millstone plan which designates this area as Rural Residential.

#### Monroe Township

Monroe Township, in Middlesex County, adjoins the northwesterly border of Millstone. The portion of Monroe Township bordering Millstone is zoned residential except for the Route 33 corridor which is zoned Light Industrial. The Millstone Land Use Plan designates this area residential and the Route 33 corridor as commercial, namely HC (Highway Commercial) and Planned Commercial Development (PCD). A portion of the Millstone Plan is designated Business Park west of Route 33 and is adjacent to an R-60 zone in Monroe Township. The buffer requirements of Millstone's zone plan result in compatibility with the residential designation of the Monroe plan.

#### Manalapan Township

Manalapan Township in Monmouth County borders Millstone to the east. The portion of Manalapan Township bordering Millstone is predominantly agricultural and is zoned as rural agricultural rural residential, and single family residential. Manalapan has requested that the State re-designate the southern portion of the Township, south of Route 33 and adjacent to Millstone



Township as a 4B, Rural Environmentally Sensitive Planning Area. This is consistent with Millstone Township's State Planning Area designation. The portion of the area along the Route 33 corridor is zoned SED-20 which permits planned office parks. The plans of Millstone Township and Manalapan Township are compatible.

#### Freehold Township

Freehold Township in Monmouth County borders Millstone to the southeast. Freehold Township borders Millstone Township for 3.7 miles along the Freehold-Smithburg Road (County Route 537). The land in Freehold Township bordering Millstone Township is primarily zoned for rural residential use and the plans of the two townships are compatible.

#### Jackson Township

Jackson Township in Ocean County borders Millstone to the southwest. This portion of Jackson bordering Millstone is zoned recreational commercial, and highway commercial. This is compatible with the highway commercial designation in the Millstone Land Use Plan.

#### Upper Freehold Township

Upper Freehold Township borders Millstone on the west and is zoned rural agriculture which is compatible with the rural residential and rural environmental land use designations in Millstone. The land area in the northeastern portion of Upper Freehold adjacent to Millstone is designated as PEC- Parks, Education & Conservation. This land area is contained within the Assunpink State Park, and the land use is consistent with Millstone objectives. The other portion of Upper Freehold that abuts the Township is along the eastern boundary of Upper Freehold. This area is shown as AR- Agricultural Residential.

#### The Borough of Roosevelt

The Borough of Roosevelt is located almost entirely within the borders of Millstone. Rural environmental and rural residential is designated on the Millstone Township land use plan adjacent to the Borough. This is consistent with the Borough's rural residential development. Millstone maintains a cooperative relationship with the Borough of Roosevelt.

The Borough has drafted an updated master plan that addresses issues of interest to the Township. The first pertains to residential densities. The Borough has a small area zoned for residential development on lots with a minimum size of 100,000 square feet. This area is in the vicinity of

Eleanor Lane. The remainder of the undeveloped land in the Borough zoned for residential development has minimum lot sizes of ten acres.

The second item involves the protection of scenic resources, protection of agricultural viewsheds, the protection of vegetation along roadways, and the establishment of viewshed buffers.

The third item is the recommendation establish an overlay zone designed to protect wildlife habitat, guard against tree removal, and implement the objective of scenic resource protection.

The fourth item pertains to stream buffers. The Roosevelt Plan recommends adoption of a stream buffer ordinance. This would establish an area adjacent to the stream that would remain undisturbed. The Plan proposes a minimum buffer of 100 feet adjacent to all streams, and 150 feet for those streams known as habitat to threatened or endangered species. The Plan recognizes that in some cases the wetlands regulations will be more stringent than the proposed buffers, but the Plan also points out that some streams are not associated with adjacent wetlands and would be protected under this buffer mechanism.

The fifth item is related to trails. The Plan **recognizes that Roosevelt's** residents currently use foot and bicycle transportation for trip to local destinations within the Borough. It further recognizes that it could be beneficial for Roosevelt's system of pedestrian trails to integrate with Millstone's.

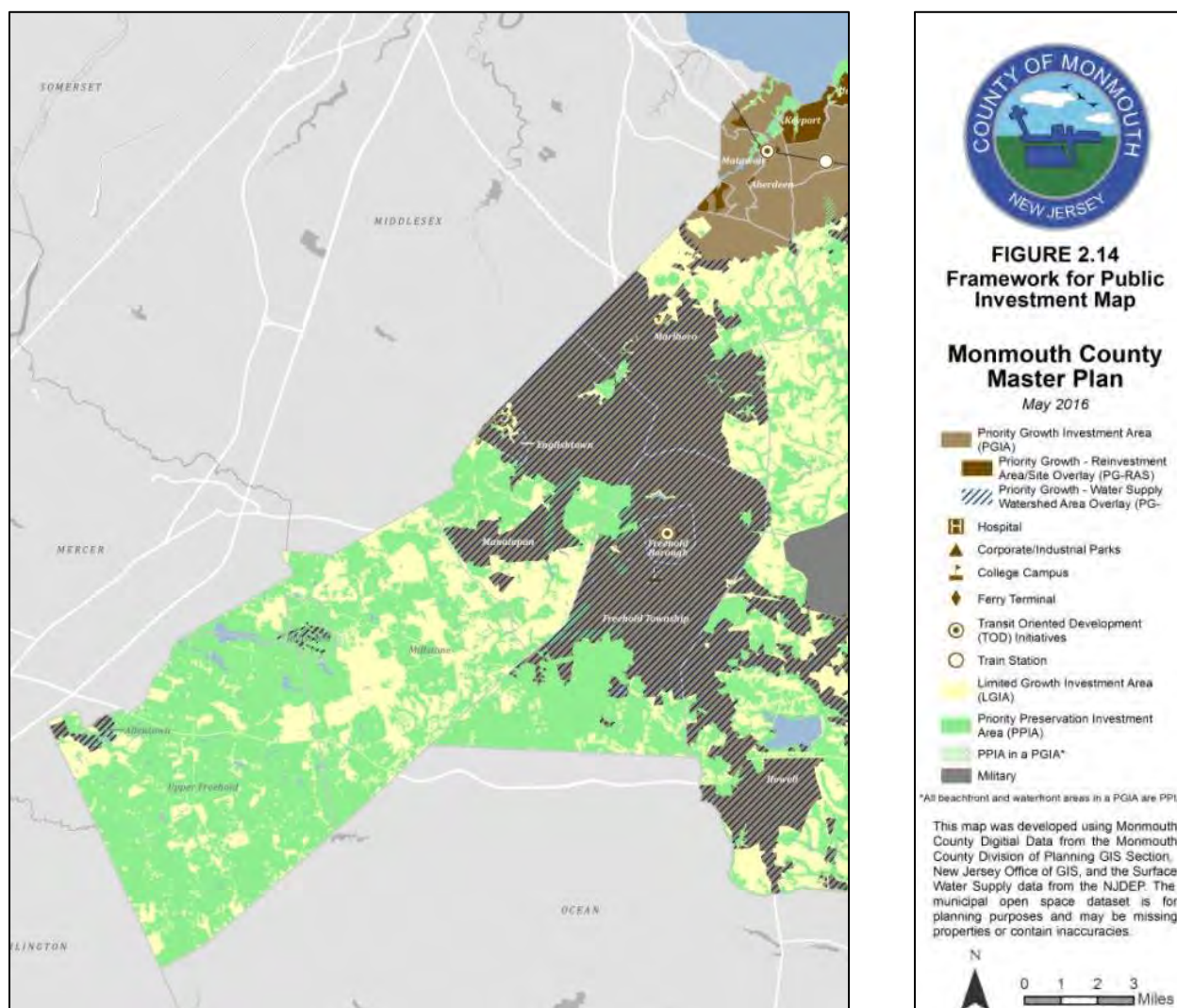
#### Monmouth County Master Plan

The Monmouth County Master Plan was most recently adopted in 2016. The County Plan establishes a regional land use planning system called the Monmouth County Framework for Public Investment. The entirety of Millstone Township is located in either the Limited Growth Investment Area or the Priority Preservation Investment Area.

The County Master Plan's vision for these areas is as follows:

#### Limited Growth Investment Area (LGIA)

The LGIS is located outside of existing or programmed sewer service areas intended for low-density residential uses, compatible rural patterns, and supportive commercial uses. Large-scale growth should be discouraged in these locations with an emphasis on the conservation and preservation of rural and environmentally sensitive lands.



### Priority Preservation Investment Area/Site (PPIAS)

In the PPIAS, investment in land preservation, agricultural development and retention, historic preservation, environmental protection and stewardship is preferred and encouraged. The use of land conservation methods, techniques, and best management practices is supported.

The LGIA and PPIAS support county landscapes such as:

- Historic Sites, Places, and Districts
- Rural and Natural Environs
- Open Space including county, state, and federal current parklands and those intended for conservation

- Vistas and Viewsheds
- Scenic Byways/Scenic Roadways
- Beach and Waterfront

Locally, Millstone's self-conception, as articulated and presented in this plan, is completely in line with these County designations. This Master Plan puts forth strong goals and objectives related to historic preservation, open space and natural area conservation, environmental protection, and the maintenance of scenic and aesthetic rural attributes. The Township's vision is consistent with that of the County.

#### Monmouth County Water Quality Plan

The Township should work with the Monmouth County Planning Board to amend the Monmouth County Water Quality Plan and the Wastewater Management Plan to reflect the policies of Millstone Township regarding sewer service and the Township's planned reliance on onsite systems. The County plan should indicate that sewer service will not be provided, that all the Township will rely upon on-site systems, and it should designate the areas of the Township identified for future planned commercial development or for business park development as areas for on-site treatment of greater than 2,000 gallons per day.

#### Monmouth County District Solid Waste Management Plan

The Monmouth County Reclamation Center in Tinton Falls serves as the landfill for solid waste generated by Monmouth County municipalities. It is also the site of the County recycling transfer station. The County Solid Waste Management Plan was amended in 1987 to mandate certified municipal recycling programs as a condition for municipal solid waste dumping privileges at the County in September 1987. The Plan also required a recycling ordinance consistent with the County plan. Annual recertification is contingent on meeting the goals set forth by the recycling Law of the State. These goals include a Recycling Plan Element adopted to the Master Plan and an ordinance to amend development regulations.

#### State Development and Redevelopment Plan

The State Development and Redevelopment Plan designates all of Millstone as the environs of Planning Area 4B- Rural/ Environmentally Sensitive. Millstone Township accounts for 42.5% of the Rural/Environmentally Sensitive Planning Area in Monmouth County.

The intent of PA-4B is to:

- Maintain the environs of centers as large contiguous areas of farmland and other land.
- Revitalize cities and towns.
- Accommodate growth in centers (the closest State Plan centers to Millstone are Freehold, Hightstown, Allentown, and Englishtown).
- Promote a viable agricultural industry.
- Protect the character of existing, stable communities.
- Confine sewer and water services to centers.

The Millstone Master Plan is compatible with and supports the intent of the State Development and Redevelopment Plan for the Rural/Environmentally Sensitive Planning Area.