Township of Harding

MORRIS COUNTY, NEW JERSEY

MASTER PLAN
Housing Element & Fair Share Plan

Adopted by the Harding Township Planning Board
November 17, 2008

Prepared by:

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KIMBALL & KIMBALL
Professional Planners

A signed and sealed copy of this Master Plan amendment is on file with the Planning Board Secretary and Township Clerk.
INTRODUCTION

This plan is presented in two parts consistent with revised regulations of the New Jersey Council on Affordable Housing (COAH) adopted in 2008 and the New Jersey Fair Housing Act, as amended. Part 1 is the Housing Element, which contains information on the township’s housing stock, demographics, employment characteristics and a determination of the township’s fair share obligation. Part 2 is the Fair Share Plan, which describes how the township will provide a realistic opportunity for the construction of affordable housing consistent with COAH rules.

Background

COAH establishes municipal fair share obligations on a periodic basis. In 1986 COAH determined that the township had a fair share obligation of 156 units for the “first round” cycle from 1987 to 1993. In 1993 COAH determined that the township’s first round obligation had been overestimated and required that 88 units be provided for the cumulative period 1987-1999. COAH certified the township’s Housing Element & Fair Share Plan in November 1996 and all components of the plan have been implemented.

In 2004 COAH adopted “third round” rules establishing new methodology known as “growth share” by which the municipal affordable housing obligation will accrue in proportion to new market rate development. The township submitted a third round Housing Element & Fair Share Plan to COAH in 2005, utilizing surplus credits resulting from an adjustment of the prior round (88-unit) obligation to address the projected growth share obligation. However, COAH’s 2004 regulations were invalidated by the Appellate Court in 2007 pursuant to a challenge by developers and others. In response to the Court Decision, COAH adopted new regulations in 2008 eliminating the prior round adjustment, establishing municipal growth projections and higher growth share ratios, and extending the third round cycle through 2018. The new rules result in a projected affordable housing obligation of 35 units for Harding.

Goals & Objectives

The goal of the township’s fair share plan is to comply with the constitutional fair housing mandate in a manner consistent with the township’s Master Plan goals. The following objectives are intended to fulfill this important goal.

1. Maintain COAH credit for the units implemented as part of the township’s prior round certified affordable housing plan.
2. Obtain COAH credit, toward the third round obligation, for prior round surplus units
and for a group home established in 2001 for individuals with special needs.

3. Provide a realistic opportunity for the provision of new affordable housing within the community to satisfy the remainder of the township’s projected growth share obligation.

Executive Summary

COAH’s third round rules address the need for affordable housing from 1987 through 2018. Three components comprise the fair share obligation. The rehabilitation share represents COAH’s determination, based on the 2000 Census, of the number of substandard dwellings in the community occupied by low/moderate income households that are in need of rehabilitation. The second component is the prior round obligation (the cumulative first and second rounds); any units not completed must still be addressed. The third component is the growth share obligation, which represents the municipality’s share of the region’s need for new affordable housing and is calculated as a proportion of development that is projected to occur from 2004 through 2018.

Rehabilitation Share
In reviewing the 2000 Census, COAH determined the township’s housing stock does not exhibit substandard characteristics; therefore the township’s rehabilitation share is zero.

Prior Round Obligation
Harding’s prior round obligation was originally determined to be 88 units: five units of rehabilitation and 83 units of new construction. The township’s plan was certified by COAH in November 1996 and has been fully implemented.

<table>
<thead>
<tr>
<th>PRIOR ROUND CERTIFIED FAIR SHARE PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Component</td>
</tr>
<tr>
<td>Rehabilitation credit</td>
</tr>
<tr>
<td>Municipal Construction (100% family rental)</td>
</tr>
<tr>
<td>Regional Contribution Agreement</td>
</tr>
<tr>
<td>Rental bonus credits</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

NOTE: The rental project was originally planned to include 23 affordable units plus 1 unit for an on-site superintendent. All 24 affordable units are currently rented to income-eligible families.

Growth Share Obligation
COAH calculates the growth share obligation based on its projection of growth that will take place in the municipality from 2004 through 2018. The affordable housing requirement is calculated on the basis of one affordable unit among five new COAH-projected dwellings and one affordable unit for every 16 COAH-projected new jobs, as measured by new or expanded nonresidential development. COAH’s growth forecasts result in a projected growth share obligation for Harding of 35 affordable units.
Summary of Third Round Fair Share Plan
Since there is no rehabilitation obligation and the prior round obligation has been fully satisfied, the township’s third round fair share plan addresses only the growth share obligation of 35 units with credits for completed and proposed affordable housing as follows:

THIRD ROUND FAIR SHARE PLAN

<table>
<thead>
<tr>
<th>Housing Component</th>
<th>Units/Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit for surplus prior round units (includes 3 rental units at <em>The Farm at Harding</em>)</td>
<td>5</td>
</tr>
<tr>
<td>Credit for Supportive/Special Needs Housing established in 2001 (Universal Institute - 5 bedroom group home)</td>
<td>5</td>
</tr>
<tr>
<td>Municipal construction of new rental units on municipal property (<em>The Farm at Harding</em> site)</td>
<td>2</td>
</tr>
<tr>
<td>Accessory Apartments (enactment of an ordinance to establish “affordable accessory residences”)</td>
<td>10</td>
</tr>
<tr>
<td>Supportive/Special Needs Housing to be established by one or more qualified housing providers</td>
<td>6</td>
</tr>
<tr>
<td>Rental bonus</td>
<td>7.75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>35.75</td>
</tr>
</tbody>
</table>

PART 1: HOUSING ELEMENT

The Municipal Land Use Law (MLUL) requires the Housing Element as a mandatory part of the municipal Master Plan. Every Housing Element must contain the following information.

1. An inventory and analysis of the municipality's housing stock, demographic characteristics, and existing and future employment characteristics;
2. A projection of future housing construction;
3. A determination of the municipality's present and prospective fair share of low and moderate income housing and its capacity to accommodate low and moderate income housing; and
4. A consideration of the land that is most appropriate for the construction of low and moderate income housing including land owned by developers who have expressed a commitment to provide affordable housing.

COAH’s revised third round rules contain the following additional requirements that must be addressed in the Housing Element.

1. COAH’s household projection for the township in accordance with Appendix F of COAH’s rules.
2. The employment projection for the township in accordance with Appendix F of COAH’s rules.
3. The township’s prior round obligation from Appendix C of COAH’s rules.
4. The township’s rehabilitation share from Appendix E of COAH’s rules.
5. The projected growth share obligation in accordance with the procedures contained in COAH’s rules.

Inventory of Housing Stock

The township’s housing stock is mainly comprised of owner-occupied single-family detached dwellings that are typically large and in good condition. The Census reported a total of 1,243 housing units in 2000. The characteristics of Harding’s housing stock are described in the following sections.

Age of Housing

Most homes in Harding Township were constructed between 1940 and 1990, but 22.5% of Harding’s units were built before 1939. This significant proportion of older houses is indicative of Harding’s historic character, not of housing deficiency.

<table>
<thead>
<tr>
<th>Year Structure Built</th>
<th>No. of Units</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999 to March 2000</td>
<td>20</td>
<td>1.6</td>
</tr>
<tr>
<td>1995 to 1998</td>
<td>80</td>
<td>6.4</td>
</tr>
<tr>
<td>1990 to 1994</td>
<td>42</td>
<td>3.4</td>
</tr>
<tr>
<td>1980 to 1989</td>
<td>217</td>
<td>17.5</td>
</tr>
<tr>
<td>1970 to 1979</td>
<td>178</td>
<td>14.3</td>
</tr>
<tr>
<td>1960 to 1969</td>
<td>155</td>
<td>12.5</td>
</tr>
<tr>
<td>1940 to 1959</td>
<td>271</td>
<td>21.8</td>
</tr>
<tr>
<td>1939 or earlier</td>
<td>280</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Condition of Housing

The 2000 Census contains information on housing deficiencies that, under COAH rules, can serve as indicators of the need for rehabilitation. The Census confirms that Harding’s housing stock is in good condition. All units had complete plumbing facilities and kitchens and some form of heating supply. There is also no evidence of overcrowding as no units reported more than 1.01 persons per room.

Housing Values

In 2000, the median housing value reported for owner-occupied units was $665,400. Of 998 units reported, the lowest values were for six units valued at between $50,000 and $99,999. The vast majority of homes (99.4%) were valued over $200,000.
HOUSING VALUES
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Value of Owner-Occupied Housing</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $50,000</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>$50,000 - 99,000</td>
<td>6</td>
<td>0.6</td>
</tr>
<tr>
<td>$100,000 - 199,000</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>$200,000 - 299,000</td>
<td>164</td>
<td>16.4</td>
</tr>
<tr>
<td>$300,000 - 499,999</td>
<td>239</td>
<td>23.0</td>
</tr>
<tr>
<td>$500,000 - 999,999</td>
<td>278</td>
<td>27.9</td>
</tr>
<tr>
<td>$1,000,000 or more</td>
<td>311</td>
<td>31.2</td>
</tr>
</tbody>
</table>

Median gross monthly rent reported in 2000 for leased housing units was $1,125. Eight units reported rents between $500 and $749/month; 20 units between $750-999, 22 units between $1,000-1,499 and 20 exceeding $1,500/month. Eight units reported no cash rent.

MONTHLY RENTAL COSTS
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Gross Monthly Rent</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $500</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>$500 - 749</td>
<td>8</td>
<td>10.3</td>
</tr>
<tr>
<td>$750 - 999</td>
<td>20</td>
<td>25.6</td>
</tr>
<tr>
<td>$1,000 - 1,499</td>
<td>22</td>
<td>28.2</td>
</tr>
<tr>
<td>$1,500 or more</td>
<td>20</td>
<td>25.6</td>
</tr>
<tr>
<td>No cash rent</td>
<td>8</td>
<td>10.3</td>
</tr>
<tr>
<td>Median Rent</td>
<td>$1,125</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: 78 units reported.

Occupancy Characteristics
The 2000 Census counted a total of 1,243 housing units; 1,092 were owner-occupied and 88 were renter-occupied. Sixty-three units were reported vacant in 2000. Of that number, 41 units were reportedly for seasonal, recreational, occasional or some other use.

OCCUPANCY CHARACTERISTICS
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Housing Occupancy</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total housing units</td>
<td>1,243</td>
</tr>
<tr>
<td>Owner-occupied</td>
<td>1,092</td>
</tr>
<tr>
<td>Renter-occupied</td>
<td>88</td>
</tr>
<tr>
<td>Vacant</td>
<td>63</td>
</tr>
</tbody>
</table>

Housing Types
The 2000 Census tabulated that there were 1,082 single-family detached units, 155 single-family attached units, and six mobile home units. Most homes contain four or more bedrooms and the median number of rooms per dwelling is 9+ rooms.
### HOUSING TYPES
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 unit - detached dwelling</td>
<td>1,082</td>
<td>87.0</td>
</tr>
<tr>
<td>1 unit - attached dwelling</td>
<td>155</td>
<td>12.5</td>
</tr>
<tr>
<td>2 units</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>3 or 4 units</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>5 or more units</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Mobile homes</td>
<td>6</td>
<td>0.5</td>
</tr>
</tbody>
</table>

### SIZE OF DWELLINGS
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Number of Rooms</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 room</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>2 rooms</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>3 rooms</td>
<td>7</td>
<td>0.6</td>
</tr>
<tr>
<td>4 rooms</td>
<td>39</td>
<td>3.1</td>
</tr>
<tr>
<td>5 rooms</td>
<td>81</td>
<td>6.5</td>
</tr>
<tr>
<td>6 rooms</td>
<td>186</td>
<td>15.0</td>
</tr>
<tr>
<td>7 rooms</td>
<td>151</td>
<td>12.1</td>
</tr>
<tr>
<td>8 rooms</td>
<td>137</td>
<td>11.0</td>
</tr>
<tr>
<td>9 rooms or more</td>
<td>642</td>
<td>51.6</td>
</tr>
</tbody>
</table>

Median rooms per dwelling: 9+

### Number of Affordable Units
In response to the prior round fair share obligation, Harding Township constructed a rental housing development on township land located at the intersection of Kitchell Road and Woodland Avenue. The development was completed in 2006 and contains 24 units rented to low and moderate income families.

### Substandard Housing Capable of Being Rehabilitated
The Census did not report any housing in Harding Township that was substandard and in need of rehabilitation. Similarly, COAH determined that Harding’s rehabilitation share is zero.

### Demographic Characteristics

Characteristics that most distinguish Harding from other towns in the area are its median age and population density. At 44.5, Harding’s median age is significantly higher than for Morris County (37.8) or the state (36.7), but its population density (155 persons per sq. mile) is significantly lower (988 for the county and 1,074 for the state). The following table displays

---

1 Year-round dwellings.
selected population characteristics and the changes in average household size over the last five decades.
SELECTED POPULATION CHARACTERISTICS
(Source: US Bureau of Census)

<table>
<thead>
<tr>
<th>Population Characteristics</th>
<th>Harding Township</th>
<th>Morris County</th>
<th>New Jersey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age in 2000</td>
<td>44.5</td>
<td>37.8</td>
<td>36.7</td>
</tr>
<tr>
<td>Density - Persons per Sq. Mile in 2000</td>
<td>155</td>
<td>988</td>
<td>1,074</td>
</tr>
<tr>
<td>Average # of Persons per Dwelling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>2.69</td>
<td>2.72</td>
<td>2.68</td>
</tr>
<tr>
<td>1990</td>
<td>2.70</td>
<td>2.78</td>
<td>2.7</td>
</tr>
<tr>
<td>1980</td>
<td>2.94</td>
<td>3.1</td>
<td>2.8</td>
</tr>
<tr>
<td>1970</td>
<td>3.33</td>
<td>3.5</td>
<td>3.0</td>
</tr>
<tr>
<td>1960</td>
<td>3.33</td>
<td>3.2</td>
<td>3.3</td>
</tr>
</tbody>
</table>

**Population Trends**
Harding’s population steadily increased during the period from its incorporation in 1922 to 1970. In 1930, Harding had a population of 1,206. By 1940, it had increased by 29.8% to 1,565 persons and from 1940 to 1950 it increased by almost 26% to 1,970 persons. From 1950-1970, Harding experienced its largest population increase, mirroring the national trend of rapid suburban development. There were 2,683 residents by 1960, an increase of 36.2% from 1950. The increases, however, were much smaller than for the county (+59.2%).

**POPULATION CHANGES: 1930 - 2000**
(Source: US Bureau of Census)

<table>
<thead>
<tr>
<th>Year</th>
<th>Harding Township Population (% change)</th>
<th>Morris County Population (% change)</th>
<th>New Jersey Population (% change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>1,202 (-29.8%)</td>
<td>11,445 (+13.8%)</td>
<td>4,041,334 (+2.9%)</td>
</tr>
<tr>
<td>1940</td>
<td>1,565 (+25.9%)</td>
<td>125,732 (+30.7%)</td>
<td>4,160,165 (+16.2%)</td>
</tr>
<tr>
<td>1950</td>
<td>1,970 (+25.9%)</td>
<td>164,371 (+30.7%)</td>
<td>4,835,329 (+18.2%)</td>
</tr>
<tr>
<td>1960</td>
<td>2,683 (+36.2%)</td>
<td>261,620 (+36.2%)</td>
<td>6,066,782 (+25.5%)</td>
</tr>
<tr>
<td>1970</td>
<td>3,249 (+21.1%)</td>
<td>383,454 (+21.1%)</td>
<td>7,171,112 (+18.2%)</td>
</tr>
<tr>
<td>1980</td>
<td>3,236 (-0.4%)</td>
<td>407,630 (+6.3%)</td>
<td>7,364,158 (+2.7%)</td>
</tr>
<tr>
<td>1990</td>
<td>3,640 (+12%)</td>
<td>421,353 (+3.4%)</td>
<td>7,730,188 (+5%)</td>
</tr>
<tr>
<td>2000</td>
<td>3,180 (-12.6%)</td>
<td>470,212 (+11.6%)</td>
<td>8,414,359 (+8.9%)</td>
</tr>
</tbody>
</table>

Harding’s relative insulation from the rapid suburbanization that occurred around major cities reflects a significant distinction in the township’s development history. The discontinuity between Harding’s growth and the surrounding region continued during the following decade (1970’s) when Harding grew by 21.1% but Morris County grew by 46.6%. The long period of steady growth in population essentially ended in the decade prior to 1980, when the township’s population is recorded as decreasing by 13 persons (-0.4%). In 1990 the Census recorded a population increase of 12.5% while in the following decade, a 12.6% decrease was recorded. An analysis of the data suggests that over-and under-counting respectively occurred during these two decades. Taken together they indicate a relatively stable population size.
**Household Size and Type**

The tables below display the range and type of household sizes in Harding. Two person households are by far the most common (466), followed by one-person households (207), and three person households (194). The median household size is 2.69.

**HOUSEHOLD SIZE**
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-person households</td>
<td>207</td>
</tr>
<tr>
<td>2-persons households</td>
<td>466</td>
</tr>
<tr>
<td>3-person households</td>
<td>194</td>
</tr>
<tr>
<td>4-person households</td>
<td>160</td>
</tr>
<tr>
<td>5-person households</td>
<td>115</td>
</tr>
<tr>
<td>6-person households</td>
<td>27</td>
</tr>
<tr>
<td>7+ person households</td>
<td>11</td>
</tr>
</tbody>
</table>

**HOUSEHOLD TYPE**
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Households by Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family households</td>
<td>941</td>
</tr>
<tr>
<td>Non-family households</td>
<td>239</td>
</tr>
</tbody>
</table>

**Age Characteristics**

A population’s age composition molds the character of a community and determines the types of municipal facilities that are needed. According to 2000 Census data, the percentage of young children under five years of age was only 6.2% in Harding compared to approximately 6.9% for the county. Harding’s elderly population, age 65 and over, at 12.5% was significantly higher than the county (8.8%) and slightly higher than for the state (11.7%).

**POPULATION BY AGE**
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Age</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5</td>
<td>199</td>
</tr>
<tr>
<td>5 - 14</td>
<td>483</td>
</tr>
<tr>
<td>15 - 24</td>
<td>235</td>
</tr>
<tr>
<td>25 - 34</td>
<td>216</td>
</tr>
<tr>
<td>35 - 44</td>
<td>481</td>
</tr>
<tr>
<td>45 - 54</td>
<td>550</td>
</tr>
<tr>
<td>55 - 64</td>
<td>495</td>
</tr>
<tr>
<td>65 - 74</td>
<td>301</td>
</tr>
<tr>
<td>75 - 84</td>
<td>164</td>
</tr>
<tr>
<td>85 and over</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>3,180</td>
</tr>
</tbody>
</table>
The table below displays changes in population age groups over the last three decades. The age cohort of 65 and over has seen the highest increase over the last 20 years (+146%); the youngest cohorts have experienced the largest decreases, especially among those 21 to 29 where there has been a substantial decline (-44%). Other age cohorts have remained relatively stable, increasing or decreasing slightly.

### CHANGES IN POPULATION AGE GROUPS: 1980 - 2000
(Source: US Bureau of Census)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 20</td>
<td>947</td>
<td>830</td>
<td>859</td>
<td>-9.3%</td>
</tr>
<tr>
<td>21 - 29</td>
<td>282</td>
<td>362</td>
<td>158</td>
<td>-44%</td>
</tr>
<tr>
<td>30 - 65</td>
<td>1,597</td>
<td>1,905</td>
<td>1,642</td>
<td>+3%</td>
</tr>
<tr>
<td>65 +</td>
<td>410</td>
<td>543</td>
<td>1,042</td>
<td>+146%</td>
</tr>
<tr>
<td>Total</td>
<td>3,236</td>
<td>3,640</td>
<td>3,180</td>
<td>-2%</td>
</tr>
</tbody>
</table>

**Income Level**

Median household income reported by the 2000 Census for income in 1999 among 1190 households was $111,297. The breakdown of income is displayed below.

### HOUSEHOLD INCOME (1999)
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Households by Income</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $10,000</td>
<td>16</td>
</tr>
<tr>
<td>$10,000-$14,999</td>
<td>0</td>
</tr>
<tr>
<td>$15,000-$24,999</td>
<td>40</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>63</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>107</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>196</td>
</tr>
<tr>
<td>$75,000-$99,000</td>
<td>114</td>
</tr>
<tr>
<td>$100,000-$149,000</td>
<td>198</td>
</tr>
<tr>
<td>$150,000-$199,999</td>
<td>88</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>368</td>
</tr>
</tbody>
</table>

**NOTE:** 1190 households reported.

**Employment Status of Township Residents**

According to the 2000 Census there were 1,338 employed persons residing in Harding, or 42% of the population; 853 were male and 485 were female. Harding residents have varied occupational and employment backgrounds but are heavily centered on the professions. The most commonly cited professions are executive, administrative or managerial followed by professional specialties. The industry with the highest single representation is

---

2 An analysis prepared by the township planners in 2002 (letter to the Planning Board, 7/8/02) concluded that there appears to have been errors in the 1990 Census that may have over-counted the township’s population at that time and under-counted in the 2000 census.
finance/insurance/real estate, followed by professional/scientific/management and administrative services.

EMPLOYMENT CHARACTERISTICS OF HARDING RESIDENTS
(Source: 2000 Census)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial &amp; professional specialty occupations:</td>
<td></td>
</tr>
<tr>
<td>Executive, admin. &amp; managerial</td>
<td>653</td>
</tr>
<tr>
<td>Professional specialty</td>
<td>452</td>
</tr>
<tr>
<td>Technical, sales &amp; admin. support:</td>
<td></td>
</tr>
<tr>
<td>Technicians &amp; related support</td>
<td>27</td>
</tr>
<tr>
<td>Sales</td>
<td>317</td>
</tr>
<tr>
<td>Administrative support (incl. clerical)</td>
<td>193</td>
</tr>
<tr>
<td>Service occupations: Private household</td>
<td>17</td>
</tr>
<tr>
<td>Protective service</td>
<td>7</td>
</tr>
<tr>
<td>Service, except protective &amp; hshld.</td>
<td>81</td>
</tr>
<tr>
<td>Farming, forestry &amp; fishing</td>
<td>51</td>
</tr>
<tr>
<td>Precision production, craft &amp; repair</td>
<td>85</td>
</tr>
<tr>
<td>Operators, fabricators &amp; laborers:</td>
<td></td>
</tr>
<tr>
<td>Machine operators, assemblers &amp; inspectors</td>
<td>0</td>
</tr>
<tr>
<td>Transportation &amp; material moving</td>
<td>12</td>
</tr>
<tr>
<td>Handlers, equipment cleaners, helpers &amp; laborer</td>
<td>6</td>
</tr>
</tbody>
</table>

Employment Characteristics
(Job Availability) in Harding

Data concerning employment in each municipality in New Jersey is available from the New Jersey Department of Labor (DOL). The data provide an indication of the number and types of jobs available in the community.

Employment by Industry Sectors
The most recent breakdown of private sector employment for municipalities available at the DOL website dates to 2003 and is shown in the table below. DOL’s website indicates that where very few units (businesses) reported or the number of jobs was low, the data is suppressed and is indicated as such by a dash (-).
EMPLOYMENT IN HARDING BY INDUSTRY SECTOR: 2003
Source: NJ Department of Labor

<table>
<thead>
<tr>
<th>Private Sector Classification</th>
<th>Annual Average Units Reporting</th>
<th>Average Annual Private Sector Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, fishing and hunting</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Utilities</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Construction</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wholesale and retail trades</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Information</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>12</td>
<td>73</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Professional and technical services</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Administrative and waste services</td>
<td>9</td>
<td>107</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other services except public administration</td>
<td>40</td>
<td>139</td>
</tr>
<tr>
<td>Unclassified entities</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sum total of units and employment reported above</td>
<td>80</td>
<td>337</td>
</tr>
<tr>
<td>Private sector total reported by DOL</td>
<td>113</td>
<td>786</td>
</tr>
</tbody>
</table>

Number of Persons Employed and Employment Trends
The table below displays the number of jobs that were available in the township from 2003 through 2006, the most recent municipal data available from NJ Department of Labor website. COAH’s own growth data indicated a total of 896 jobs in Harding 2002 and 878 jobs in 2004.3 This data clearly demonstrates a trend of declining employment in Harding over the five year period.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Average Covered Employment</td>
<td>736</td>
<td>749</td>
<td>893</td>
<td>900</td>
</tr>
<tr>
<td>Total Average Private Sector Employment</td>
<td>617</td>
<td>636</td>
<td>782</td>
<td>786</td>
</tr>
<tr>
<td>Total Average Federal Gov’t Employment</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Total Average Other Gov’t Employment</td>
<td>113</td>
<td>107</td>
<td>105</td>
<td>108</td>
</tr>
</tbody>
</table>

Employment Outlook
COAH’s growth projections predict an increase in employment of nearly 100 jobs by 2018, but this may be based upon data modeling and regional trends rather than an analysis of potential employment based on local trends and the township’s nonresidential land.

3 NJAC 5:97 Appendix F(2).
Harding Township Master Plan
Housing Element & Fair Share Plan
Page 10-13

development capacity. Based on the trend exhibited above, it would appear that the actual number of jobs available in the township could be expected to decline somewhat in the future. From a land use planning perspective, no significant growth is anticipated in the areas zoned for commercial development because they are already near or have achieved full build-out.

**Determination of Present and Prospective Need for Affordable Housing and Harding’s Capacity to Accommodate Growth**

The MLUL requires a determination of the municipality’s present and prospective affordable housing need. COAH has determined the present need or rehabilitation share for all communities and developed projections of housing construction and employment growth by which a municipality may calculate its prospective need or growth share.

**Present Need (Rehabilitation Share)**
According to Appendix B of the revised third round rules, COAH has determined that Harding has no present need or rehabilitation share. In other words, according to the 2000 Census, COAH has determined that there was no deficient housing in the township occupied by low or moderate income households.

**Prospective Need (Growth Share)**
Prospective need, or the growth share obligation, is calculated by applying COAH’s growth share ratios to the agency’s growth projections. Appendix F of the revised third round rules contains projections of household and employment growth upon which prospective need or the growth share obligation is based. COAH forecasts that 169 new housing units will be constructed and 98 new jobs will be created between 2004 and 2018. The number of new residential units (169) includes affordable housing construction, so COAH permits affordable units completed after 2004 to be subtracted from the growth projection when calculating the obligation. The table below displays COAH’s projections and the calculated obligation.

The growth share obligation is calculated by applying COAH’s residential and nonresidential growth share ratios to COAH’s projection of development through 2018. Actual residential development (market rate housing) and actual employment data associated with new nonresidential space will be considered by COAH during its biennial reviews when the actual obligation is tallied based on new development. If less development occurs, the fair share plan for the original projected obligation must remain in place. If more development occurs, the additional fair share obligation must be addressed.

<table>
<thead>
<tr>
<th>DETERMINATION OF GROWTH SHARE OBLIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COAH-projected new dwellings 1/1/04 – 12/31/18</td>
</tr>
<tr>
<td>Subtract affordable units constructed since 1/1/04 [NJAC 5:97-2.4(a)]</td>
</tr>
<tr>
<td>Remaining projected new dwellings</td>
</tr>
<tr>
<td>145 divided by 5 = residential growth share</td>
</tr>
<tr>
<td>COAH-projected employment 1/1/04 – 12/31/18</td>
</tr>
<tr>
<td>98 divided by 16 = nonresidential growth share</td>
</tr>
</tbody>
</table>
The Township’s Capacity to Accommodate Residential and Nonresidential Growth

The MLUL requires that the Housing Element address whether the community has the capacity to accommodate its present and prospective housing needs, including its fair share of low and moderate income housing.

The township can accommodate additional affordable housing in a manner that is consistent with the goals and objectives of the Master Plan. The township will construct its own rental housing, establish a 10-unit accessory apartment program and cooperate with specialized housing providers to establish one or more group homes.

1. Municipal Construction: The township owns the land where its prior round affordable housing project, The Farm at Harding, was built. The density and other zoning regulations applicable to the site allow for the construction of additional units. The architect who designed the prior round project has determined that it is feasible to construct at least two additional housing units on the site.

2. Accessory Apartments: The township has an existing housing stock that is conducive to the production of accessory apartments and is willing to subsidize their creation, as described in greater detail in Part 2, the Fair Share Plan. The potential to create apartments is realistic and, with a municipal subsidy, an inducement for interested homeowners.

3. Supportive/Special Needs Housing: The township has established a cooperative working relationship with two sponsors of supportive and special needs housing and will assist each in locating property to establish housing for qualified tenants.

COAH also requires an assessment of the township’s capacity to accommodate growth consistent with COAH’s projections. Such an assessment should be made in recognition that the township’s growth rate has been modest and that the established development pattern is based upon the township’s rural character and sensitive environmental conditions, consistent with the township’s designation within Planning Area 5 by the State Planning Commission. The following responds to COAH’s checklist of the factors that comprise this evaluation.

1. Existing and Planned Infrastructure: There are limited areas of Harding served by public water and sewer systems. Most homes are served by private wells and on-site septic systems. Virtually all future market rate development is anticipated to rely upon private wells and septic systems. The expansion of public water and sewer infrastructure in Harding would be inconsistent with state planning policies and is not necessary to accommodate the amount of new development predicted by COAH.

2. Anticipated Demand for Uses Permitted by Zoning: No new zoning is anticipated with the exception of an amendment to the Land Use Ordinance to permit affordable accessory apartments on properties with existing homes.

3. Anticipated Land Use Patterns: The township’s current zoning is consistent with the Land Use Plan element of the Master Plan. The township’s land use regulations already permit
the development of accessory residences; a zoning amendment will be enacted to promote the construction of ten *affordable accessory residences*, consistent with COAH rules, to address the township’s growth share requirement. Satisfying the obligation in this manner is consistent with township’s established density limitations and land use pattern.

4. **Municipal Economic Development Policies**: The township does not anticipate any substantial changes to its commercial base. The township’s nonresidential zoning districts represent a relatively small employment base in the region and are essentially fully developed. In 2003 the township designated the core of New Vernon Village, comprised of the B-1 Business Zone and municipal land, as an area in need of redevelopment and adopted a redevelopment plan (see the Land Use Plan element). The plan was intended to promote the re-establishment of the Post Office in New Vernon Village, which has been accomplished, and established policies relating to circulation, historic preservation and public improvements in the heart of the village.

5. **Constraints on Development**: Harding’s zoning appropriately reflects the township’s designation within Planning Area 5, the lack of significant public infrastructure, and its established low density rural development pattern. There are no substantial constraints on development as a result of land use compatibility or land ownership patterns, but some vacant privately-owned land may be affected by environmental conditions that limit development. Zoning for future development of the remaining privately-owned land in the township is compatible with surrounding land uses and consistent with the township’s Master Plan.

6. **Existing or Planned Measures to Address Constraints**: Based on all of the above, the township does not anticipate the need to take any special measures to address growth constraints.

**Consideration of Land Appropriate for the Construction of Affordable Housing**

The Municipal Land Use Law requires that the township take into consideration the commitments of developers who have expressed an interest in constructing affordable housing in the township. No private developers have committed to the construction of affordable housing in Harding, most likely because of high land costs and the lack of vacant developable land, served by public water and sewer that are sufficient in size to construct a development of the density typically associated with inclusionary housing. In areas not served by public infrastructure, the development of higher density housing is not realistically feasible, nor would it be consistent with the township’s Master Plan or the township’s designation within Planning Area 5 and the Protection and Conservation zones of the Highlands regional Master Plan. As discussed in Part 2, the Fair Share Plan, municipal affordable housing construction, affordable accessory residences, and the establishment of supportive/special needs housing are the most appropriate means by which to promote affordable housing opportunities in Harding.

**Planning Area Designation**
With the exception of the township’s affordable housing site, The Farm at Harding, which is designated PA-1, the rest of the township is designated within Planning Area 5 by the State Planning Commission. The township is not currently seeking plan endorsement of the township’s Master Plan from the State Planning Commission.

**PART 2: FAIR SHARE PLAN**

A Fair Share Plan describes the completed or proposed mechanisms and funding sources that will be utilized to address the total fair share obligation. The plan outlines the credits addressing any portion of the obligation, the mechanisms addressing the prior round and growth share obligations, and includes an implementation schedule for the delivery of affordable housing during the period of substantive certification. The governing body is responsible for enacting ordinances and providing funding to implement the plan.

**The 1987-2018 Fair Housing Obligation**

According to COAH rules, the third round affordable housing obligation actually covers the entire period from 1987 through 2018 and is the sum of three components:

1. Rehabilitation share;
2. Prior round obligation; and
3. Growth share.

These three components comprising Harding’s obligation are displayed below. The prior round obligation represents the new construction portion of the cumulative first and second rounds, which has been fully satisfied.

<table>
<thead>
<tr>
<th>Component</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation Share (Third Round)</td>
<td>0</td>
</tr>
<tr>
<td>Prior Round Obligation (Prior Round New Construction)</td>
<td>83</td>
</tr>
<tr>
<td>Growth Share (See calculations below)</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total 1987-2018 Fair Share Obligation</strong></td>
<td><strong>118</strong></td>
</tr>
</tbody>
</table>

**Determining the Growth Share Obligation**

The growth share obligation is calculated by applying COAH’s growth share ratios to the agency’s estimation of household and employment growth projected to occur from 2004 through 2018 included in Appendix F of COAH’s revised third round rules. Affordable housing constructed since 2004 is subtracted from the growth projection.
COAH’S GROWTH PROJECTIONS: 2004-2018
Source: NJAC 5:97 Appendix F

<table>
<thead>
<tr>
<th>Type of Growth</th>
<th>Units</th>
<th>Type of Growth</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less affordable units built in 2006</td>
<td>-24</td>
<td>Divide by 16</td>
<td>98/16</td>
</tr>
<tr>
<td>Remaining growth</td>
<td>145</td>
<td>Projected Nonresidential Obligation</td>
<td>6</td>
</tr>
<tr>
<td>Divide by 5</td>
<td>145/5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projected Residential Obligation</td>
<td>29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Projected Growth Share Obligation = 35

### Summary of the Plan for the Total 1987-2018 Fair Share Obligation

The fair share obligation may be offset by credits for affordable units completed (including bonus credits) as part of the prior round plan and other affordable housing established since 1986 that meets COAH criteria. The following table displays the three components of the total obligation, offset by credits and planned units to address the growth share obligation.

### SUMMARY OF PLAN TO ADDRESS THE TOTAL 1987-2018 FAIR SHARE OBLIGATION

<table>
<thead>
<tr>
<th>Housing Component</th>
<th>Units/Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation Share (Third Round)</td>
<td>0</td>
</tr>
<tr>
<td>Rehabilitation Credits (Post 2000 Rehabilitation)</td>
<td>-</td>
</tr>
<tr>
<td>Remaining Rehabilitation Share</td>
<td>0</td>
</tr>
<tr>
<td>Prior Round Obligation (Prior Round New Construction)</td>
<td>83</td>
</tr>
<tr>
<td>Prior Round Credits:</td>
<td></td>
</tr>
<tr>
<td>--100% Affordable Credits (The Farm at Harding completed 8/11/06)</td>
<td>24</td>
</tr>
<tr>
<td>--RCA Credits (funds transferred 12/31/96)</td>
<td>43</td>
</tr>
<tr>
<td>--Rental Bonus from Prior Round</td>
<td>21</td>
</tr>
<tr>
<td>Remaining Prior Round Obligation or Surplus (+)</td>
<td>+5</td>
</tr>
<tr>
<td>Third Round Projected Growth Share</td>
<td>35</td>
</tr>
<tr>
<td>Less:</td>
<td></td>
</tr>
<tr>
<td>--Prior Round Surplus (includes 3 units at The Farm at Harding)</td>
<td>5</td>
</tr>
<tr>
<td>--Supportive &amp; Special Needs Credits (established 5/8/01)</td>
<td>5</td>
</tr>
<tr>
<td>Total Credits toward Growth Share Obligation</td>
<td>10</td>
</tr>
<tr>
<td>Remaining Growth Share Obligation</td>
<td>25</td>
</tr>
<tr>
<td>Proposed Units Addressing Growth Share</td>
<td></td>
</tr>
<tr>
<td>--Municipal Construction (Family Rentals)</td>
<td>2</td>
</tr>
<tr>
<td>--Accessory Apartments (&quot;Affordable Accessory Residence Program&quot;)</td>
<td>10</td>
</tr>
<tr>
<td>--Proposed Supportive/Special Needs Housing</td>
<td>6</td>
</tr>
<tr>
<td>--Rental Bonus</td>
<td>7.75</td>
</tr>
<tr>
<td>Remaining Obligation or Surplus (+)</td>
<td>+0.75</td>
</tr>
</tbody>
</table>
NOTE: The township’s affordable housing project known as “The Farm at Harding” was originally planned to have 23 affordable units and 1 unit for an on-site superintendent. The 24th unit has been rented to an income eligible household.

**Fair Share Plan Parameters**

According to COAH rules rental units must comprise at least 25% of the total growth share obligation and at least 50% of the rental requirement must be housing for families. In addition, family housing must comprise at least 50% of the units provided in the township. At least 50% of the affordable units provided must be available to low income households, and under recently enacted legislation (the 2008 Fair Housing Act amendments) at least 13% of the affordable units provided must be available to households with incomes not to exceed 30% of median income. Housing for senior citizens is limited to 25% of the growth share obligation. The following table displays these parameters based on the township’s projected 35-unit growth share obligation and the number of units that will be provided in the township during the third round.

<table>
<thead>
<tr>
<th>FAIR SHARE PLAN PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter (COAH requirements and limitations)</td>
</tr>
<tr>
<td>Projected Growth Share Obligation</td>
</tr>
<tr>
<td>Number of units proposed to be provided in the township during the third round (see table on page 10-19)</td>
</tr>
<tr>
<td>Family housing requirement (at least 50% of the units provided)</td>
</tr>
<tr>
<td>Rental requirement (at least 25% of Growth Share)</td>
</tr>
<tr>
<td>---Family rental requirement (at least 50% of rental reqt.): 5</td>
</tr>
<tr>
<td>Maximum rental bonus for family rentals exceeding rental requirement or very low income units exceeding 13% very low income reqt. (25% of Growth Share)</td>
</tr>
<tr>
<td>Low income housing requirement (at least 50% of units provided)</td>
</tr>
<tr>
<td>---Very low income housing requirement (at least 13% of units provided): 4</td>
</tr>
<tr>
<td>---50% very low income family housing: 2</td>
</tr>
<tr>
<td>Maximum units that may be age-restricted (25% of Growth Share)</td>
</tr>
</tbody>
</table>

**Summary of Completed and Proposed Affordable Housing**

The following sections describe the units that have been completed to address the prior round, including surplus units that can be applied to the third round, and new proposals to address the growth share obligation.

*Programs, Projects and/or Units Addressing the Prior Round*

4 The units indicated for very low income families are displayed pursuant to a COAH “guidance letter” dated October 30, 2008. COAH may implement this requirement with an amendment to the third round rules.
Harding Township fulfilled the 83-unit prior round new construction obligation with a transfer of 43 units to the City of Orange via a Regional Contribution Agreement (RCA), municipal construction and a 21-unit rental bonus. The RCA funds were transferred on December 31, 1996. The township’s affordable housing development was completed in August 2006. A 24th unit originally planned for an on-site superintendent is rented to an income-eligible household. Taken together the three components equal 88 credits. Up-to-date monitoring forms for all housing included in the prior round plan are already on file with COAH.

**PROGRAMS, PROJECTS AND/OR UNITS ADDRESSING THE PRIOR ROUND OBLIGATION**

<table>
<thead>
<tr>
<th>Project/Program Name</th>
<th>Mechanism or Bonus Type</th>
<th>Proposed or Completed Units</th>
<th># Addressing Obligation</th>
<th># Addressing Rental Obligation</th>
<th># Subject to Age-restricted Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCA with City of Orange</td>
<td>RCA</td>
<td>Funds transferred 1996</td>
<td>43</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The Farm at Harding</td>
<td>100% Mun. Construction</td>
<td>Completed 2006</td>
<td>24</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>The Farm at Harding</td>
<td>Rental Bonus</td>
<td>Certified Plan 1996</td>
<td>21</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

|                                           |                         |                                  | 88                      | 21                            | 0                               |

**Programs, Projects and/or Units Addressing the Third Round**

The township will address the third round projected growth share obligation of 35 units with prior round surplus credits, credit for an existing home serving individuals with special needs, municipal construction, accessory apartments and proposed supportive/special needs housing as displayed in the table below. The table also indicates that the plan complies with the family housing requirement. The details of the proposed housing programs are described in greater detail in the sections that follow.
## PROGRAMS, PROJECTS AND/OR UNITS ADDRESSING THE THIRD ROUND OBLIGATION

<table>
<thead>
<tr>
<th>Project/Program Name</th>
<th>Mechanism or Bonus Type</th>
<th>Proposed or Completed Units</th>
<th># of Units Addressing Obligation</th>
<th># of Units Provided in Municipality</th>
<th># Addressing Rental Obligation</th>
<th># Addressing Family Hsg. Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surplus prior round units</td>
<td>Surplus prior round units</td>
<td>Completed 2006</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Universal Institute Group Home</td>
<td>Supportive &amp; Special Needs Housing</td>
<td>Completed 2001</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Expansion of The Farm at Harding</td>
<td>100% Municipal Construction</td>
<td>Proposed</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Affordable Accessory Residence Prog.</td>
<td>Accessory Apartments</td>
<td>Proposed</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>NewBridge Services Hsg. and/or Universal Institute</td>
<td>Supportive &amp; Special Needs Housing</td>
<td>Proposed</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Total Affordable Units Addressed</td>
<td></td>
<td></td>
<td>28</td>
<td>26</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>Bonus for family units exceeding rental requirement</td>
<td>Rental Bonus</td>
<td></td>
<td>7.75</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>35.75</td>
<td>26</td>
<td>26</td>
<td>15</td>
</tr>
</tbody>
</table>

### Age Restricted Housing

The township does not plan to establish age-restrictions for any of the units addressing the third round growth share obligation.

### Rental Housing and Rental Bonus

The nine unit rental requirement is satisfied by enacting an accessory apartment program to produce ten affordable units. To be eligible for rental bonuses, at least half of the nine unit rental requirement (five units) must be units for families, excluding accessory apartments and supportive and special needs housing. This requirement is satisfied by three surplus prior round units at *The Farm at Harding* plus two proposed units to be built as an expansion of the project. Since this requirement is satisfied, family rental units exceeding the nine unit rental obligation are eligible for one bonus credit per unit and homes for individuals with special needs exceeding the rental obligation are eligible for 0.25 bonus credits per bedroom. However, the maximum number of bonus credits is 8.75 based on the 35-unit projected growth share obligation. The table below displays the rental bonuses. Accessory apartments are not eligible for the bonus, but are displayed in the table because they reflect family units satisfying the rental requirement.
### RENTAL HOUSING AND RENTAL BONUSES

<table>
<thead>
<tr>
<th>Project/Program Name</th>
<th>Mechanism or Bonus Type</th>
<th>Proposed or Completed Units</th>
<th>Units Addressing the Third Round Rental Obligation</th>
<th>Units Eligible for Rental Bonus</th>
<th>Type of Rental Bonus</th>
<th>Total Rental Bonus</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Farm at Harding</td>
<td>Surplus prior round units</td>
<td>Completed 2006</td>
<td>3</td>
<td>3</td>
<td>1:1</td>
<td>3</td>
</tr>
<tr>
<td>Universal Institute Home</td>
<td>Supportive &amp; Special Needs Housing</td>
<td>Completed 2001</td>
<td>5</td>
<td>5</td>
<td>0.25:1</td>
<td>1.25</td>
</tr>
<tr>
<td>Expansion of The Farm at Harding</td>
<td>Municipal Construction 100% affordable</td>
<td>Proposed</td>
<td>2</td>
<td>2</td>
<td>1:1</td>
<td>2</td>
</tr>
<tr>
<td>Affordable Accessory Residences</td>
<td>Accessory Apartments</td>
<td>Proposed</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NewBridge Services Hsg. and/or Universal Institute</td>
<td>Supportive &amp; Special Needs Housing</td>
<td>Proposed</td>
<td>6</td>
<td>6</td>
<td>0.25:1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**TOTAL** 26 16 7.75

| Maximum Permitted Rental Bonus | 8.75 |

**Low and Moderate Income Unit Distribution**

At least 50% of the affordable housing provided must be available for low income households earning 50% or less of median regional income. In addition, 13% of the units provided must be available to very low income (VLI) households earning 30% or less of median regional income. The very low income units are a subset of, not in addition to, the low income units.

According to a “guidance” letter dated October 30, 2008 from COAH, at least 50% of the VLI units must be available for very low income **families**. If COAH amends its rules to implement this requirement, the township can subsidize some of the surplus prior round units at The Farm at Harding, which are family units, so that the rents will be affordable to very low income households. Supportive and special needs housing satisfies the remainder of the very low income housing requirement. The following table displays the breakdown of very low, low, and moderate income units proposed in this plan.
# LOW AND MODERATE INCOME UNIT DISTRIBUTION

<table>
<thead>
<tr>
<th>Project or Program Name</th>
<th>Mechanism or Bonus Type</th>
<th>Proposed or Completed Units</th>
<th>Units Addressing Third Round</th>
<th>Very Low Income Units (30% or less of Median Income)</th>
<th>Low Income Units (50% or less of Median Income)</th>
<th>Moderate Income Units (&gt;50% but &lt;80% of Median Income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Farm @ Harding</td>
<td>Surplus prior round units</td>
<td>Completed 2006</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Universal Institute Group Home</td>
<td>Supportive &amp; Special Needs Housing</td>
<td>Completed 2001</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion of The Farm at Harding</td>
<td>Municipal Construction 100% affordable</td>
<td>Proposed</td>
<td>2</td>
<td>1 (3 BR unit)</td>
<td>1 (2 BR unit)</td>
<td></td>
</tr>
<tr>
<td>Affordable Accessory Residence Prog.</td>
<td>Accessory Apartments</td>
<td>Proposed</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NewBridge Services Hsg. and/or Universal Institute</td>
<td>Supportive &amp; Special Needs Housing</td>
<td>Proposed</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>26</strong></td>
<td><strong>13</strong></td>
<td><strong>1</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

NOTE: The indication above that 2 surplus prior round units will be affordable to very low income households is displayed to confirm that the township could comply with a very low income family housing requirement if COAH amends its rules prior to substantive certification.

## Municipal Construction (2 units): Expansion of The Farm at Harding

The township proposes to construct two new family rental units on the site where its prior round 24-unit affordable housing project, The Farm at Harding, was built. One two-bedroom moderate income unit and one three-bedroom low income unit will be provided. The breakdown of the total project, when comprised of 26 units, is shown in the following table. COAH’s criteria relative to municipal construction projects are addressed below.

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Prior Round Low Income Units</th>
<th>Prior Round Moderate Income Units</th>
<th>Proposed Third Round Low Income Units</th>
<th>Proposed Third Round Moderate Income Units</th>
<th>Total Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 bedrooms</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>3 bedrooms</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td><strong>12</strong></td>
<td><strong>1</strong></td>
<td><strong>1</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

NOTE: Three surplus prior round low income units will be subsidized to meet the third round "very low income" family unit requirement.

1. **Site Suitability:** The 8+ acre site is located at the intersection of Kitchell Road and Woodland Avenue and is designated Block 2, Lot 16 on the Harding Township tax maps. The following specifically address the site suitability criteria of NJAC 5:97-3.13:

   - There are no title issues or encumbrances that would preclude the development of additional affordable housing on the site. Zoning (enacted in 1996) is already in place to permit the proposed expansion of the project. Environmental constraints were identified as part of the original project planning process. No encroachment on
constrained areas is anticipated in connection with the proposal to build additional housing.

- The site is adjacent to compatible land uses, which includes multifamily housing in adjacent Morris Township, and open space and county parkland in Harding.
- The property has extensive frontage on both Kitchell Road and Woodland Avenue; an existing driveway conforming to the NJ Residential Site Improvement Standards (RSIS) has been constructed to serve the existing development. There is sufficient room on the site to provide additional parking in accordance with RSIS requirements.
- The site was designated by the State Planning Commission within Planning Area 1 in the State Development & Redevelopment Plan (the “State Plan”). The project in this location is consistent with the State Plan.
- The site is already served by public water and sewer infrastructure.

2. **Zoning:** The Farm at Harding site was zoned AH, Affordable Housing, in 1996 with a density limit of four units per acre. As built in 2006, comprised of 24 affordable units, the project is substantially below the density limit of the AH zone. The Township Engineer has determined that the zone’s density would permit up to nine additional units to be built on the site. Existing lot coverage associated with the existing 24 units is also significantly below that permitted by the district’s regulations and setback limits would not preclude the construction of additional housing on the site and sufficient room exists in appropriate locations to provide additional parking to serve the proposed expansion.

3. **Development Feasibility and Time Frame for Delivery:** The project engineer for the original development, Ferrierio Engineering, and the original project architect, Joseph Stevens & Associates, have determined that it is feasible to construct two additional units on the site. The township will guarantee financing needed to construct the units, estimated to be approximately $350,000, and proposes to commence construction within two years of the grant of substantive certification. The Implementation Schedule included at the end of this plan includes the anticipated time frame for project planning and construction.

**Accessory Apartments (10 units)**

COAH’s requirements and limitations applicable to the implementation of an accessory apartment program (NJAC 5:97-6.8) are addressed below. The township will enact an ordinance to establish the *Affordable Accessory Residence Program* for the production of ten units for COAH credit. A draft ordinance and resolution to fund the program will be submitted with the township’s petition for substantive certification.

1. **Number of Units:** 10 units will be permitted consistent with the COAH limitation for this type of program. An important objective of the program is to foster the establishment of affordable accessory residences throughout the community. To help promote this objective, the ordinance should permit the conversion of an existing vacant accessory residence to an affordable accessory residence regardless of the zoning district in which it is located. In addition, new affordable accessory residences should be permitted in both the R-1 and RR zones, which together represent most of the privately-owned land in the
township. These are the zones in which Harding has allowed traditional accessory residences for many decades.

2. **Municipal Subsidy:** The township will provide a municipal subsidy to homeowners wishing to create an affordable accessory residence in the amount of $20,000/unit for 10 moderate income units plus sufficient funding (approximately $5,000 per unit) for a qualified administrator to operate the program. The subsidy may be utilized by homeowners for the construction of the unit or as a rental subsidy. The projected cost of the program is approximately $250,000.

3. **Infrastructure Capacity:** Most of Harding is served by private wells and on-site waste disposal systems. For many years, Harding’s zoning has permitted the development of accessory residences on properties in the R-1 and, since 2004, the RR Zone subject to code requirements, including adequate provision for potable water and waste disposal. Similarly, property owners participating in the Affordable Accessory Residence Program will demonstrate that the proposed unit will be adequately served by potable water and waste disposal. The Harding Township Board of Health has established a “fast track” policy to assist homeowners obtain approval of systems serving affordable accessory residences.

4. **Affordability Controls:** The accessory apartment ordinance will require homeowners to comply with affirmative marketing and affordability control requirements for a period of ten years.

5. **Unit Size/bedroom distribution:** The Zoning Ordinance will be not place a limitation on the number of bedrooms that may be provided in affordable accessory residences. However, to ensure the subordinate nature of the affordable unit as a second residence on the property, each unit should be limited to 1,200 square feet of living space.

6. **Low/Moderate Income Split:** The program is proposed to permit all units to be rented at rates affordable to households of moderate income. This should be an added incentive for homeowners to participate in the program. Low income units required by COAH regulations are provided as indicated in the table on page 19.

7. **Affordability Range (rental rates):** The maximum rent permitted shall be calculated based on that which is affordable to households earning no more than 60% of median income, adjusted for household size and the number of bedrooms in the unit. The units may be occupied by moderate income households with incomes not to exceed 80% of median income for the region as determined by COAH.

8. **Age Restriction:** The township will not limit the marketing of accessory apartments to an age-restricted population.
9. **Conducive Housing Stock:** Accessory residences have been permitted in the R-1 (and since 2004, the RR Zone) under Harding’s zoning for many years. Together these two zones comprise the majority of the privately owned land in the township. It has been estimated by township officials that there may be 30-50 existing traditional accessory residences in the township. Expanding this land use to promote ten affordable accessory residences for moderate income households is compatible with the township’s established development pattern.

Relatively low housing densities in Harding suggest that the housing stock is conducive to the creation of additional accessory residences. Many homes in the township are large (the average home contains nine or more rooms) and are situated on large lots that comply with the current ordinance requirements for conventional accessory residences. Homes on large lots may easily accommodate alterations or additions to create accessory residences; many homes have detached garages or barns that could be modified or expanded. In addition, there may be existing accessory residences that are vacant and could be rented to income-eligible households.

10. **Program Administrator:** The township will contract with an experienced consultant to administer the program, including the preparation of an operating manual and affirmative marketing plan required by COAH. The administrator will undertake all of the functions of the township’s “administrative agent” to operate the program, including application processing from homeowners, rent calculations, affirmative marketing and prospective tenant interviews, credit checks, and income qualification. The administrator will report to the township’s Municipal Housing Liaison, in accordance with COAH rules.

11. **Time Frame for Delivery of the Housing:** The township will enact the ordinance establishing the Affordable Accessory Residence Program upon the grant of substantive certification; it is anticipated that units will be produced throughout the third round compliance period as indicated in the Implementation Schedule.

**Supportive and Special Needs Housing (6 bedrooms/units)**

According to COAH rules, *supportive and special needs housing* “includes, but is not limited to: residential health care facilities as licensed and/or regulated by DCA or the New Jersey Department of Health and Senior Services if the facility is located with, and operated by, a licensed health care facility; group homes for people with developmental disabilities and mental illness as licensed and/or regulated by the New Jersey Department of Human Services; permanent supportive housing; and supportive shared living housing. Long term health care facilities including nursing homes, and Class A, B, C, D, and E boarding homes do not qualify as supportive and special needs housing.”

The township has developed a cooperative relationship with two providers of supportive and special needs housing. Universal Institute, which is based in Livingston NJ, established a group home in Harding in 2001 and is interested in developing additional facilities in the township. Another housing provider, NewBridge Services, Inc., (“NewBridge”), based in
Pompton Plains, NJ, has also established a relationship with Harding Township and has expressed a commitment to develop supportive and special needs housing addressing six units of the township’s growth share obligation.

Site selection for supportive and special needs housing will occur within one year of the grant of substantive certification with occupancy expected the following year. Letters confirming each provider’s desire to develop projects in Harding will be submitted to COAH with the township’s petition. The target date for occupancy is indicated in the Implementation Schedule at the end of this plan.

**Cost to Implement the Fair Share Plan**

The table below displays the estimated cost to implement the new housing units proposed in this fair share plan. Since development fee revenue is committed to funding the cost of *The Farm at Harding* (see below), the township anticipates that it may need to fund the cost to implement this plan from the sale of municipal bonds or from the township’s general fund. A resolution committing to fund the costs of this plan will be submitted with the township’s petition for substantive certification.

<table>
<thead>
<tr>
<th>Housing Program</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Construction – expansion of <em>The Farm at Harding</em>: 2 units estimated @ $175,000/unit</td>
<td>$350,000</td>
</tr>
<tr>
<td>Accessory Apartments:</td>
<td></td>
</tr>
<tr>
<td>• 10 moderate income units @ $20,000/unit</td>
<td>$200,000</td>
</tr>
<tr>
<td>• Administration estimated @ $5,000/unit</td>
<td>$50,000</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED COST</strong></td>
<td><strong>$600,000</strong></td>
</tr>
</tbody>
</table>

**Development Fees**

In 2005 the township enacted a development fee ordinance in association with its prior round plan. The ordinance was approved by COAH on May 11, 2005. The ordinance was amended in 2006 to modify exemptions; COAH approved the amendment on June 8, 2006. Except as stipulated in the ordinance, new development is subject to the payment of fees equal to 1% for residential development and 2% for nonresidential development based on the equalized assessed value of new improvements. The township adopted a Development Fee Spending Plan on February 2, 2005, which COAH approved on July 7, 2005. Pursuant to the approved Spending Plan, all development fee revenue was pledged toward the cost of the township’s 24-unit affordable housing development, *The Farm at Harding*.

COAH’s revised third round regulations adopted in mid-2008 permit an increase in the fees to 1.5% for residential development and, pursuant to 2008 amendments to the Fair Housing Act, 2.5% for nonresidential development. The revised rules also include a requirement mandating...
that 30% of the funds collected after July 17, 2008 be set aside for an “affordability assistance” program. If COAH amends its rules to mandate that at least half of the required 13% very low income units be available for families, the township should consider utilizing some of its development fee revenue as a rental subsidy to fulfill this requirement. However, the township should seek a waiver from COAH to utilize all of the remaining development fee revenue for the cost of construction and financing The Farm at Harding and other expenses associated with new units proposed in this plan. A revised Spending Plan should be submitted to COAH with the township’s petition for third round substantive certification.

Implementation Schedule

COAH requires that the Fair Share Plan include an Implementation Schedule with a detailed timetable that demonstrates the reasonable likelihood that the affordable housing included in the plan will actually be provided during the period of substantive certification.

Actual Growth Since 2004

Information from the NJ Department of Community Affairs’ website contains data on development in the township based upon certificates of occupancy (COs) issued in Harding Township. DCA data, however, is substantially at odds with the records maintained by the township’s Construction Department. It appears that DCA may be double counting some units that received a temporary CO and a permanent CO. In addition, DCA may be categorizing development incorrectly.

Since every permit issued for new construction is tracked by the Harding Construction Department, the township believes its data, displayed in the tables below, to be correct. Based on development since January 1, 2004, the total actual growth share obligation as of October 31, 2008 is 15.25 units, 12.25 units based on residential development and 3 units based on nonresidential development.

<table>
<thead>
<tr>
<th>Year</th>
<th>COs for Residential Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>13</td>
</tr>
<tr>
<td>2005</td>
<td>11</td>
</tr>
<tr>
<td>2006</td>
<td>14</td>
</tr>
<tr>
<td>2007</td>
<td>5</td>
</tr>
<tr>
<td>2008</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
</tr>
</tbody>
</table>

Actual Growth Share Based on Residential Development 12.25

NOTE: Actual residential growth share is based upon 1 affordable unit for every four market rate units.
### Actual Nonresidential Development

#### 2004 – 2008 (to 10/31/08)

<table>
<thead>
<tr>
<th>Year</th>
<th>COs for Nonresidential Uses</th>
<th>Square Footage</th>
<th>Use Group</th>
<th>Jobs per 1000 Sq. Ft.</th>
<th>Total Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Christ the King Church</td>
<td></td>
<td>A3</td>
<td>n/a</td>
<td>excluded</td>
</tr>
<tr>
<td></td>
<td>--Parish Center</td>
<td>8,760</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--Stairtower</td>
<td>69</td>
<td>House of Worship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>No COs issued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Morris Animal Inn</td>
<td>12,653</td>
<td>B</td>
<td>2.8</td>
<td>35.4</td>
</tr>
<tr>
<td>2007</td>
<td>New Vernon Post Office</td>
<td>1,920</td>
<td>B</td>
<td>2.8</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>--Post Office space allocation</td>
<td>1,114</td>
<td>M</td>
<td>1.7</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>--Retail sales space allocation</td>
<td>1,792</td>
<td>A2</td>
<td>3.2</td>
<td>5.7</td>
</tr>
<tr>
<td>2008</td>
<td>No COs issued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Calculated Jobs** 48.4

#### Actual Growth Share Based on Nonresidential Development 3.0

---

**NOTE:** The jobs indicated above are hypothetical jobs based on COAH rules. The number of jobs is divided by 16 to obtain the growth share obligation.

The calculation of jobs in the table above is based on COAH’s hypothetical employment ratios for various uses. Prior to COAH’s first biennial review of the implementation of this plan, the township will review the actual number of jobs established in conjunction with added or new nonresidential square footage to ensure that the actual growth share obligation accrued to that point is reflective of actual added employment data.⁵

**Projected Growth Through 2018**

The pace of residential development in Harding is not expected to exceed COAH’s projection through 2018. In fact, a slower rate of development is likely due to economic conditions and the diminishing supply of unconstrained developable land. It is important to note that the actual number of market rate units constructed during the third round will be divided by four to calculate the actual growth share obligation.

Since little development is possible in Harding’s nonresidential zoning districts, the growth share obligation attributable to nonresidential development is expected to be based largely on the construction of a new Library and completion of a redevelopment project (“The Academy”) in New Vernon Village as displayed in the following table.

---

⁵ In a COAH letter dated October 23, 2008 COAH indicates that it will review actual job creation for specified development as part of its biennial monitoring.
### Projected Nonresidential Development

<table>
<thead>
<tr>
<th>Projected Time Frame (Year)</th>
<th>Nonresidential Development</th>
<th>Construction Status</th>
<th>Square Footage</th>
<th>Use Group</th>
<th>Jobs per 1000 Sq. Ft.</th>
<th>Total Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>Harding Library</td>
<td>Permit under review</td>
<td>8,253</td>
<td>A3</td>
<td>1.6</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>The Academy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Existing bldg.</td>
<td>1. Construction suspended</td>
<td>980</td>
<td>M</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>2. New bldg.</td>
<td>2. No permit</td>
<td>2,100</td>
<td>B</td>
<td>2.8</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,500</td>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Calculated Jobs 23.0

#### Projected Growth Share Based on Projected Nonresidential Development 1.5

**Implementation of the Fair Share Plan**

The table below displays in detail, actual and projected growth, and the implementation of this fair share plan with activities through the first biennial review by COAH, assumed to be in 2011. Within this time frame, the township will satisfy its actual growth share obligation with municipal construction, housing for individuals with special needs, and the commencement of the Affordable Accessory Residence Program. COAH will continue to monitor development activities every two years, and may require adjustments to the fair share plan if affordable housing is not realized commensurate with the obligation generated by actual growth.
## IMPLEMENTATION SCHEDULE
### THROUGH FIRST BIENNIAL COAH REVIEW

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Growth (Completed and Projected)</th>
<th>Actual and Projected Growth Share</th>
<th>Fair Share Plan Activities</th>
<th>Anticipated Completion of Affordable Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004–2008 (to 8/31/08)</td>
<td>Residential COs: 49 Nonres. (Jobs): 48.4</td>
<td>Residential: 12.25 Nonres: 3</td>
<td>Township petitions COAH for substantive certification.</td>
<td>5 surplus prior round units and 5 BRs in SNH</td>
</tr>
</tbody>
</table>

**COAH’S FIRST BIENNIAL REVIEW IN 2011** 22.75 25.75

**2012-2018** Residential: 49 12.25 Affordable Accessory Residences: Administrator continues processing of applications for accessory units. 10

**TOTAL** 35 **TOTAL** 35.75

### NOTES:
1. "MC" means municipal construction; "BRs" means bedrooms; "SNH" means special needs housing.
2. The residential COs listed above represent market rate housing only. Market rate units are divided by 4 to calculate actual growth share.
3. Jobs are divided by 16 to calculate projected growth share. The township will determine the actual number of jobs resulting from new or added nonresidential square footage that contributes to the growth share obligation prior to COAH’s first biennial review to ensure that the actual obligation is based on actual employment generated by new growth.
INTRODUCTION

This Land Use Plan is designed to implement the overall goals and objectives of this Master Plan. It is the core element synthesizing all of the other elements. It provides the legally required prerequisite for the adoption of the township’s zoning and land development regulations, providing the rationale for those regulations.

This Land Use Plan is influenced by the extent and character of publicly owned lands within the township that have regional and national significance, the Great Swamp National Wildlife Refuge and the Morristown National Historical Park. It is also greatly influenced by the sensitive environmental features found throughout Harding Township and the desire to preserve the township’s historical and rural residential development pattern. Its primary goal is to perpetuate the township’s long-established planning efforts to preserve environmental and historical resources and its traditional rural development pattern.

This Land Use Plan is organized into six sections as outlined below. Three maps included at the end of the Master Plan illustrate existing land uses, established lot patterns, and the future land use plan.

1. **Land Use Objectives** describes the principal objectives that should guide development in Harding.
2. **Milestones in Land Use Planning in Harding** provides a detailed background of the history of land use planning in Harding.
3. **Principles and Assumptions that should Guide Future Development Policies** details the philosophical foundation for the Land Use Plan.
4. **Established Land Use and Development Patterns** describes in detail the principal elements that contribute to Harding’s rural character.
5. **The Future Land Use Plan** describes the land use policies that should apply to each zoning district and that should guide future development in the township.
6. **Special Considerations for Future Development** contains a description of policies that should apply to special land uses or areas, including redevelopment strategies, the protection of critical areas, and creative development techniques for subdivisions.

LAND USE OBJECTIVES

Land use and development policies in Harding should be guided by the following objectives. They should be used as an overall guide for evaluating existing development policies and in considering ordinances intended to implement this plan.
1. **Preserve and perpetuate the township’s rural historic character and high quality natural environment.** Preserving the township’s traditional historic and rural character is a central objective of this Master Plan. Preserving the narrow, curvilinear road system bordered by large trees and open fields is fundamental to achieving this. Roads constructed to serve new development should replicate appropriate characteristics of the township’s existing roads and landscapes. Creative development techniques should be employed so that subdivision layouts promote the township’s rural character by establishing variety in lot sizes, preserving the rural streetscape, and maintaining open fields, natural vegetation and mature trees, and bridle trails.

2. **Protect water resources.** Future development should be limited and regulated so as not to substantially diminish the quality of the township’s ground and surface water resources, particularly in view of the township’s function as a recharge area for the Buried Valley Aquifer and its location in the Highlands Region. Conservation easements should be established along stream corridors to protect surface water quality and promote greenways.

3. **Protect the Great Swamp National Wildlife Refuge.** New development should be designed to minimize stormwater runoff in the Great Swamp watershed, consistent with this Master Plan’s and the State Development and Redevelopment Plan’s policies to protect environmentally sensitive areas.

4. **Protect Morristown National Historical Park.** The historic integrity of Morristown National Historical Park should be protected from the negative effects of development.

5. **Preserve the township’s historic heritage.** Public and private efforts to save historic structures should be encouraged and new development in or near historic districts should be undertaken in ways that will preserve the historic character of these areas.

6. **Maintain New Vernon as the center of community interaction and focal point for the community.** Future development/redevelopment policies should promote the continuation of the village of New Vernon as a focal point and gathering place for the Harding community. The pedestrian scale of the village with small-scale commercial uses, banks and professional offices, surrounded by low-density residential uses should be maintained. The reestablishment of the Post Office in the village core has been essential to this objective.

7. **Perpetuate the established patterns of development.** The zone plan should reflect and perpetuate established land uses and lot patterns, and manage development compatible with the established low residential density and the small scale and limited extent of commercial development.

8. **Balance development with limited infrastructure.** Future development should be limited to levels that can be supported without substantially improving or expanding the existing limited public infrastructure.

**MILESTONES IN LAND USE PLANNING IN HARDING**

This Land Use Plan is the result of a long evolution of formal land use planning in Harding, which began on November 1, 1928 with the New Vernon Neighborhood Restrictive Agreement. This
agreement among private landowners of large estates established protective covenants against subdividing into less than three-acre residential lots throughout the New Vernon area.

The original township Zoning Ordinance, adopted on December 9, 1930, provided for the first regulation of land use development with the creation of two residential zones and a limited business district. Other early milestones in Harding’s planning and development include the creation of the Mt. Kemble Lake community in the late 1920s and the establishment of Morristown National Historical Park, the nation’s first historical park, in the early 1930s. In the 1960’s the Great Swamp National Wildlife Refuge was established and now serves as an important regional environmental resource.

Much of the township’s historic rural development pattern has been retained despite rapid suburbanization that took place in northern New Jersey after World War II. Through the years, the Land Use Plan and development regulations have been updated to reflect changing circumstances, such as the construction of I-287. However, the community’s desire to preserve and protect the township’s environmental resources, rural development characteristics, and regionally significant public open space areas has remained constant.

Over the last 25 years there has been increasing local, regional and statewide concern about damage to environmental resources and the consequences of suburban sprawl. In 1980 the New Jersey Department of Community Affairs recognized Harding’s special land use and environmental characteristics by designating most of the township as a Conservation Area in the State Development Guide Plan. In 1989, the Commissioner of the New Jersey Department of Environmental Protection signed Administrative Order # 51 creating the Great Swamp Watershed Advisory Committee to make recommendations for the protection of the watershed. Subsequently the Ten Towns Committee was established to prepare a watershed management plan, accomplished in 1997, recommending land use policies to protect the Refuge.

In 1992, and again in 2001, the New Jersey State Planning Commission designated virtually all of Harding as part of the Environmentally Sensitive Planning Area (Planning Area 5) in the New Jersey State Development and Redevelopment Plan (“State Plan”). The State Plan embodies planning policies to promote sustainable growth in appropriate areas, protect natural resources and avoid sprawl, and guide state agencies in allocating funds and approving projects involving the expansion of infrastructure.

In 2000, the Planning Board conducted a reexamination of the Master Plan and development regulations and concluded that Harding’s rural character was at risk due to full development in some areas under the R-1 Zone’s 3-acre minimum lot size. The report noted that there were still areas where full build-out had not occurred and that the number of oversized lots and the variety of lot sizes in these areas contributed significantly to the township’s rural character. The report recommended a study utilizing the township’s Geographic Information System (GIS) to analyze areas where it would be appropriate to lower the development density based on established lot patterns and/or the presence of environmental constraints.
In 2003, the Master Plan was amended to update the Environmental Resources Inventory (ERI). The new ERI recognized the significance of Harding’s water resources and recommended that a carrying capacity study be conducted to analyze the capability of soils to accommodate development that is reliant upon individual wastewater disposal systems. The study, undertaken in early 2004 by Maser Consulting Engineers, utilized the “Nitrate Dilution Model” to recommend appropriate development densities consistent with Harding’s long-standing environmental protection goals. It also recommended a review of the township’s zoning densities to determine if they were consistent with the conclusions of the study under full “build-out.” These recommendations, which are further discussed in detail in the Conservation Plan element, have significantly influenced future land use policies embodied in this Plan and the zoning amendments enacted in November 2004 that established a new low density residential district in the township.

PRINCIPLES & ASSUMPTIONS THAT SHOULD GUIDE FUTURE DEVELOPMENT POLICIES

Following are the primary principles and assumptions that should be taken into account in formulating and implementing future land use policies in Harding Township.

**State planning area designation: environmentally sensitive.** The State Development and Redevelopment Plan first adopted in 1992 and readopted in 2001 designated virtually all of Harding as Planning Area 5 (PA-5), Environmentally Sensitive. The planning policies recommended in the State Plan for PA-5 areas are designed to protect critical environmental resources and discourage intense development (except in designated centers) necessitating extensions of infrastructure into environmentally sensitive areas. Consistent with this, the NJ Department of Community Affairs (DCA) has designated Harding a Special Area permitting modified stormwater and subdivision road improvement standards in recognition of Harding’s location within the Great Swamp watershed and local and state environmental planning goals.

**Highlands Region.** The western section of Harding is located within the physiographic region known as the Highlands. Under the Highlands Water Protection and Planning Act all of Harding is included in the Highlands Region planning area. The protection of water resources in the Highlands is of regional and statewide importance.

**Great Swamp National Wildlife Refuge.** About half of the Refuge is located within Harding Township and almost all stormwater runoff from development in the township flows into it. The township has a special responsibility to protect the environmental quality of the Refuge.

**Morristown National Historical Park (Jockey Hollow) and Historic Districts.** Harding includes almost all of the Morristown National Historical Park and six historic districts, three of which are state and nationally registered districts. In addition, there are numerous other historic resources around the township that are not within the boundaries of designated historic districts. The township has a responsibility to promote the preservation of these important resources that contribute significantly to the nation’s history and the township’s character and sense of place.
**Limited public infrastructure.** Harding has a system of narrow roads and only small areas with access to public water and sewer systems. Substantial expansion or improvement to this infrastructure would be inconsistent with Harding’s designation within Planning Area 5, the environmentally sensitive planning area. Thus, future development must be in balance with the ability of the land to support it.

**Groundwater quality and supply.** The connection of Harding’s groundwater to the Buried Valley Aquifer system and the reliance of most residents on wells for their water supply make the protection of groundwater quality of primary importance.

**Preservation of the traditional rural development pattern.** Since the creation of the New Vernon Restrictive Agreement in the 1920s, Harding’s fundamental planning goal has been to preserve its rural character and historic heritage. This remains a strong desire of current residents.

**Commitment to provide affordable housing.** The zone plan should reflect the township’s commitment to meet its affordable housing obligation in a manner consistent with the goal of preserving the township’s traditional development pattern.

**Critical areas and areas with special natural resources.** Development pressures are endangering areas of critical environmental importance and natural resources of special significance in the township. These critical areas and special natural resources such as stream corridors, freshwater wetlands, flood hazard areas, steep slopes, and mature woodlands, deserve special consideration.

**ESTABLISHED LAND USE & DEVELOPMENT PATTERNS**

This section of the Land Use Plan describes the primary elements of the major existing land use patterns in the township. Figure 17, Existing Land Use map, shows the patterns of existing land uses in Harding. Harding’s landscape has traditionally been highly organized around compact, relatively high-density crossroad villages surrounded by a relatively low-density countryside. To a great extent, the overall pattern is one of significant variety in the size and shape of land holdings and of the buildings located on them, whether in villages or the countryside. This contrasts sharply with the uniformity and homogeneity that is characteristic of modern suburban development elsewhere in the region.

**Development History**

The history of development in Harding Township is inextricably linked with the diverse geography of the township. Early settlement in the township occurred along the historic Indian trails which extended through forests, along the limited, dry terrain in the southern portion of the township, along the plateaus in the central portion of the township and through the valleys in the northwestern portion of the township. From the time of the first European settlement, to the Revolutionary War, the township was sparsely populated. A few mills, forges, and taverns
served the scattered rural dwellings. Harding Township experienced a period of growth between the Revolutionary and Civil wars. The earliest architecturally significant building activity took place in the 19th Century along Mt. Kemble Avenue. It was then that the Glen Alpin and Hurstmont houses were built.

Harding was largely unaffected by later industrialization and, despite explosive growth elsewhere in northern New Jersey, the township's more rural development pattern has been maintained throughout the 20th Century. The result has been the preservation of large areas of open land and protection of sensitive environmental features within the township. In the 1920's, five large landowners in Harding recognized that intensive development would destroy the environmental resources and rural character of the community, and on November 1, 1928, entered into the "New Vernon Neighborhood Restrictive Agreement" which established protective covenants preventing the resale of land in units smaller than three acre residential lots throughout most of the township. During the same period, the federal government acquired large tracts of land within the township to establish the Morristown National Historical Park.

Little development occurred in Harding from the 1920's to World War II with the exception of a small pocket of summer home development around Mt. Kemble Lake. New housing was interspersed with the old and was compatible in scale and mass to the earlier development. Commercial development was limited to the Route 202 corridor and to a small village store and service station in New Vernon. Following World War II, the rural pattern of residential development continued throughout most of the township. Smaller lot development occurred along the northern border of Harding along Route 202, in the New Vernon area, in the Green Village area at the western end of Pleasantville Road and in the Mt. Kemble Lake area where summer homes were converted into year round residences and new year round houses were built.

In the late 1970's and early 1980's, two townhouse developments were built at the northern edge of the township along Route 202. The only significant non-residential development to occur in Harding Township has been restricted to a narrow highway corridor along Route 202, west of Interstate 287. In recent years, two utility maintenance facilities, two corporate office structures, and a number of small business facilities have been constructed in this area.

**Harding’s Rural Character**

The land use pattern that still persists in many areas of Harding is characteristic of historic rural America. Harding’s historic rural development pattern is that of a landscape of low-density development organized around several small crossroad villages. In many areas, the great variety and randomness of lot sizes, including the numerous very large lots that still exist, distinguish it from typical modern suburbia, which is characterized by a pattern of uniformity in lot size and development layout.

Harding’s rural character is defined by the combination of characteristics that contribute to what we think of as the rural landscape. While each element alone might not be sufficient to identify
the community as *rural*, the combination of these elements is evocative of a rural setting. The essential contributing elements of Harding’s rural character are:

- **Compact villages versus open countryside.** A compact village with visually defined boundaries surrounded by open countryside is the essential pattern of the rural community, i.e. a pattern of sharp contrast between densities and the variety of lot patterns and “openness” found in the surrounding countryside.

- **Contiguous large areas of open space.** The Great Swamp and Jockey Hollow isolate Harding from the more intense development of the region.

- **Established low-density pattern of development.** An overall low-density development pattern is fundamental to rural character. In areas where large vacant or underdeveloped lots prevail, more of the natural vegetation and woodlands remain undisturbed. There may be long vistas over meadows or farm fields, with a few modest-size and/or historic dwellings or barns dotting the road or, in some cases, set back very far from it. In areas where full development under current zoning has occurred, this element has been diminished.

- **Views of undeveloped land from public roads.** What is visible from public roads defines what we think of as the character of a community. The large amount of vacant or significantly underdeveloped land visible from public roads is a major contributing factor to the township’s rural character. The lands that have been preserved by the township and nonprofit organizations contribute to this, particularly because they are distributed around the township, and in many cases, occupy extensive areas of frontage along major public roads.

- **Variety of lot sizes and building placement.** Rural development patterns reflect a wide variety of lot sizes and building placement on the land, with varying setbacks and building sizes. Suburban development results in a more uniform pattern of lot sizes and building placement based on zoning regulations. In particular, the uniform layout of lots and house locations (setbacks) in subdivisions, often referred to as “cookie-cutter” development, is antithetical to a rural landscape.

- **Road pattern.** Harding’s road pattern is a significant contributor to the township’s rural landscape. The many narrow, minimally improved, and curvilinear characteristics of the street system are the principal elements that are consistent with rural character. The retention of narrow stone bridges, natural vegetation, and mature trees along roadways are important features of Harding’s road pattern.

- **Limited Commercial Development.** The limited amount of commercial development in Harding is an important component of the existing land use pattern that has enabled the township to retain its character as a predominantly rural residential community. Most of the businesses found in the two commercial areas, Route 202 and New Vernon Village,
are of a small scale and are compatible in design and function with a low-density rural area. There are only a few larger scale office buildings along Route 202, but they are at the edge of the township in close proximity to the I-287 interchange in adjacent Bernards Township.

The following sections elaborate on each of these elements of Harding’s rural pattern of development.

**Compact Villages**

Harding’s overall rural pattern of development is organized around the four historic crossroad villages of New Vernon, Green Village, Pleasantville and Logansville. These currently have land use patterns of predominantly residential development at relatively higher densities compared to the surrounding countryside. New Vernon and Green Village still retain elements of the historic village pattern of mixed uses that serve the surrounding community. All four areas have been designated historic districts because they retain a high degree of historic integrity in their buildings and development pattern.

The villages are of small and compact size, with visually discernable boundaries separating them from the surrounding lower density countryside, characteristics of a traditional rural pattern. Home to many of the township’s residents, they provide a sense of spatial organization, contrast, variety and historic character to the township’s landscape. New Vernon Village is the focal point of the community, formed as it is on the central crossroads at the heart of the community. Most importantly, it is the center of citizen interaction with its traditional mixed use central core and community institutions (the Post Office, Bayne Park, Municipal Building and Houses of Worship) giving Harding a unique sense of place and of community. Most uses in the village are residential. However, of all Harding’s villages New Vernon retains many of its historic roots of mixed uses servicing the surrounding community including municipal, religious, retail and other services. There is no public water or sewer infrastructure serving village areas.

**Contiguous Large Areas of Open Space**

Harding’s rural character is greatly influenced by the over 6,200 acres of preserved open space that comprise almost half of the township’s land area. The Great Swamp National Wildlife Refuge and Morristown National Historical Park comprise the largest open space areas. Together they represent almost 40% of the township, and they have influenced the township’s rural character not just because they remain in their natural state, but because they have essentially isolated Harding from the more typical suburban development found in the surrounding area.

Lewis Morris Park, Loantaka Brook Reservation, and the relatively smaller parcels of preserved open space in the township also contribute significantly to the township’s traditional low-density rural character and the great variety of its landscape. In particular, an increasing number of sites preserved by the township and conservation organizations are strategically situated in “gateway”
areas or occupy extensive amounts of road frontage. The high visibility of these preserved areas from public roadways is an important contributing factor to Harding’s rural character.
The Low Density Countryside: Established Patterns of Development

Overall, a low density of development is essential to a community’s rural character. Aside from major open space areas, the predominant existing land use is low-density single family residential. Within this large area, the average lot size is 5.2 acres.\(^1\) However, there are two distinct patterns of low-density residential development within this area. Figure 18 displays the existing lot patterns that are discussed in this section.

One development pattern is represented by areas that largely have been fully developed consistent with the R-1 District’s minimum 3-acre zoning. As a result, a relatively uniform pattern of less rural development based on R-1 zoning standards has emerged in these areas. They are found predominantly in the central portions of the township, particularly north and south of Glen Alpin Road, south of New Vernon Village, west of Route 202 and in the Spring Valley Road area. These areas are displayed as part of the development pattern of lots less than five acres on Figure 18.

In contrast to the areas that have been built out based on R-1 zoning, a second category of low-density development that is prevalent in several areas of the township displays a distinctly rural development pattern, the traditional “countryside,” with lots varying greatly in size and configuration. They are displayed as part of the development pattern of lots greater than five acres on Figure 18. These areas are in the northern and eastern sections of the township extending from the Sand Spring Road area to the Great Swamp, in the western section of the township, particularly along Tempe Wick Road, and in the southwestern section of the township, east and west of Lee’s Hill Road. The density of existing development in these areas is much lower than in the built-out R-1 areas. They contain historic homes and other buildings traditional to a rural setting such as barns and other farm buildings. Building placement is varied, based in many cases in the requirements of the original landowners, rather than rigid zoning requirements.

There are also many exceptionally large lots in the low-density countryside (displayed as lots greater than ten acres on Figure 18). The lower development density has resulted in less land disturbance and the retention of farmlands, woodlands and hedgerows. Views of open fields and meadows are still evident from public roads. This is apparent in the extensive amount of land displayed as “farmland assessed” on Figure 17. These characteristics contribute to the strong sense of the open countryside and the “rural streetscape” in much of the township.

Limited Commercial & Planned Residential Developments

In a rural community, commercial development is limited in area and scale, and is typically intended generally to serve the needs of residents in the immediate area. New Vernon’s business

\(^1\) The area displayed on Figure 18 includes lots within the R-1 Zone as it existed in September 2004, including the entire lot in split-zoned situations. The average lot size of 5.2 acres was calculated excluding split-zoned lots.
area is wholly compatible with and contributes to Harding’s rural character, largely because of its compact nature, mixed uses and historic architecture. An area of mostly small-scale commercial development has been established along both sides of the southern part of Mt. Kemble Avenue (Route 202). Although not as rural as other parts of Harding, the limited nature of these uses makes the area compatible with Harding’s rural character.

Although automobile-oriented and linear in organization, the Route 202 business area is distinguished from typical “suburban strip” commercial development by the relatively small scale of most uses and the retention of many historic “country-style” buildings. The only large-scale development in this area, and indeed in the township, consists of a few large office buildings near the southern end of the highway close to the I-287 interchange. Areas to the west of Route 202 include large lot single-family development, the National Park and other open space parcels owned by nonprofit organizations. Thus, the commercial uses have been confined to a narrow band along Route 202 and between Route 202 and I-287.

A triangular area formed by Route 202 and Interstate 287 and the township boundary with Morris Township at the northern end of Route 202 contains higher density single-family and multifamily residential development. The higher density in this area is a result of access to public water and sewer infrastructure extended from Morris Township. Although there is some undeveloped land adjacent to the interstate highway, no expansion of sewer infrastructure is planned in accordance with the township’s designation as an environmentally sensitive area (Planning Area 5) by the State Planning Commission.

The Mt. Kemble Lake community was planned in the late 1920s around a seasonal recreational lake environment. Most of the homes there have since been converted to full-time residences. The homes are served by a water supply system managed by the Lakeshore Company. The established development pattern is of a cohesive residential neighborhood of modest-sized single-family dwellings on relatively small lots oriented around the Lake. Here, as in the village areas, there is a clear distinction in the density of development contrasting the compact neighborhood with the surrounding lower density countryside.

FUTURE LAND USE PLAN

This Land Use Plan contains significant changes from the previous plan. They are the result of a better understanding of what must be done to achieve the township’s planning goals and not because of any significant changes in those goals. The overarching goals of this Master Plan, and in particular this Land Use Plan, relate to the preservation of the township’s historic rural character and the protection of environmental resources.

The Conservation Plan element sets forth the township’s long-standing environmental preservation goals consistent with Harding’s designation within Planning Area 5, the *environmentally sensitive planning area* in the State Development and Redevelopment Plan. To achieve this goal, the amount of land development that can be sustained without substantial impact on sensitive natural resources has been carefully considered in formulating this plan. In
addition, this Land Use Plan establishes land use strategies designed to promote the township’s long-standing goal to preserve its rural character.

The following section explains the rationale for the establishment of a new lower density residential district in 2004, the Rural Residential (RR) Zone. Subsequent sections describe each zoning district and the land use policies for each, commencing with the low density residential districts and the Public Land Zone, which make up the bulk of the township and are so important to the township’s overall development pattern and character. Figure 19, Future Land Use Plan, displays each land use area (zoning district) consistent with this plan.

**Lower Density Zoning to Preserve Harding’s Rural Character**

In recent years development trends have established a development pattern, in some portions of the township, of large single-family dwellings on 3-acre lots based on the density standards of the R-1 Zone. Previously, much of this area was more rural in character. The original rural pattern of variety in lot sizes and configurations of large lots in some areas has given way to a pattern of relatively uniform building lots where properties have been subdivided and fully developed under the R-1 zoning standards. The Planning Board was concerned about this trend when it reexamined the Master Plan in 2000. This altered development pattern made evident that previous township land use policies were not achieving the long standing goal, dating back to at least the 1972 Master Plan, of preserving the township’s rural character.

In addition, a carrying capacity analysis conducted in early 2004 highlighted that existing zoning densities were too high based on the ability of soils to dilute nitrates from septic systems. In association with the carrying capacity analysis, build-out analyses identified an imbalance between the number of septic systems that represent sustainable development and the potential number of systems that could be developed if the township’s remaining land was to be subdivided under the R-1 zoning density, further magnifying concerns about the loss of rural character.

The Municipal Land Use Law requires that zoning decisions be made looking beyond individual properties to a generalized consideration of the character of the area. The statutory requirement (C.40:55D-62a) is: “the zoning ordinance shall be drawn with reasonable consideration to the character of each district and its peculiar suitability for particular uses and to encourage the most appropriate use of land.” Put into terms that specifically relate to Harding, the boundaries of each zoning district should be based on a combination of factors including the existing

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3 Sustainable development in this context means the number of septic systems that can be developed without contributing excessive nitrates based on the soils characteristics and environmental protection goals.

4 The build-out analyses are contained in a letter to the Harding Township Committee from Kimball & Kimball dated March 29, 2004 and a Memorandum from Kimball & Kimball to the Harding Township Committee dated July 21, 2004.
development and/or lot pattern, known environmental conditions, and the township’s planning objectives.

This Future Land Use Plan displays the new Rural Residential Zone in areas of the township where cohesive patterns of large lots (five acres or greater) are still predominant. This new zoning district, with a minimum lot size requirement of five acres, is intended to implement the township’s long standing goal of preserving the township’s traditional rural character and to achieve a better balance in development density on a township-wide basis consistent with sustainable development. Establishment of the new zone is consistent with the purposes of the Municipal Land Use Law, promotes the general welfare of the community, and is consistent with the goals and objectives of the State Development and Redevelopment Plan for environmentally sensitive areas.

**The State Plan Designation:**

**PA-5 Environmentally Sensitive**

The State Planning Act of 1985 established the State Planning Commission (SPC) to develop a new statewide master plan to guide development and redevelopment throughout the state over a 20-year time horizon. The first New Jersey State Development and Redevelopment Plan (the State Plan) was adopted by the SPC in June 1992. The State Plan was reexamined by the State Planning Commission and readopted in March 2001.

A fundamental tenet of the State Plan is that New Jersey’s environmental resources should be protected by guiding growth into appropriate planning areas and centers where infrastructure already exists or is planned. The state has been divided into planning areas, each with specific planning policies to guide development in accordance with the State Plan: the Metropolitan Planning Area (PA-1), Suburban Planning Area (PA-2), Fringe Planning Area (PA-3), Rural (PA-4A) and Rural/Environmentally Sensitive (PA-4B) Planning Area and the Environmentally Sensitive Planning Area (PA-5).

Harding Township is designated as part of the Environmentally Sensitive Planning Area (PA-5).6 The intent of the State Plan for PA-5 areas is to protect environmentally sensitive areas from the adverse impacts of development by preserving low density (or center-based) land use patterns, promoting open space preservation and protecting natural resources. The State Plan’s land use and environmental protection policy objectives for the environmentally sensitive planning area are as follows:

- **Land Use:** Protect natural systems and environmentally sensitive features by guiding development and redevelopment into centers and establishing community development boundaries and buffers and greenbelts around these boundaries. Maintain open space networks, critical habitat and large contiguous tracts of land in the Environs by a variety of land use techniques. Development and redevelopment should use creative land use and design techniques to ensure that it does not exceed the capacity of the natural and infrastructure

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5 The MLUL purposes advanced by the rezoning include the following: a (promotes general welfare), d (avoid conflict with state), e (appropriate densities/environmental preservation), g (appropriate locations for uses), i (desirable visual environment), j (conservation of historic sites, open space, prevent sprawl and environmental degradation).

6 The township’s affordable housing site is the only land not included within PA-5. It is located in PA-1.
systems and protects areas where public investments in open space preservation have been made. Development and redevelopment in the environs (of centers) should maintain and enhance the natural resources and character of the area.

**Natural Resource Conservation:** Protect and preserve large, contiguous tracts and corridors of recreation, forest or other open space land that protects natural systems and sensitive natural resources, including endangered species, ground and surface water resources, wetland systems, natural landscapes of exceptional value, critical slope areas, scenic vistas and other significant environmentally sensitive features.  

To fulfill the planning objectives in the Environmentally Sensitive Planning Area, the State Plan recommends: the ecological systems in PA-5 should be protected by carefully linking the location, character and magnitude of development to the capacity of the natural and built environment to support new growth and development on a long-term, sustainable resource basis. To achieve this objective, municipalities can undertake numerous activities, including incorporating Environmental Resource Inventories (ERI) into the Master Plan, performing build-out analyses to determine the impacts of existing zoning on future development, identifying strategies to protect natural systems, taking steps to ensure the protection of areas critical to water supply and quality, and undertaking a carrying capacity analysis to evaluate sustainable development.

**Sustainable Development**

Capacity based planning is a process that involves an evaluation of the ability of natural or man-made systems to accommodate existing development and future growth in the context of a community’s overall planning goals and objectives. In view of Harding’s dependence upon individual wells for potable water and on-site wastewater disposal systems, it was important to evaluate the capacity of the underlying geology and soils to accommodate existing and planned development (i.e. development permitted under existing zoning) without degrading ground and surface water resources. The importance of this also lies in the fact that Harding’s streams are of very high quality, the township is host to the Great Swamp National Wildlife Refuge, and the township is in the recharge zone of the Buried Valley Aquifer, a source of drinking water for hundreds of thousands of residents in northern New Jersey.

An evaluation based on the “Nitrate Dilution Model” was undertaken in early 2004 by Maser Consulting Engineers (see the Conservation Plan element for additional details about this evaluation). The analysis recommended minimum development densities based on soils types grouped into distinct areas: area “A” with a development density averaging 3.5 acres per system and area “B” with a development density averaging 4.2 acres per system. The soils in area B are generally less conducive to the dilution of nitrates, which translates into a need for a larger land area for each septic system. Using the recommended densities, the Maser report found that a total of 1616 septic systems can be sustained without exceeding the nitrate limit of 2.0 mg/l,
which is the appropriate standard to be used consistent with the antidegradation policies of the NJDEP and Ten Towns Committee for the Great Swamp Watershed.9

The carrying capacity evaluation enabled the township to determine whether Harding’s zoning would promote sustainable development based on the number of septic systems already in existence and the estimated number of additional systems that might result from full buildout. The results of a build-out analysis showed that the number of homes could be increased by about 55%, resulting in hundreds of new dwellings and about two hundred more septic systems than are sustainable in accordance with the nitrate model. This represents significant growth potential, which is inconsistent with the policies and objectives of the Environmentally Sensitive Planning Area (PA-5). The new lower density zone promotes environmental protection goals by achieving a better balance between sustainable development and full buildout.

**Established Lot Patterns:**  
**Foundation for Rezoning**

Zoning should take into account and be based on several factors including environmental conditions, the character of the area and community planning goals. The carrying capacity analysis is but one component supporting the establishment of the Rural Residential (RR) Zone. As described earlier in the section Established Land Uses and Development Patterns, the township’s rural character is based in large part on established large lot-size patterns that are predominant in many areas. These cohesive lot patterns are evident on Figure 18, which displays the areas with lots that are above and below five acres.10

Areas where a large lot development pattern still prevails are incorporated into the Rural Residential (RR) Zone with a lower density of permitted development consistent with this pattern. The RR Zone reflects cohesive groupings of lots where the majority conform to the new density; it includes lots that have already been developed and those that may have further development potential. Areas where full build-out under R-1 standards has generally occurred are retained in the R-1 Zone to reflect the established development pattern. The new lower density RR zone promotes the township’s overall goal of preserving its traditional rural character.

**RR Rural Residential Zone**

The new RR Rural Residential Zone has been established in areas of the township exhibiting a cohesive pattern of lots comprised of at least five acres. The guiding planning principle in creating the new zone and the basis for establishing its boundaries was to reflect existing lot size patterns and a density of at least five acres per dwelling unit. In addition to protecting the township’s rural character, following this principle inherently promotes other important goals such as historic preservation, sustainable development, and environmental protection. The areas included in the Rural Residential Zone are shown on Figure 19, Future Land Use Plan.

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9 The Nitrate Dilution Model was not applied to areas with hydric soils, which are occasionally or perpetually saturated with water, because these areas cannot be relied upon for recharge.

10 Figure 18 displays lots in the R-1 Zone in existence in September 2004.
The boundaries of the RR Zone include developed lots of five-plus acres to properly reflect the prevalent character of development that has already been established in such areas. It also incorporates larger lots with subdivision potential in order to perpetuate the low-density rural character of the township and achieve a better balance between sustainable development and the total amount of development possible under full build-out. Creative designs and development techniques should be encouraged in the Rural Residential Zone to foster development patterns in new subdivisions that are more compatible with the township’s rural character.

In addition to patterns of large five-plus acre lots, the characteristics of the areas incorporated into the lower density RR Zone include areas with difficult environmental conditions such as the steep, rugged hills of the Highlands area near Jockey Hollow, and areas of hydric soils, wetlands and flood hazard areas in the north-central, southwestern and southeastern portions of the township. Reducing the density of permitted development in such areas is consistent with the township’s general environmental protection policies. Much of the land included in the Silver Lake and Tempe Wick Historic Districts is also included in the Rural Residential Zone. Reducing permitted development density in these areas promotes historic preservation because their historic significance is in part defined by their prevalent rural development pattern.

Almost all dwellings in the RR Zone are served by individual septic and potable water systems. A few lots in the border area with Morris Township have access to Morris Township’s sewer system, but no expansion of the sewer service area beyond these lots should be permitted as the entire area is designated PA-5 by the State Planning Commission. Limited water service exists for some properties in the area of Sand Spring Road, Sand Spring Lane and James Street, but no major expansion of the existing water system should be permitted, except as needed to provide for improved facilities to areas already served. The Rural Residential Zone promotes the goal of sustaining an appropriate balance between limited public infrastructure and development densities.

In summary, the Rural Residential Zone promotes the preservation of the township’s rural character and streetscape, helps to preserve the significance of historic districts, protects environmentally sensitive areas and natural resources and establishes a better balance between limited infrastructure and sustainable development. These goals will be particularly promoted if creative development techniques such as lot size averaging are utilized in subdivision design. Lot size averaging provides opportunities to promote the continuation of the pattern of lots of varying sizes and configurations that are essential to preserving rural character (see “Creative Development Techniques” in the section entitled “Special Considerations for Future Development”).

**R-1 Residence Zone**

Figure 19 also displays the areas where the R-1 Zone remains in place based upon the prevalent established lot pattern. This development pattern traces its origins to the New Vernon
Neighborhood Restrictive Agreement, which was imposed through protective covenants adopted by landowners in the New Vernon area in 1928.

The primary difference between the R-1 and the RR zones is in the established pattern of lot sizes. The R-1 area is largely comprised of residential developments with an established pattern of 3+ acre lots based upon the zone plan that was in place for many years. These developed areas are found predominantly in the midsection of the township. Almost all single-family dwellings in the R-1 Zone are served by individual septic and potable water systems. There is negligible sewer infrastructure and limited public water service in these areas.

The township’s land use policies for these areas should continue the established low-density single-family development pattern consistent with the planning policies of this Master Plan. In accordance with the statewide planning policies of the State Plan for Planning Area 5, no expansion of water and/or sewer service areas should be authorized in the R-1 Zone.

**Public Land Zone**

This Future Land Use Plan continues the important policy of open space preservation. Harding’s rural character has been shaped and its land use policies have been influenced by the significant public land holdings of the Great Swamp National Wildlife Refuge and Morristown National Historical Park. The Public Land Zone comprises the largest single zoning district in the township, representing a total of almost 5,900 acres (about 45% of the township) in the two federal open space areas and the well-distributed smaller public land holdings throughout the community. It represents the permanent preservation of regionally and nationally important open space, environmentally sensitive and historic areas. Consistent with the statewide planning goals for Planning Area 5, the preservation of large contiguous areas of open space is important to protecting the significant wetlands and other environmentally sensitive features of the area and in providing habitat for wildlife.

In addition to the Refuge and the National Park, public land holdings include the county’s Lewis Morris Park and Loantaka Brook Reservation, state lands along I-287, including the highway rest area, and numerous areas set aside as municipal open space and or used for public facilities. Many of these areas serve as resources for active or passive recreation and environmental education.

The township’s land use policies for the Public Land Zone should be to preserve and protect sites set aside as open space, to maintain sites serving community needs and to continue efforts to set aside additional areas for open space. There are still significant tracts of privately owned open land that are severely environmentally constrained or that contribute to the rural character of the community. The township should continue its policy of preserving sites with significant environmental features, historic resources, or scenic qualities with a target of acquiring at least 500 acres of land over the next 20 years.\(^\text{11}\) The importance of open space acquisition is highly

\(^{11}\) This is the estimated number of acres that Harding is targeting for open space (400 acres) and farmland (100 acres) preservation by the end of 2025 (see Harding Township’s 2004 Cross-Acceptance report.)
valued by Harding residents as evidenced by the dedication of a portion of the property tax to establish an open space trust fund.

Due to high land values it will be increasingly important to leverage funds from many sources to accomplish open space goals. It is also likely that some sites that may be ideal for acquisition or preservation due to their location or physical characteristics will contain historic structures. In cases where existing structures are worthy of preservation, the township will need to develop creative strategies for their continued use or adaptive reuse. Standards should be developed to ensure that any continued use of these sites and structures is compatible with surrounding uses and the township’s historic preservation and open space goals.

**R-2 Residence Zone**

The R-2 Zone is a medium density residential area located adjacent to or extending from villages and along historic township connector roads. In some areas it serves as transition from the higher density historic villages to lower density single-family residential areas. The R-2 zoned areas include single-family dwellings located generally on lots of three quarters of an acre or more with little or no potential for further development. The exception is an undeveloped area to the east of Sand Spring Road and north of I-287 discussed below. The township’s future land use policies for the R-2 zoned areas are to preserve their established single-family residential neighborhood character and to maintain the continuity of the development pattern where infill development or redevelopment is possible.

These policies should also apply to two large undeveloped tracts of land east of the Sand Spring Road neighborhood near Morris Township. This area is essentially the rear “yards” of two major office developments in Morris Township. Together they comprise about 40 acres of land and are “landlocked” with no street frontage. Surrounding land uses include the I-287 highway corridor to the south, and the Blackwell Avenue and Frederick Place (in Morris Township) residential neighborhoods to the west and east, respectively. The eastern-most parcel is proposed for acquisition by Morris Township for recreation purposes. Currently, the only means of access to this area is through the adjacent office developments. However, it may be possible to obtain access to the eastern-most parcel through the Frederick Place neighborhood in Morris Township. This area is designated within Planning Area 5 by the State Planning Commission. Harding has no plan to expand the sewer service area or extend sewer infrastructure from the adjacent service area in Morris Township. Any future development in this area for residential or recreational uses will also be limited by the presence of freshwater wetlands.

**R-3 Residence Zone**

The R-3 zoned areas represent residential development comprised of single-family dwellings on lots typically at least 15,000 square feet. These areas comprise portions of New Vernon (and

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12 A 25-acre portion of this area was counted as land area in connection with the calculation of permitted floor area for the adjacent office development in Morris Township. A condition of site plan approval stipulated that no development should be permitted on the 25-acre portion of the property situated in Harding.
extending outward along Pleasantville Road) and Green Village, which also reflect historic settlement patterns. A third area developed under the R-3 zone standards is found to the west of Sand Spring Road north of I-287 near Morris Township. This is an area of compact residential lots with a strong sense of neighborhood extending into Harding from Mt. Kemble Avenue (Route 202). The development density in this area is the result of the availability of public water and/or sewer facilities, which have been limited to this area with no planned expansion.

The township’s land use policy for the R-3 Zone is to promote the continuation of the historic and established pattern of development in village areas and the scale of homes built in the district and in the villages. The township’s land use policies should also take into account the difficulty of providing onsite sewage disposal systems on relatively small lots in village areas because no public infrastructure is planned for these areas. Extending public sewer infrastructure to these areas is inappropriate because they are included within Planning Area 5, the environmentally sensitive planning area in the State Plan.

R-4 Residence Zone

The R-4 Zone permits the smallest lot size for residential development in the township and reflects the historic development patterns established in Mt. Kemble Lake, New Vernon Village and Green Village. The zone requires a minimum lot size of 9,000 square feet, consistent with much of the historical development in these areas. The township’s land use policies for the R-4 Zone are to promote the continuation of the established historic pattern of development and the compact scale of homes built in the district and in villages. The township’s land use policies should also take into account the difficulty of providing onsite sewage disposal systems on small lots because no sewer infrastructure is planned for these areas since they are included within Planning Area 5, the environmentally sensitive planning area in the State Plan.

B-1 Historic Village Business Zone
(New Vernon Village)

New Vernon Village is the focal point for the entire Harding community. At its core is a mixed residential/commercial neighborhood based on the early settlement pattern of New Vernon. The B-1 Historic Village Business Zone is part of the New Vernon Historic District, a state and nationally registered district. It is also the subject of a redevelopment area designation and redevelopment plan intended to promote the revitalization of the village core. The principal objective of the redevelopment plan is to maintain the historic character of New Vernon and its traditional role as the cultural center of the community by promoting a balance of commercial and residential uses and by re-establishing the Post Office in the village center (see the subsection “New Vernon Village” under “Special Considerations for Future Development”).

The township’s land use policies for this zone should be to maintain its role as the focal point for the community by ensuring a balance of residential and commercial uses that primarily serve Harding residents. Land use policies should encourage the continuation of the historic qualities and pattern of the “built” environment including the architectural scale and arrangement of uses,
buildings, and other improvements such as signs and lighting in the historic district. It should also recognize the small lot development pattern that was established in this area many years ago and the difficulty of accommodating on-site wastewater systems. Shared parking lots and traffic-calming techniques should be encouraged to promote pedestrian-friendly development compatible with the historic character and scale of the village.
B-2 Business Zone
(Route 202)

The Mt. Kemble Avenue (Route 202) business area has its roots in the first zone plan for the township adopted in 1930. Providing relatively easy access to the surrounding communities, and in particular, as the major route between Morristown and Bernardsville, early zoning permitted nonresidential development along the highway. Later, the construction of the interstate highway parallel and very close to Route 202 resulted in a narrow strip of land between the highways that was unsuitable for residential uses. The B-2 Zone extends along Route 202 on both sides of the highway (with an intervening area zoned OB on the eastern side) from Bernards Township northward; on the western side of Route 202, it extends nearly to the Tempe Wick/Glen Alpin Road intersection.

The area was not conceived of as a high growth, high intensity commercial area because of its many sensitive features, including adjacent historic resources, environmental features (especially Primrose Brook, which is of very high water quality) and residential areas. It was an area for commercial uses at modest scale and intensity. Mt. Kemble Avenue is a historic roadway that is the principal approach to Morristown National Historical Park and adjacent to which there are a number of historic structures.

The zoning standards for this area were revised in the 1990s to maintain the established level of development intensity. The township’s land use policies for the B-2 Zone should discourage strip development and sprawl and encourage development and uses that are compatible with the overall character of the township and the area’s historic roots and its gateway location to Morristown National Historical Park. Limited signage and low-impact lighting are important in this regard. In addition, land use policies should permit the development of an assisted living facility for the elderly in this area because of its easy access and proximity to Morristown where a full range of health and hospital services are located. This is a relatively new and inherently beneficial use providing for housing for senior citizens combined with limited medical care for residents. The traffic generated from such a development is far less than a commercial use of a similar scale, and a small project could be served by on-site well and septic systems.

OB Office Building Zone

The Office Building Zone, as shown on Figure 19 is limited to a small area between Mt. Kemble Avenue (Route 202) and I-287 in the southern portion of the township. It is only approximately 800 feet deep and was fully developed by 1982. The construction of I-287 created this unusual area sandwiched between the highway and Route 202, which, with easy access to the highway interchange in Bernards Township and water service from the Borough of Bernardsville, was the only area in Harding that was appropriate for the development of office buildings.

13 Inherently beneficial uses are deemed to be in the public interest and promote the general welfare.
The future land use policy for this limited zoning district is to maintain the established level of development intensity. However, if the opportunity for redevelopment should arise, alternative uses of lesser intensity should be considered, provided that no expansion of existing or new infrastructure should be permitted. In particular, an assisted living facility, which would be less intense and generate less traffic than office buildings, would be an appropriate alternative land use in this area since it benefits from easy access to Morristown where additional health and hospital services are found.

PRN/RC Planned Residential Neighborhood

This area, designated Planned Residential Neighborhood/Residential Cluster (PRN-RC), contains two planned residential developments (Harding Green and Shadowbrook) in the northwestern corner of the township between routes 202 and I-287. This development pattern is the result of zoning established in 1976. This was one of the few areas of the township where relatively higher density residential development was suitable because of its location between major roads and available public water and sewer infrastructure. These were important considerations in permitting the relatively higher density in this zone, up to four units per acre. South of the Shadowbrook development, leading to where the two highway rights-of-way converge, there are four lots containing three single-family dwellings and a business.

The future land use policy for this zone should be to maintain the established development pattern and provide for the continued use of the four lots not included in the planned developments. Those lots comprise about seven acres of land, an insufficient area for a project similar to those already established in this zone. In view of their isolation from other residential neighborhoods, they should remain in the PRN-RC Zone. If they can be consolidated at some future time, they could be redeveloped for an assisted living facility.

AH Affordable Housing Zone

Figure 19 displays the township’s eight-acre affordable housing site located at the intersection of Kitchell Road and Woodland Avenue adjacent to Morris Township. Acquired by the township in 1994, the site is ideally suited for multifamily residential development because of its proximity adjacent to existing public water and sewer infrastructure and its location across from a large multifamily housing development known as the Moore Estate in Morris Township. In recognition of the presence of existing infrastructure and adjacent multifamily land uses, in 1997 the State Planning Commission extended the adjacent Planning Area 1 designation from Morris Township so as to encompass the site. This is the only area in Harding that is designated within Planning Area 1, and where public water and sewer infrastructure is intended to facilitate new development.

The land use policy for this zone is to permit moderate density multifamily residential development, compatible with the neighboring multifamily land use, in satisfaction of the township’s affordable housing obligation. Completed in 2006, the 24-unit affordable housing
development known as *The Farm at Harding* is designed to resemble a series of farm buildings in keeping with Harding’s rural character and agricultural heritage.
SPECIAL CONSIDERATIONS FOR FUTURE DEVELOPMENT

As the township continues to develop, its ability to maintain its rural historic character and protect its environmental resources and the Great Swamp is of increasing concern. To a certain degree, state laws and regulations manage land development through the regulatory permit processes of the state departments of Environmental Protection and Transportation. Other state laws provide communities with special powers to promote development or redevelopment and to manage growth consistent with community planning goals. Following are a number of special considerations that should affect future development in Harding.

New Vernon Village

Historically, New Vernon Village developed around several of the township’s major cross-roads. It is the township’s community center where principal civic institutions and a few small-scale commercial uses are located, all of which help to define Harding’s sense of place and community.

Like the rest of Harding, the village has a strong residential character, but with dwelling units of a relatively small scale that provide a variety of housing types not otherwise generally available in the township. This mix of uses and higher density and intensity of development is vital to promoting its character as a village and distinguishes it from the surrounding countryside. Finally, its location as host to many of the township’s major civic institutions, including Kirby Hall, Bayne Park, Houses of Worship, the Harding Elementary School, and the New Vernon Firehouse defines the village as the central place where citizens gather for the everyday and major events of the township’s civic life.

In 1982 a portion of New Vernon Village was designated a historic district and included on the State and the National Register of Historic Places. In 1993 and in 2005 a slightly larger area was designated a municipal historic district in the township’s Historic Preservation Plan. In 2003, the small central business area of the village was the subject of a redevelopment plan (see “New Vernon Redevelopment Plan” below) and in 2006 the Planning Board established a subcommittee to study the broader village area to consider ways in which its role as Harding’s community focal point might be enhanced.

The extent or boundaries of New Vernon Village, in contrast to the surrounding countryside, are defined by three factors: the close proximity of major community institutions, mixed uses, and higher density small-scale dwellings.
The overall planning goals for the village area are to preserve its historic character and promote the continuance of its traditional role as the focus of the Harding community’s civic life. The following objectives are designed to achieve these goals.

- The historic character of the village streetscape should be preserved.
- Private and public uses that promote the interaction of Harding residents should be retained within the village.
- Land use policies should promote redevelopment within the village by permitting reasonable expansions while retaining the relative small scale of buildings.
- The village’s mix-use character, with a variety of residential, commercial and institutional uses, should be continued.
- The pedestrian scale and orientation of the village should be enhanced through improvements to footpaths and shared parking.
- Infrastructure improvements should be investigated including the feasibility of converting electric and telephone lines to underground utilities and whether public water supply improvements are needed to address public health concerns.

**New Vernon Village Redevelopment Plan**

In 2003 the Township Committee designated a portion of New Vernon Village as an “area in need of redevelopment” and adopted a redevelopment plan to guide revitalization efforts. The New Vernon Village Redevelopment Plan, adopted in May 2003, focused upon the relatively small central core of New Vernon Village comprised of the B-1 Zone and adjacent township land where the Tunis-Ellicks House and Department of Public Works are located.
The designation of the redevelopment area and preparation of the plan were in response to community concerns at that time about the potential permanent loss of the Post Office from New Vernon and other changes affecting properties within the village and Historic District. Some properties had fallen into disrepair, and a prominent business had been vacated. Small lot sizes, in combination with modern zoning and wastewater requirements, limited prospects for private redevelopment and new business uses.

The redevelopment plan’s revitalization objectives are guided by the principles of preserving the traditional character of the village and reinforcing its roots as a pedestrian-friendly environment, encouraging historic preservation, and promoting mixed uses to help maintain a balance of residential and commercial land uses in the village core. The plan encourages private revitalization guided by the township to maintain the village of New Vernon as a focal point for the entire community. Following is a table summarizing the redevelopment plan and the recommended strategies to implement the plan’s objectives.

<table>
<thead>
<tr>
<th>REDEVELOPMENT PLAN COMPONENT</th>
<th>REDEVELOPMENT PLAN STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Office</td>
<td>The plan identified two potential sites for a new Post Office. It has been built as part of a mixed used development in the preferred location, the site of the former “Ortman’s Garage.”</td>
</tr>
<tr>
<td>Library</td>
<td>The plan established a site for a new library in the designated redevelopment area and an alternative location at the nearby Municipal Building site. The latter site has since been selected by the Township Committee.</td>
</tr>
<tr>
<td>Land uses</td>
<td>--Residential: the plan identified goals and objectives to maintain a variety of residential uses in the village and encourages the provision of affordable housing. --Nonresidential: the plan identified currently permitted and proposed new nonresidential land uses.</td>
</tr>
<tr>
<td>Public safety improvements and circulation</td>
<td>The plan identified the need and location(s) for: pedestrian pathways, village parking, a cistern for fire fighting, and traffic calming and control.</td>
</tr>
<tr>
<td>Wastewater management</td>
<td>The plan recommended a study of wastewater management solutions that will encourage redevelopment.</td>
</tr>
<tr>
<td>Historic preservation</td>
<td>The plan supported the preservation of historic resources and provided a development incentive to encourage the retention of historic structures.</td>
</tr>
<tr>
<td>Redevelopment Area design guidelines</td>
<td>The plan established general design objectives for the redevelopment area. Design guidelines prepared by a Historic Preservation Architect are available to the Historic Preservation Commission and property owners to promote development compatible with the Historic District.</td>
</tr>
</tbody>
</table>
Development Rights for Nonconforming Lots

In establishing the new Rural Residential Zone where large lots prevail and/or where the established development pattern is generally of a lower density than the R-1 Zone, it is likely that some lots included within the zone will not meet the new minimum lot size of five acres. This is because in some areas a small number of lots developed on the basis of the previous R-1 zoning may be surrounded by a broader area of larger lots. In these cases, the undersized lots are grandfathered and have the legal right to remain as they are.

Harding’s ordinance contains provisions allowing vacant pre-existing undersized lots to be developed without a variance as long as the bulk requirements/limitations of the zone are met (section 105-130B). The ordinance implementing the Rural Residential zoning includes additional provisions to permit homeowners of undersized lots in single-family residential zones to rebuild or make improvements to their homes and property as long as the improvements comply with other bulk limitations. This is fair and equitable and represents sound planning practice.

Residential Building Limitations

An overriding goal of this Master Plan is the preservation and continuation of the township’s historic rural residential development pattern. A trend of particular concern is of very large homes on minimum-sized lots. In smaller lot zones, this concern is magnified when an existing small home is demolished or renovated to be replaced by a large home that is out of scale or incompatible with the established neighborhood.

To continue the traditional historic pattern and promote compatible new development, the size of new dwellings and accessory structures should have a proportionate relationship to lot size and be in scale with established neighborhoods. In rural areas very large homes should have larger than minimum-sized lots and should be set back substantially from new or existing roads. This policy will promote the preservation of Harding’s streetscapes, also an important Master Plan goal, by minimizing the perceived scale and prominence of these newer structures. In addition, lot disturbance and impervious coverage in rural areas should be reduced to lessen the impact of new development on the environmentally sensitive resources that typically characterize the remaining undeveloped land. Harding’s landscape should continue to be heavily influenced by the prominent presence and visibility of large trees and wooded areas, open meadows, farm fields, and historic structures along narrow, curvilinear roadways.

Historic Preservation

Older homes and other historic structures are often situated on small lots and/or close to roadways in village settings such as New Vernon, Green Village, Mt. Kemble Lake, and elsewhere along rural roadways. Rigid zoning often undermines historic preservation by creating disincentives for the improvement of structures and incentives for their demolition. A large
percentage of historic structures do not conform to zoning standards, making it more difficult for owners to improve them. This can ultimately result in their loss.

High property values have also made it economically attractive for developers to demolish old structures in order to enhance the development potential of individual lots or maximize the number of lots possible in new subdivisions. The Historic Preservation Commission, Planning Board and Board of Adjustment should continue to work with property owners to avoid the demolition of historic structures. Reduced lot and/or setback standards should be permitted when necessary and reasonable to facilitate the preservation of historic structures and the township’s rural character. To preserve and protect the character of historic districts, new “infill” development and renovations/additions to existing historic structures should be undertaken in a way that does not substantially alter the established scale of historic buildings.

**Wireless Telecommunications**

The township has established reasonable standards for the installation of wireless telecommunications facilities so that the need for communications services can be balanced against the township’s important land use goals and objectives, especially the goals of preserving the township’s rural residential and historic character. Of particular concern is the visual impact of large towers on the township’s historic rural character and landscape.

As a general policy, a scattered network of small antennas placed in or upon existing structures should be encouraged. However, if a tower is necessary to provide adequate coverage it should be located in a commercial area where there will not be a substantial impact on adjacent residential or historic areas. The joint use of new and existing tower sites by multiple providers should be encouraged to avoid the installation of multiple towers. Cooperation with neighboring communities could also help minimize the total number of antennas needed to provide service.

The following policies should serve as the basis for the township’s land use regulations for the installation of wireless telecommunications facilities.

1. To minimize the use of large towers, small antennas should be encouraged whenever they can be located on or in existing structures, particularly public or quasi-public property (schools, churches, firehouses, etc.), subject to reasonable standards and site plan review.
2. The use of wireless telecommunications towers to support antennas and associated equipment lockers should be minimized through the use of antennas in or on existing structures and co-location.
3. When large towers are necessary they should be located in commercial areas. They should not be located in areas where they will have a substantial negative impact on the character of historic districts or sites and/or residential areas.
Protection of Critical Areas & Natural Resources

As the township’s remaining vacant land is developed there are encroachments on areas previously left in their natural state. Many were previously considered too difficult to develop, particularly tracts with steep slopes, wetlands or other environmental constraints. These areas often contain critical areas of special environmental concern or natural resources of particular value as described in the Conservation Plan element. As Harding’s remaining vacant land is subdivided it is important that new lots contain sufficient areas free of environmental constraints to accommodate development. Following is a description of the critical areas and natural resources of special concern in Harding that deserve special consideration and protection.

**Protection of Steep Slopes**

Much of the steeply sloping topography in the township is found west of Route 202, especially in the Jockey Hollow area. However, there are areas of steep slopes in other parts of the township. It is very difficult to maintain the natural rate and quality of stormwater runoff in steeply sloping areas after development. This increases the potential for soil erosion and flooding of “downstream” properties.

In accordance with the recommendations contained in the Conservation Plan element and consistent with state planning policies for environmentally sensitive areas, the township has enacted an ordinance limiting land disturbance in steeply sloping areas. Developers should be required to undertake careful planning and analysis of any necessary soil removal, fill, or grading associated with development.

**Protection of Mature Trees**

Trees, woodlands and hedgerows can slow, and to an extent, absorb stormwater runoff. Retention of these areas enhances our ability to control stormwater runoff. They are beneficial to the environment because they control soil erosion and increase groundwater recharge. Trees and other vegetation are also important to maintaining privacy in residential areas and to preserving the rural character of the township. Mature trees are an important element of the traditional historic character of the township, especially along public roadways. For these reasons, township land use policies should discourage the indiscriminate, uncontrolled and excessive destruction of trees and specimen vegetation.

**Protection of Stream Corridors & Unique Natural or Environmentally Sensitive Areas**

Harding contains many streams of high water quality and other water bodies. There are also unique natural areas and areas of special environmental sensitivity including mature forests, areas containing habitats for threatened or endangered species, areas of extraordinary steep slopes and areas with scenic views. These areas deserve special protection to preserve them. When they are
identified as part of the review process for new development, measures should be put in place to protect them. Some protective techniques may be as simple as establishing limits of land disturbance and tree protection efforts during construction. Wherever appropriate, conservation easements should be established for permanent preservation. Easements should be monitored periodically for conformance with township standards.

**Protection of the Night Sky**

Nighttime darkness is an essential quality of rural residential life and a key component of the historic landscape. Limiting unnecessary artificial light protects night sky vista for all residents and preserves appropriate habitat for native fauna. As a host to both the Great Swamp National Wildlife Refuge and Jockey Hollow National Park, Harding Township has a stewardship role in preserving these ecological resources by minimizing the impact of artificial light on these conserved lands. Harding Township’s commitment to the preservation of nighttime darkness was recognized by receipt of the 2009 Dark Sky Award from the United Astronomy Clubs of New Jersey.

**Creative Development Techniques**

The single most often expressed planning goal of township residents is to retain the township’s traditional historic and rural character. It is also the major goal of this Master Plan. Zoning is necessary to preserve the low-density pattern of development. However, rigid zoning requirements, over the long term, create uniformity in the pattern of development that is antithetical to the township’s planning goals. Even large lot zoning, if imposed with rigidity and uniformity, can eventually promote a suburban character, albeit at low density.

In rural landscapes, low-density development (usually homes and farms) is typically widely spaced or clustered in small village groupings. Large open and/or wooded areas are common. The pattern of lot sizes in rural landscapes is an important design element. They typically vary greatly, with relatively small lots often next to very large lots. The siting of buildings is determined by the geographical and natural characteristics and limitations of the site instead of the imposition of uniform and rigid zoning standards that ignore these characteristics. Variability of building setbacks and building orientation is also typical in a rural landscape. These patterns should be perpetuated.

**Creative Design in Subdivisions**

Over the years, alternatives to standard zoning have been developed with mixed results. In the Harding context, zoning and subdivision standards should be designed and/or administered to promote the following planning goals:

- To promote the preservation of large areas of open space, especially the highly visible areas along public roadways.
- To promote the preservation of community character and areas of significant community concern such as scenic vistas, historic areas and structures, and natural resources.
• To preserve stone rows, hedgerows, mature trees and other natural vegetation, to minimize land disturbance and to promote privacy among existing and proposed residences.

• To improve the design of new development, promoting a variety of lot sizes to be more consistent with the township’s rural characteristics, and to permit the placement of new roads and buildings reflecting the characteristics and environmental sensitivities of the site, instead of mere adherence to rigid standards.

Lot size averaging is a creative development alternative to conventional “cookie cutter” subdivisions that result in uniform lot layouts and the destruction of natural land features. This development option, permitted by the Municipal Land Use Law, is authorized in the Rural Residential Zone to allow the Planning Board to approve flexible development standards in subdivisions so that individual lot sizes can be varied, permitting smaller lots offset by larger lots, to achieve the objectives outlined above. The ordinance establishes a minimum lot size of three acres to assure a minimum low-density throughout the development. It also contains provisions to ensure that the overall density of development (the number of homes to be constructed) does not exceed the five-acre zoning density. The implementation of these recommendations will promote the preservation of rural streetscapes, protect environmentally sensitive areas and maintain the variety of lot sizes and building arrangements that is so fundamental to Harding’s rural character.
RELATIONSHIP OF THE HARDING MASTER PLAN TO STATE, REGIONAL AND AREA PLANS
(Amended May 19, 1997)

The purpose of this element is to evaluate the relationship of this Master Plan to the master plans and zoning in adjacent communities. In addition, regional, county and state plans are examined. It is a goal of the Harding Master Plan to be consistent with those plans to the extent possible while maintaining consistency with Harding's own planning goals and objectives. As documented below, this goal has been achieved to a high degree. This element also includes specific policy statements indicating the relationship of this Master Plan with those plans, as required by law.

RELATIONSHIP TO ADJOINING MUNICIPALITIES

It is in the collective best interest of all municipalities in our area to take into account the planning and zoning in adjacent municipalities, especially in border areas. To the extent possible, consistent with Harding's goals and objectives, and in recognition of inherent differences in existing patterns of development and environmental characteristics, conflicts and inconsistencies in border areas should be minimized. Following is a summary of the land use designations of the surrounding municipalities in areas adjoining Harding.

Madison Borough

The Borough of Madison borders the northeastern tip of Harding Township for a short distance. Harding Township's low density residential district in that area is compatible with the adjacent low density residential zoning areas found in Madison Borough.

Chatham Township

The Township of Chatham is located east of Harding Township south of Madison Borough. Chatham's Master Plan dates from 1989 (1994 Reexamination). The low density residential and county park area in Harding abutting Chatham Township are compatible with the low density districts of R-1A, R-1, R-2 and CP (county park) zones in Chatham. Chatham's low density district (R-1A) is distinct from Harding's in that it allows for a cluster option, provided that final lot sizes are at least 25,000 square feet. Lands in the Great Swamp National Wildlife Refuge, designated as Public Lands in Harding, adjoin the Wilderness Area District in Chatham. A small Neighborhood Business District in Chatham, within the Green Village area which straddles both townships, is compatible with the developed R-3 Residential areas in Harding.
Long Hill Township

The Township of Long Hill borders Harding to the southeast. Long Hill's Master Plan dates from 1995. Harding Township land zoned for Public Lands (the Great Swamp National Wildlife Refuge) adjoins Long Hill Township lands that are zoned for Conservation, compatible land use designations. The National Wildlife Refuge straddles both townships and is an area of special mutual concern and responsibility.

Bernards Township

The Township of Bernards lies to the west of Harding but is separated from it by the Passaic River. Bernards' Master Plan dates from 1984 (1995 Reexamination). Bernards has 3 acre residential zoning districts along the border with Harding which permit flag lot and cluster development. This zoning designation is compatible with residential districts that border Harding. Land which abuts Interstate 287 in Bernards Township is zoned for office and laboratory uses; in Harding the land on each side of I-287 nearest the border is zoned B-2 Business and Public Land (Harding's Office Building Zone is a limited area just north of the B-2 Zone between Route 202 and I-287). A portion of the office/laboratory area in Bernards east of I-287 is separated from the R-1 (3 acre lot) residential area in Harding Township by the Passaic River.

Bernardsville Borough

The Borough of Bernardsville extends for approximately 3,400 feet along the western border of Harding Township in the vicinity of Peachcroft Road. Bernardsville's Master Plan dates from 1984 (1996 Reexamination). This area of Bernardsville Borough is designated for low density (5 acre) residential lots which is compatible with the R-1 (3 acre) residential designation in Harding.

Mendham Township

The Township of Mendham is located along the northwestern border of Harding Township. Mendham's Master Plan dates from 1983 (1993 Reexamination). The Morristown National Historical Park extends almost the entire length of the Harding-Mendham border. The protection of the National Historical Park is an issue of mutual concern and responsibility for both towns. There is a small area north of Tempe Wick Road in the Sunrise Lake area of Mendham which is zoned for single family residential use adjacent to the Jockey Hollow area of Harding Township.

Morris Township

The Township of Morris is located to the west of Madison on Harding's northern border. Morris Township's Master Plan dates from 1994. From a land use standpoint, the R-1 (3 acre residential lot) zoning in Harding is not incompatible with adjacent 15,000 sq. ft. and 35,000 sq. ft. lots in Morris Township notwithstanding the higher density development pattern. In the north central portion of Harding, areas zoned for 3 acre residential use abut areas in Morris zoned for and developed as townhouses at a density of six units per acre. However, these areas are separated
by a broad flood hazard area. National and county park lands located in Harding are adjacent to areas in Morris that are zoned for OS/GU or Open Space-Government Use. This zone allows for a wide variety of permitted public uses.

The area along Sand Spring Road in Morris and Harding is an area of some planning and zoning inconsistency between the townships. The area in Morris is zoned for Office Building and Research Laboratory (OL-40 zone) uses while the area at the southern end of Sand Spring Road in Harding is zoned for R-2 and R-3 single family residential use. Most of the remaining vacant land in the area is zoned residential (in Harding). Access to these vacant lots is obtained from Morris Township through the OL-40 zone.

**Planning Proposals in Harding Affecting Adjoining Municipalities**

There is only one planning proposal in this Master Plan that will have a direct effect on an adjacent municipality. Harding's Housing Element and Fair Share Plan calls for Harding Township to construct an affordable housing development on a township-owned site on Kitchell Road on the border with Morris Township. An important factor in the site's selection was the existence of water and sewer utilities adjacent to the site, and surrounding land uses. The adjacent zoning and land use across Kitchell Road in Morris Township is RH-5 (affordable housing). This is the site of the Moore Estate inclusionary housing development which, in the area closest to Harding, represents a density of more than 5 units per acre. The designation of the housing site in Harding at a density of less than 3 units per acre is fully compatible with the zoning and existing land use in Morris Township.

**RELATIONSHIP TO REGIONAL PLANS CONCERNING THE GREAT SWAMP**

Since Congress authorized the creation of the Great Swamp National Wildlife Refuge in the 1960's there has been increasing concern about the impact of development on the Refuge which comprises the southern third of the township. Planning reports and studies by the New Jersey Department of Environmental Protection, the Great Swamp Watershed Advisory Committee and the USDA Great Swamp Hydrologic Unit have documented in great detail the need for land use planning policies and strategies addressing the impacts of development on the Great Swamp. Of particular concern is the effect of stormwater runoff from development within the Great Swamp Watershed on water quality and quantity in the Refuge.

**Policy Statement**

One of the principal goals of Harding's Master Plan is to protect the ecosystem of the Great Swamp National Wildlife Refuge. Pursuant to this goal, land use and planning decisions should be carefully considered in the context of their effect upon the Great Swamp. In particular, since most of the township lies within the Great Swamp Watershed, Harding's land use regulations and policies should work to meet the goal of "no net increase" in the rate, volume or pollution from storm water runoff from development in the Watershed.
"Ten Towns" Committee

In 1995 the Ten Towns Great Swamp Watershed Committee was established, made up of representatives of the ten municipalities in the Great Swamp Watershed. The Committee's primary purpose is to prepare recommendations to the communities in the watershed on measures to protect water quality in the Great Swamp, in particular, stormwater management standards. A consultant has been working with the Committee to develop a watershed-based stormwater management plan and model stormwater regulations. The towns within the watershed have agreed to carefully consider these recommendations and standards.

"Special Area" Designation

Harding's principal strategy for minimizing the impact of development upon the Great Swamp has been to designate most of the privately owned land within the Great Swamp Watershed for low density development. Consistent with this, Harding has adopted development standards that encourage narrow roadways, grass swales as a preferred method of stormwater drainage, and strict standards for stormwater detention.

In January 1997, the New Jersey Department of Community Affairs promulgated statewide residential site improvement standards. Unless modified through a procedure referred to as a Special Area designation, the statewide standards as applied in Harding would require a substantial change in the level of improvements required in residential developments. The changes include increased pavement widths and inadequate standards for stormwater management. This would be harmful to Harding's efforts to protect the Great Swamp. Except for about 360 acres of land located in the Whippany River Drainage Basin (parts of Lewis Morris Park the National Park, and a portion of a developed subdivision adjoining the latter) in the northwestern-most part of the township, all of Harding lies within the Great Swamp Watershed. Designating the Watershed as a Special Area would permit the continuation of Harding's residential development regulations and comprehensive stormwater management standards which are more appropriate in view of the effect of uncontrolled runoff on the ecology of the Great Swamp.

RELATIONSHIP TO MORRIS COUNTY PLANS

Morris County in recent years has attempted to foster a cooperative working relationship with its communities through such efforts as the cross acceptance process associated with the evolution of the State Development and Redevelopment Plan. Harding has responded by becoming actively involved in this and other regional planning efforts.

There exists a high degree of consistency between township and county planning which is the result of the cooperative relationship between the two levels of government. This should be continued and expanded where appropriate in the future. Consistency in planning between the township and county is of mutual benefit and should be an important factor in making planning decisions.
Morris County Master Plan

The elements of the Morris County Master Plan of most relevance to Harding are the Circulation Plan, Recycling Plan, and Open Space Plan. Other elements of the County Plan are either very outdated, and thus of limited relevance, or have limited applicability to the township.

Circulation Plan

The Morris County Circulation Plan element was adopted in 1992 and assesses all aspects of transportation in the county. Of particular concern to Harding are policies and proposals affecting the size and standards for county roads, bridges (most of the bridges in Harding are county-owned and maintained) and culverts. Harding should continue to work closely with the county to ensure that future improvements to county roadways and bridges (including bridges classified as culverts) will be undertaken in a manner that recognizes the special concerns about the Great Swamp and historic preservation. Widening of county roads should be avoided and historic bridges should be well maintained to avoid replacement. Where replacement is necessary, the township should work with the county to replace the bridge in kind.

Solid Waste Management Plan

The Morris County Recycling Plan element was adopted in 1985 and amended through 1993 in conformance with the Statewide Mandatory Source Separation and Recycling Act. As reflected in the Recycling Plan of Harding's Master Plan, the township has instituted a recycling program consistent with the county (and state) plans.

Open Space Plan

The Morris County Open Space Plan element was adopted in 1988. A portion of the County's Loantaka Brook Reservation is located within Harding. Harding's affordable housing site is adjacent to the Loantaka Reservation. However, the site is not listed in the County Open Space Plan as an area for future acquisition by the County. In addition, the portions of the affordable housing site that are adjacent to the park are wetlands that are precluded from development, thus buffering the park from effects of development. As a result, this Master Plan is consistent with the Morris County Open Space Plan.

RELATIONSHIP TO NEW JERSEY STATE PLANS

The State of New Jersey sets forth the framework for planning in Harding and all communities in the state through the Municipal Land Use Law and numerous other state laws and regulations. In recent years, local government has adapted to new initiatives from the state in housing (the Council on Affordable Housing - COAH), road improvements and stormwater management standards (statewide Residential Site Improvement Standards), and planning (the State Development and Redevelopment Plan).

There exists a high degree of consistency between township and state planning which is the result of the township's active participation in cross acceptance, a process which brought about
the adoption of the State Development and Redevelopment Plan (SDRP) in 1992, and participation in COAH's administrative process which resulted in Substantive Certification of Harding's affordable housing plan on November 6, 1996. Consistency between local and state planning is in the best interests of both levels of government and it should be continued and expanded where appropriate in the future.

**Fair Housing Act**

The New Jersey Fair Housing Act established that every New Jersey community has a responsibility to provide for its fair share of affordable housing and created the Council On Affordable Housing (COAH) to administer compliance with that mandate. Harding has adopted a Housing Element and Fair Share Plan that complies with state regulations and was approved by COAH. The most important part of the township's affordable housing plan is the proposed construction of 23 affordable units (plus one unit for an on-site superintendent) on a site that is appropriate and available for affordable housing and where access to public utilities is feasible.

**State Development and Redevelopment Plan (SDRP)**

In June 1992, the State Planning Commission adopted the New Jersey State Development and Redevelopment Plan. Individual municipalities were invited to be directly involved in the formulation of this "state master plan" through the cross acceptance process which was administered by the County Planning Board in Morris County. Representatives from Harding were actively involved in the process and the result is a state plan that is generally consistent with Harding's Master Plan. Excluding park lands, most of Harding is designated as Planning Area 5 - Environmentally Sensitive (PA-5) in the SDRP. Small areas along the northern border of the township are designated Planning Area 1 - Metropolitan (PA-1) and Planning Area 3 - Fringe (PA-3) because of the existence of infrastructure (water and sewer utilities) in those areas.

**SDRP Mapping Amendment**

Since the adoption of the SDRP in 1992, Harding adopted a Housing Element and Fair Share Plan to comply with its affordable housing obligation. Substantive Certification was granted by COAH in November 1996. COAH regulations stipulate that inclusionary housing be located in Planning Areas 1, 2 or 3 or in designated "centers". Harding's plan includes the designation of a site on Kitchell Road for construction by the township of 23 affordable units plus one unit for an on-site superintendent. The 8.5 acre site is located in the northeastern portion of Harding adjacent to the township boundary with Morris Township. Loantaka Brook Reservation abuts the site to the south and east. This part of Harding, surrounded by three adjoining communities (Morris, Madison and Chatham) is not now served by public water or sewer. It is within the SDRP-designated Environmentally Sensitive Area (PA-5), while all of the surrounding areas which are served by public utilities, are included within the Metropolitan Planning Area (PA-1).

An important determining factor in the township's choice of the Kitchell Road site was its proximity to existing water and sewer infrastructure. The existence of water and sewer infrastructure was also a factor in determining the boundary between the PA-1 and PA-5 in this
area. Since no available, appropriate, or feasible site for affordable housing exists in the very small areas of the township designated PA-1 or PA-3, the township designated a site that is immediately adjacent to Planning Area 1 where water and sewer infrastructure exists and rezoned it to permit the housing development.

There were other important factors in choosing the Kitchell Road site that are consistent with SDRP policies. The site contains an adequate developable area free of environmental constraints for the construction of 24 units meeting Harding's fair share requirement. It is adjacent (across Kitchell Road) to an existing affordable housing development in Morris Township, thus eliminating a potential conflict in adjacent land use designations between the two townships. The site is closer to public transportation than any other potential sites in Harding.

Since the Kitchell Road site is immediately adjacent to existing water and sewer lines, a major extension of these services is not necessary or envisioned. The Loantaka Brook Reservation (which surrounds the site on two sides) acts as a natural physical boundary to the extension of such infrastructure, maintaining the integrity of the remaining environmentally sensitive area designation. For these reasons, the State Planning Commission should include Harding's affordable housing site within Planning Area 1. North of Woodland Avenue, the township-owned large vacant lot with a pond should be added to the township's Open Space Inventory to buffer nearby residences. That site and the remaining residences which have historic character and are situated on large lots should remain in the R-1 Zone which is more consistent with the current PA-5 designation.

Statewide Residential Site Improvement Standards - "Special Area" Designation

As outlined previously in this Master Plan, The NJ Department of Community Affairs has promulgated statewide Residential Site Improvement Standards. These standards are substantially inconsistent with Harding's standards as they pertain to road widths and stormwater management (particularly with respect to water quality) for residential development. The state's standards require greater pavement widths (than Harding requires or encourages) in new subdivisions and stormwater controls which will not adequately protect the Great Swamp National Wildlife Refuge from the negative effects of development.

The township's road standards have evolved over a long period of time to strike a reasonable balance between the need to provide safe roadways and other important township goals. Chief among these other goals are the need to minimize land disturbance and stormwater runoff and its impact on the Great Swamp and a strong desire to maintain the historic and rural character of the township. New roadways and road improvements in the Great Swamp Watershed and/or in areas designated as historically significant in the Historic Preservation Plan and Circulation Plan should be consistent with the recommendations contained in those elements. As a result, the township is seeking a Special Area designation pursuant to NJAC 5:21-1 et. seq. (statewide Residential Site Improvement Standards) for the portion of the township that is within the Great Swamp Watershed.
HARDING TOWNSHIP
MASTER PLAN

TOWNSHIP OF HARDING
MORRIS COUNTY, NEW JERSEY

Original adoption: December 17, 1984
With amendments through November 27, 2017

- Recodification: November 21, 1994
- Housing Element Amendment: February 26, 1996
- Circulation Plan Element: May 19, 1997
- Conservation Plan Element: May 19, 1997
- Historic Preservation Plan Element: May 19, 1997
- Relationship to Other Plans Element: May 19, 1997
- Stormwater Management Plan Element: May 19, 1997
- Land Use Plan Element: June 22, 1998
- Fire Protection Amendments: August 24, 1998
- Bayne Park Amendment: December 14, 1998
- Open Space Trust Fund Amendment: October 25, 1999
- Land Use Plan Element: February 28, 2000
- Conservation Plan Element: March 27, 2000
- Environmental Resources Inventory: October 27, 2003
- Conservation Plan Element: September 27, 2004
- Land Use Plan Element: September 27, 2004
- Historic Context and Landscape Patterns: March 14, 2005
- Historic Preservation Plan: March 14, 2005
- Stormwater Management Plan Element: July 25, 2005
- Housing Element & Fair Share Plan: November 28, 2005
- Land Use Plan Element: April 23, 2007
- Reorganization/update of Background Studies, Conservation Plan Element, Circulation Plan Element,
  and Land Use Plan Element: February 25, 2008
- Open Space Plan Element: March 24, 2008
- Community Facilities Plan Element: November 17, 2008
- Land Use Plan Element, November 27, 2017
HARDING TOWNSHIP
MASTER PLAN

HARDING TOWNSHIP PLANNING BOARD

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TIM JONES

A signed and sealed copy of this Master Plan amendment is on file with the Planning Board Secretary and Township Clerk.
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## APPENDIX

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On December 17, 1984 the Harding Township Planning Board adopted an updated Master Plan, prepared by Townplan Associates, to reflect the growth changes and types of development which came about since the adoption of the first Master Plan in 1972. In 1994, the entire Master Plan was prepared in digital format and recodified to reflect the comprehensive reorganization of the existing inventories and data and the amendments that had been made in the preceding decade.

Since the adoption of the 1994 recodified plan, the Planning Board has adopted numerous revisions to the background studies and elements of the Master Plan in order to reflect changing conditions and circumstances, and updated development goals and policies. In 2008, with the adoption of a new Open Space Plan element to include an updated open space inventory, the Master Plan was reorganized to place relevant background data within each plan element. The inventory of environmental resources and background information on historic resources form the core of a new section entitled Community Characteristics since they give Harding its unique characteristics and provide the underlying rationale for many of the township’s preservation and planning objectives. This new format will facilitate the periodic amendment and/or updating of individual Master Plan elements for many years to come.
INTRODUCTION AND STATEMENT OF PURPOSE
(Adopted March 14, 2005)

Harding Township has long recognized the value of building a community consensus around a vision of the future of the township. The purpose of this document is to articulate that vision based upon a clear evaluation of facts. It is the result of contributions from many individuals, groups and the public. Part One (Background Studies) covers Harding as it is, providing data and background about the township. It is the foundation for the second part (the Master Plan Elements) which sets forth the goals and policies for Harding's future. Part Two is organized into nine elements, each dealing with different aspects affecting future development.

Two substantial areas of the township, the Great Swamp National Wildlife Refuge and the Morristown National Historical Park, represent areas of national importance because of their environmental and historic significance. The remainder of the township lies between these areas and also contains extensive and sensitive environmental resources. The township has to a remarkable degree retained the characteristics of a historic rural community because of private and public efforts over many decades. The overall purpose of this plan is to continue this legacy of preservation which began in 1922 when the township was founded upon the principle of protecting these characteristics.

The Master Plan serves as a basis for the development of zoning, land subdivision, site plan, and other development regulations for the township and is utilized as a basis for evaluating and coordinating with state, regional, county, and adjacent municipal planning programs. The development of a Master Plan is an ongoing process reflecting continuing changes in circumstances, and a refinement of goals.

Harding Township adopted its first Master Plan in December 1972 and amended the Plan in July 1978. The 1982 Reexamination Report led to a new Master Plan adopted in December 1984. Since that time, a number of important amendments to the Master Plan were made, many to address state planning policies. They include plans addressing affordable housing, reflecting concerns about water resources, and a new Land Use Plan establishing the basis of a new lower density residential zone. In summary, this plan is intended to realistically address current needs while strongly continuing a commitment to protecting Harding’s special sense of place and high quality of environmental and cultural resources.
This Master Plan is based upon objectives, goals, policies, principles, assumptions, and standards that have been developed over a long period of time by the Planning Board, Township Committee, Board of Adjustment, Environmental Commission, Board of Health, and other boards and agencies within the township.

Objectives

The Master Plan proposals for the physical, economic, and social development of Harding Township are based upon the following planning and development objectives.

1. To encourage township decisions and actions which will result in the long-range appropriate use and development within Harding Township in a manner which will promote the public health, safety, and general welfare of present and future residents.
2. To ensure safety from fire, flood, panic, and other natural and man-made disasters.
3. To provide adequate light, air, and open space for all residents.
4. To ensure that development within the township does not conflict with the development and general welfare of neighboring municipalities, Morris County, the immediate region, and the state as a whole.
5. To promote the maintenance of appropriate population densities in locations that will contribute to the well being of persons, neighborhoods, and preservation of environmental and historical features.
6. To encourage the appropriate and efficient expenditures of public funds by coordinating public and private development within a framework of land use and development principles and policies which are consistent with the rural, historical, and environmental features of Harding Township.
7. To provide sufficient space in appropriate locations within the township for agricultural, residential, commercial, business, service, office, and public and quasi-public uses in a manner compatible with the unique rural historical character and sensitive environmental features of the township.
8. To encourage the location and design of roadways which will permit the free flow of traffic in appropriate locations while discouraging roadways in areas which are environmentally sensitive, historically significant, or rural in nature and/or would result in blight, depreciated property values, undue congestion, or safety problems.
9. To promote the maintenance and protection of the high quality visual environment of Harding Township through creative development techniques and protection and enhancement of the unique physiographic and rural historical features.
10. To promote the conservation and protection of open space and valuable and sensitive natural resources and to prevent degradation of the environment through improper use of land.
11. To encourage the preservation and restoration of historic buildings and sites, especially within the New Vernon Historic District, the Green Village area, and in areas adjacent to, or within the viewsheds of the Morristown National Historical Park.
12. To encourage energy efficient site designs and provisions for passive and active energy resources including solar, wind, and recycled heat.

Goals and Policies

The Master Plan has been developed on the basis of goals and policies which were enunciated in part in the Master Plan adopted in 1972 and amended in 1978, and on policies reflected in land use and development regulations adopted by the Township Committee and other boards and agencies and on current, environmental, historical and planning data.

GOAL 1 - PROTECTION AND ENHANCEMENT OF THE MORRISTOWN NATIONAL HISTORICAL PARK AND THE GREAT SWAMP NATIONAL WILDLIFE REFUGE.

POLICY - Harding Township recognizes that it has a unique responsibility of adopting and implementing land use and development regulations which will ensure the protection and enhancement of these two treasured regional and national historical and environmental resources in conjunction with other planning and development regulatory agencies at the county, regional, state, and federal levels. Harding Township has the direct responsibility of planning and implementing land use and development regulations that are compatible with the nature and concept of both areas. The township has established and will continue a policy of permitting only low density rural development to be constructed within the watershed of the Great Swamp, in order to protect surface and subsurface water quality which is critical to the viability of the Great Swamp ecosystem. The township will continue to work with the US Fish and Wildlife Service to develop land use policies and regulations to protect the environment of the watershed surrounding the Great Swamp National Wildlife Refuge, particularly surface and subsurface water quality. The township supports the US Fish and Wildlife Service decision to include the entire watershed of the Great Swamp in the Refuge Master Plan.

GOAL 2 - PROTECTION AND MAINTENANCE OF THE QUALITY AND QUANTITY OF SURFACE AND SUBSURFACE WATERS, INCLUDING STORMWATER MANAGEMENT AND WETLANDS PRESERVATION.

POLICY - Harding Township recognizes that due to its geographic location and topographic features, it has a unique responsibility in protecting the quality and quality of surface and subsurface waters. At the immediate headwaters of the Great Swamp and as a major contributing area of the Passaic River System and the Buried Valley Aquifer, Harding Township bears a significant regional responsibility to regulate land uses: 1) to prevent point and nonpoint surface runoff into the Great Swamp; 2) to protect the aquifer recharge capabilities of the township land area through careful regulation of onsite septic disposal systems and wells to prevent ground and surface water pollution and/or depletion of groundwater supplies; and 3) to preserve wetland areas to maintain the wetlands ability to aid flood and stormwater control and ground water recharge and to enhance water quality and provide fish and wildlife habitat.

GOAL 3 - PROTECTION OF RURAL DEVELOPMENT PATTERN AND DENSITY.

POLICY - Harding Township has retained many of the characteristics of a pre-Revolutionary rural, agricultural community and has been cited by contemporary historians as a primary example of a preserved 18th or early 19th century country-scape, a unique spatial relationship within the New York and northern New Jersey metropolitan area. Harding is noted for its historical and spatial continuity of agricultural uses, small village centers, roadways, low density residential structures,
early American architectural style, open spaces and developmental scale. Since the early 1920's, Harding Township and New Jersey residents have recognized that the township has a unique rural historic quality which has become a regional and state-wide resource which should be protected and preserved. The Master Plan continues the historical rural development pattern to protect and enhance the early American historical setting and pattern of development, while also accomplishing the preservation and protection of sensitive environmental features which are integral to the protection of the Great Swamp and the Morristown National Historical Park.

GOAL 4 - MAINTENANCE OF HIGHEST STANDARDS OF ENVIRONMENTAL PLANNING.

POLICY - Because of the constant threat to the township's natural environment through the continuation of development, the township shall insist on the highest standards of environmental planning to protect its residents and the ecological features which comprise the township's physical setting. The Planning Board and Board of Adjustment shall, in review of any proposal for development, encourage and require minimal disturbance of the natural landscape. In certain circumstances, these Boards may suggest the elimination of otherwise required facilities, e.g. curbs, or request the provision of separate vehicular and pedestrian ways, the incorporation of open space and preservation of special features or other elements to create greater compatibility between the man-made and natural environment. Adherence to the Soil Erosion and Sedimentation Control Ordinance shall be maintained in the review of all applicable developments.

GOAL 5 - REVIEW AND COORDINATION OF HARDING TOWNSHIP MASTER PLAN AND DEVELOPMENT REGULATIONS WITH FEDERAL, STATE, REGIONAL, COUNTY, AND ADJACENT MUNICIPAL PLANS AND DEVELOPMENT REGULATIONS.

POLICY - Consistent with a policy adopted in 1972 and with the statutory mandate of the Municipal Land Use Law, Harding Township will continue to: 1) evaluate federal, state, regional, county, and adjacent municipal planning and land development regulatory programs to ensure suitability of permitted land uses and development densities; 2) review municipal and area utilities, services and development programs and impacts; and, 3) establish, maintain and enforce land development and environmental regulations to protect ground and surface waters, soils, historical features, agricultural areas, open space, air quality, aesthetic views and flora and fauna ecosystems which are integral to the preservation of the Morristown National Historical Park, the Great Swamp, and the rural historic character of Harding Township.

GOAL 6 - MINIMIZATION OF COMMERCIAL DEVELOPMENT.

POLICY - Previous strip business development along Route 202 has, in part, been responsible for congestion of the highway because of a lack of past development controls. The continuing importance of Route 202 as the dominant local traffic artery within the township will be greatly impaired unless greater development control is exercised and business activities are limited to specified areas. Needless traffic congestion, plus the recognition that the majority of all resident shopping has taken place, and will continue to take place outside of the township, indicates the lack of need for additional commercial space to serve township residents. As a result of this traffic congestion, a 1980 Abbington-Ney Traffic Engineering Investigation concluded that, based upon actual traffic counts, there is no excess vehicle capacity along Route 202 in Harding Township. This conclusion is consistent with NJDOT's 1977 Annual Report of Traffic Data
which stated that the traffic volume for Route 202 north of Glen Alpin Road then exceeded design capacity. Accordingly, while it may not be feasible to prevent all new development along Route 202, any additional facilities on the limited available land, should be permitted only within a framework of strict site design controls. Moreover, any new facilities should be carefully controlled from the standpoint of purpose, function, and appearance to blend compatible with the surrounding area and needs of the community.

The unnecessary removal and/or mishandling of the natural landscape cover is abhorrent to the residents of Harding Township because of the physical and visual deterioration it causes. Proposed treatment of all land proposed for development including landscaping, final grading and paving, will be major points in determining each petition for commercial development, in order to assure enhancement of the natural environment and minimal visual intrusion upon the landscape.

GOAL 7 - MAINTENANCE OF MINIMAL OFFICE BUILDING DEVELOPMENT AREAS.

POLICY - Consistent with a goal and supporting policies contained in the 1972 Master Plan as amended in 1978, the Master Plan recognizes that Harding Township has only one small area which is geographically and environmentally suitable for development of office building use. These lands, east of Route 202 were developed in the late 1970's and early 1980's. The OB Office Building Zone District is fully developed with office buildings. The Master Plan recognizes existing and approved uses, but does not provide for any expansion of such uses. Location of such uses in other areas of Harding uses with the historical, environmental, aesthetic and rural spatial development pattern and the lack of municipal utilities and services and roadway capabilities.

GOAL 8 - MAINTENANCE OF ON-SITE SANITARY WASTE DISPOSAL.

POLICY - Harding Township recognized and stated in the 1972 Master Plan that it would not be economically or logically feasible to install a sanitary sewer system to serve the low density and rural residential areas of the township. Subsequently, federal, state, and regional environmental, planning and health agencies have established policies discouraging the extension of sanitary sewer lines in low density areas designated within Planning Area 5 by the State Planning Commission. Harding Township continues to recognize that reliance will be placed upon onsite waste disposal and that due to geologic, topographic, and soil conditions and current state and federal water quality and health standards, low-density, large-lot development will be continued. This policy is also intended to reinforce the rural development pattern of the township and preservation of surface and subsurface water quality to prevent pollution of the Great Swamp and protect the Buried Valley Aquifer. This policy is consistent with Harding Township’s designation within Planning Area 5, the Environmentally Sensitive planning area by the State Planning Commission.

GOAL 9 - PROTECTION AND MAINTENANCE OF POTABLE WATER SUPPLIES.

POLICY - Harding Township is largely dependent upon individual wells. Due to the fact that most of the township, outside the Jockey Hollow area, is located within Triassic basalt and shale and sandstone geologic formations which have very low waterbearing capabilities, Harding Township should continue a low density pattern of development to maintain groundwater
quantity and quality. Areas of the township serviced by independent water companies are limited and future water line extensions would be inconsistent with state planning policies that seek to limit the expansion of infrastructure in areas designated within Planning Area 5.

GOAL 10 - PROTECTION OF RURAL ROADWAYS.

POLICY - While Interstate 287 bisects the township, it is a limited access highway without access within the township boundaries. The fact that access to I-287 exists in other communities near Harding, permits easy north-south traversal of the township, independent of its rural roadway system which is very limited in terms of traffic capacity and linear miles. Township roads are predominantly characterized by narrow widths, two lanes, the lack of improved shoulders, and limited lateral clearance. The township plans the retention of this local roadway system, which is consistent with its rural, historic character and the planned continuation of low density residential development. Route 202 bisects Harding in the northwestern portion of the township, and is not planned to be developed for use as a major commercial thoroughfare. The careful review of site plans for any new proposed development along this road will be useful in achieving maximum safety and appropriate roadway conditions. Coordination with state and county transportation officials may help achieve these results.

GOAL 11 - PROTECTION OF NATURAL RESOURCES AND ENVIRONMENTAL ASSETS THROUGH LAND USE AND DEVELOPMENT REGULATIONS.

POLICY - The township residents are the benefactors of an unusually well-preserved natural environment, which can quickly be ruined by improper or too intensive land use and development management, and/or neglect. It is the intent of all township officials to prevent such influences through proper land use management and development controls. It is recognized by the residents of Harding Township that the township has a unique physical environment which cannot be preserved without extraordinary effort and even sacrifice. The township intends to prohibit intensive urbanization in order to preserve this unique heritage. It is not the intent of the township to inhibit all development, but rather to mold it, to modify it, to insist that it fit compatibly with its surroundings. The importance of municipal participation in land development processes cannot be overstated if today's environmental character is to survive. This concept is a key policy to be continually implemented with the review of each new proposal. All township boards and agencies will adhere to high standards for development review in accordance with the township zoning and land subdivision regulations, environmental impact statement requirements, site plan review requirements, flood hazard areas and wetlands protection requirements, soil erosion and sedimentation control requirements, Board of Health requirements, and other land use and development regulations and controls which may be applicable to a particular development.

Assumptions and Principles underlying the Master Plan

This Master Plan is based upon the following assumptions and principles, which have been taken into account in each of its constituent elements and, most particularly, in the Land Use Plan. They are examined in more detail in the Land Use Plan because of their importance to the township’s future land use planning.
• The township contains abundant high quality environmentally sensitive lands, particularly those related to water resources that should be protected.
• The township is located within the area designated by the State as environmentally sensitive (Planning Area 5 – PA5) and important to water resources (Highlands Planning Area).
• The township encompasses the majority of land comprising the Great Swamp National Wildlife Refuge and Morristown National Historical Park, both of which should be protected from the negative effects of development.
• The township has a limited base of public infrastructure that should not be substantially expanded, consistent with State Plan policies for PA-5 designated areas.
COMMUNITY CHARACTERISTICS
(Adopted February 25, 2008)

This section of the Master Plan includes descriptions of the major environmental and historic features that contribute to Harding’s unique rural and historic character. Each individual plan element contains relevant background data such as existing land use, demographic characteristics, infrastructure, and community facilities. The township’s high quality water resources, major open space reservations and low density development pattern are the principal reasons for the State Planning Commission’s designation of virtually the entire township within Planning Area 5 – the Environmentally Sensitive planning area. With abundant historic resources reminiscent of early American settlement patterns, the township’s major planning goals are rooted in the objectives of environmental protection and preservation of the predominant low-density rural residential development pattern.
REGIONAL CONTEXT

Harding Township is one of 39 municipalities in Morris County. It is 20.5 square miles in area and is located in the northern portion of the state on the fringe of the New York - northern New Jersey metropolitan area. Harding is located south of Morristown, the county seat for Morris County, and is situated approximately 35 miles west of New York City, 20 miles west of Newark, 40 miles northeast of Trenton and 40 miles east of Phillipsburg and Easton, Pennsylvania.

Situated in the southeastern section of the county, Harding is almost half way between Interstates 80 and 78 and is bisected on its western side by Interstate 287. With a population of 3,180 residents in 2000, the township lies approximately three miles south of the Town of Morristown and is bounded by Morris Township on the north, Chatham Township and Madison Borough on the east, Long Hill Township on the south, Bernardsville Borough and Bernards and Mendham Townships on the west.

No description of Harding's setting within the region would be complete without the recognition of the extensive land areas which form prominent national and regional (including county and state) preserves, parks and recreation areas. Harding is nestled between the Morristown National Historical Park (Jockey Hollow) to the north, and the Great Swamp National Wildlife Refuge, to the south. Together, these two national open space areas comprise over one-third of the township's land area. In addition, there are numerous other public, quasi public and private preserves and environmental resource areas found within the township.

From a local planning perspective, it is the combination of these significant natural resources that promotes the rural character of the town. By the same token, the rural land use pattern which has guided most development over the years has helped to mitigate potential adverse impacts on such important resources as the Wildlife Refuge, Jockey Hollow and the many streams, water bodies, and wetlands throughout the township. The Master Plan's goals and policies address the need for preservation of these and other valuable natural features; they recognize that through the land use decision-making process, water quality and supplies can be protected. Lying as it does in such a fragile setting, and comprising over 37 percent of the Great Swamp's watershed area, Harding has a unique obligation to balance the objectives of land development with environmental resource protection.
Introduction

The purpose of an Environmental Resources Inventory (ERI) is to catalog natural and environmental characteristics to provide a factual basis for policy recommendations in the Master Plan that relate to the natural environment. The Harding Township Master Plan has contained an ERI since 1984. Prepared by the Harding Township Environmental Commission, the ERI has evolved since then with periodic amendments and additions. This latest evolution is based firmly upon prior versions inventorying a wide range of natural and environmental resources. The major changes in this amendment are intended to focus on the environmental resources of most importance and significance in Harding: water resources. The maps for this version of the ERI have been recast within a Geographical Information System (GIS), based on a variety of national, state, county, and local data sources. They are referenced in the text and included at the end of the Master Plan.

Water resources are particularly important in Harding Township for a number of reasons. Its citizens rely primarily upon individual wells for their potable water supply. The township is completely within the recharge area of the Buried Valley Sole Source Aquifer and virtually the entire township’s surface waters drain directly into the Great Swamp National Wildlife Refuge. Changes in the quality or quantity of water flowing into the Refuge may substantially impact it and the Passaic River, which flows out of it. In addition, fragile streams of rare quality, among the highest in the state, are the basis for the township’s designation as an environmentally sensitive planning area in the New Jersey Development and Redevelopment Plan. In a general sense, the high quality water resources found in the township contribute greatly to the township’s and region’s environmental quality and are significant from a regional and state perspective. They are also important from a national perspective because large portions of the Morristown National Historical Park and the Great Swamp National Wildlife Refuge are located within the township.

Physiography and Geology

The physiography and geology characteristics of an area create the basic landforms of the community. Physiography is the study of the physical features of the earth’s surface. Over a period of millions of years, two different areas in Harding were created by geologic actions as shown in Figure 1, Bedrock Geology map. The two geologic “provinces,” the Appalachian Highlands and the Piedmont Plain (the “lowlands”), are separated by a border fault. The Appalachian Highlands (often referred to as the Reading Prong of the New England Province), located to the west of the present day US Route 202, were created by an uplifting of the earth’s crust. The land east of the cracked earth was depressed, forming the Piedmont Plain.

1 This Environmental Resources Inventory, was funded in part by a grant from the New Jersey Department of Environmental Protection, Environmental Services Program.

2 This section is based on material prepared by Paul S. Boyer, Professor of Geology, Fairleigh Dickinson University, in 1991.
As weathering proceeded, the Plain received deposits of sand, silt and clay, which were intermittently covered by lava sheets from volcanic eruptions. A period of faulting and tilting in the Piedmont exposed the basalt ridges which resulted from volcanic action forming the upland areas of today. In later geologic eras, glacial advances and retreats resulted in a mixture of stratified boulders, pebbles, sand and clay. Mucky soils found in the Great Swamp are also a result of glacial actions and soil deposition.

The upthrown Highlands block has undergone more erosion, so that the rocks exposed on that side are of different composition and age from those just across the fault line: they are very ancient Precambrian metamorphic rocks about one billion years old, mainly gneiss. The rocks of the Highlands are quite resistant to erosion, which explains the loftiness of this section of the township. This is the area where radon would be expected to pose the biggest problem, but elevated readings have also been encountered in other parts of the township.

Most of the township lies within the Piedmont Province, which is underlain by three formations, all deposited during the early part of the Jurassic Period (roughly 200 million years ago). The oldest of these is the Towaco Formation, composed of sedimentary rocks: sandstone, siltstone, and red shale. A good exposure of this material may be seen on the west side of Millbrook Road, just north of the intersection with Village Road. Also within the Towaco Formation is a lens of coarse conglomerate that, because of its greater relative resistance to erosion, accounts for the hill at the upper end of Anthony Wayne Road.

The layered formations of the Piedmont Plain have been folded upward into a structural dome, so we find the younger formations appearing outward from the area of the Towaco Formation. The next formation in age is the Hook Mountain Basalt. Basalt is an igneous rock resulting from the solidification of a flood of lava. The Hook Mountain Basalt is a sheet about 100 meters thick, but we see only the upturned edge which forms a crescentic ridge sweeping from the Mt. Kemble Lake area eastward to Green Village, thence northward along the west side of Spring Valley Road. A good exposure of the basalt is visible where Lee's Hill Road crosses the ridge southwest of the school. Elsewhere along the ridge one frequently notices in the soil weathered fragments of basalt: very dark rock weathering orange or yellow-brown on the outer surface. Youngest in the township is the Boonton Formation, consisting of red, gray, brown, and black sandstone, siltstone, and shale. The formation weathers readily, so there are no good exposures within the township. The Boonton Formation underlies the low areas beyond the basalt ridge, including the area of the Great Swamp.

In very recent geologic time, our area was subjected to the effects of glaciation. Debris directly deposited by the last great ice sheets is not found in Harding Township, but the periglacial (near-glacial) conditions must have given the region a tundra environment as recently as 10,000 years ago. Moreover, the Second Watchung Mountain acted as a dam, trapping the glacial meltwater as the celebrated Lake Passaic, a cold, desolate lake spiked with icebergs. The Highlands escaped inundation, as did parts of the basalt ridge and the conglomerate-lens area, which formed islands. More than half of the area of the township was flooded and received deposits of lakebed clay and loam which determine the condition of the soils to this day. Many of the current septic and drainage problems today may be blamed directly on Lake Passaic.
Groundwater Resources

Water supplies for Harding Township are derived from both surface and groundwater supplies. However, a majority of residents are wholly dependent upon groundwater wells. Approximately 300 households in Harding are adjacent to water mains. This leaves approximately 900 of the existing 1200 homes (75%) that rely on individual wells for potable water. These same residences are also reliant upon individual subsurface septic systems for wastewater disposal. Almost all of the undeveloped land within Harding is in areas where individual wells and septic systems will be required for potable water supply and wastewater disposal. A recent examination of more than half of the township’s well drilling records shows modest yields for residential purposes [more than 85% with yields greater than 10 gallons per minute (gpm)] with considerable variation from site to site (average yield of 22 gpm with a standard deviation of +/- 17 gpm), consistent with the underlying fractured-bedrock nature of the aquifers.

As a result of the township’s predominant use of individual wells for potable water supply and on-site septic systems for wastewater disposal, the township’s groundwater resources are potentially at risk for impacts related to subsurface sewage disposal. Of the various constituents present in domestic wastewater, nitrate is the most typical threat to groundwater quality and is typically the component used to evaluate groundwater impacts related to subsurface septic disposal systems. This is due to the fact that nitrate generally occurs naturally at low concentrations; it is relatively stable and mobile in groundwater; and human health concerns and environmental impacts result from excessive nitrate concentrations. The US Environmental Protection Agency has a Primary Maximum Contaminant Limit for nitrate of 10 mg/l (nitrate-nitrogen). Consumption of potable water with concentrations above this level can lead to human health impacts such as methemoglobinemia. Environmental impacts associated with excessive nitrate include accelerated growth of algae in surface water and an associated decrease in oxygen concentrations that can impact stream biota.

One way to evaluate potential nitrate-based groundwater impacts is to perform a nitrate-based carrying capacity analysis. The results of such an analysis would indicate maximum lot densities throughout the township that would be protective of groundwater quality with respect to nitrate impacts from septic systems.

Harding Township’s hydrogeology is characterized by three general classes of bedrock aquifer and two regions of surficial aquifer. The bedrock regions underlie the majority of developed and developable land in the township. These bedrock formations are characterized by water flow primarily along fracture lines, resulting in varying well depths and yields throughout the township and generally unpredictable hydraulic interconnection between nearby wells. The formation yields are classified as “C” and “D” within the state system, averaging 101-250 gpm and 25-100 gpm respectively. These classifications are consistent with existing township well performance data. A higher-yielding surficial formation underlies a small area in the northeast portion of the township and a very low-yield surficial formation lies within the Great Swamp National Wildlife Refuge. The majority of surface water runoff from the township runs through the Great Swamp and then through the Passaic River, serving as a water source for communities.

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3 This section was prepared by Robert L. Zelley, P.G., Maser Consulting, July 2003.
Harding Township Master Plan
Community Characteristics

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downstream. Harding is also designated as a recharge region for the Buried Valley Sole Source Aquifer, providing water to nearly 600,000 people in Morris and Essex counties.

Groundwater Hydrology and Aquifer Recharge Areas  

An aquifer is a geological formation capable of storing and transmitting water at rates fast enough to supply reasonable amounts of water to wells. Aquifers are classified into two main categories: 1) unconfined or water table aquifers in which relatively permeable materials are present from the bottom of the aquifer to the ground surface and 2) confined aquifers in which one or more low-porosity layers are present at and above the top of the aquifer. The productivity of an aquifer is a function of the effective porosity (the void space of a consolidated or unconsolidated formation available to fluid flow) and permeability. In consolidated formations (those compacted and made solid), and less commonly in unconsolidated formations, porosity is categorized as primary porosity and secondary porosity. Primary porosity consists of the void spaces between grains and secondary porosity consists of fractures within the formation. Poorly cemented sandstone will exhibit primary porosity via the interstitial spaces between sand grains akin to that of the unconsolidated sands from which it was derived and secondary porosity via fracturing of the formation. Movement of groundwater occurs in response to hydraulic gradients, with flow occurring from areas of high hydraulic head to areas of low hydraulic head.

An aquifer recharge zone is an area through which precipitation infiltrates the ground surface, the underlying soil, and into the deeper subsurface and potential underlying aquifers. Several sources of water loss occur during this journey and include: surface runoff, evapotranspiration, and interflow. Interflow occurs when infiltrating water encounters low permeability deposits upon which it will travel horizontally to a more permeable deposit or possibly be discharged to a spring or stream.

In confined aquifers the recharge zone(s) can be located considerable distances from wells tapping the aquifer. Unconfined aquifers generally have common characteristics associated with recharge areas and are typically located in topographically high locations having a relatively deep water table. As a result of the interaction of groundwater recharge and the differing geologic settings of unconfined versus confined aquifers, the water level in a well completed in an unconfined aquifer will be at the same elevation as that of the water table, whereas in a confined aquifer the water level in a well will have an elevation greater than that of the top of the aquifer (i.e. the bottom of the confining unit). In certain situations, the water level elevation (the piezometric surface) will be higher than the ground surface resulting in a freely flowing well.

Figure 2, Ground Water Recharge map, illustrates the distribution of groundwater recharge throughout Harding Township. These data were calculated by the New Jersey Geological Survey (NJGS) using a technique developed by NJGS to calculate approximate groundwater recharge rates from readily available data. The method is not applicable for areas containing water bodies, wetlands, and hydric soils due to the fact that site specific investigations are usually required to assess whether or not these locations are groundwater recharge zones,

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4 This section was prepared by Robert L. Zelley, P.G., Maser Consulting, July 2003.
groundwater discharge zones, or temporally vary between the two. The Great Swamp serves as an example. In periods of low precipitation, as the water table drops, the Swamp tends to act as a recharge area as water slowly filters into the groundwater. The Swamp tends to act in a discharge capacity as the water table rises during periods of abundant precipitation.

Within Harding Township two broad sources of groundwater are available, namely: bedrock sources and overburden sources that consist of unconsolidated glacial deposits. The productivity of an aquifer is dependent upon the geology, as well as the topographic, climatic, and soil conditions associated with the aquifer. Bedrock groundwater sources underlie the vast majority of developed and developable land in Harding. This is a result of both the geologic history of the area and the protected status of the Great Swamp Natural Wildlife Refuge in the southern portion of the township (also the area of the low permeability glacial deposit overburden).

The bedrock in Harding Township can be divided into three general classifications: Pre-Cambrian crystalline rock (e.g. granite); Jurassic sedimentary rock (e.g. shale and sandstones); and Jurassic basalt. Figure 1, Bedrock Geology map, illustrates the bedrock geology of the township. Pre-Cambrian formations are found to the northwest of Route 202 and are separated from the other geologic formations in the township by the border fault (Rampao Fault) that also represents the division between the Highlands Physiographic Province and the Piedmont Physiographic Province. Jurassic sedimentary rock formations and Jurassic igneous rock formations are located to the southeast of the border fault with the basalt being present in the central portion of the township.

1. **Pre-Cambrian Rock Formations** – Underlie all of the area to the west of the border fault (in the vicinity of Route 202) – over 600 million years old and originally consisted of sedimentary and igneous formations some of which have been metamorphosed over the years by heat and compression.

2. **Jurassic Rock Formations** – Underlie the remainder of the township and consist of sandstones, shales, and basalt. These formations are younger than the Pre-Cambrian formations and typically occur as alternating beds of various sandstone, siltstone, mudstone, and shale. Uplift in the western Highlands resulted in a depressed basin and heavy rains resulted in the deposition of eroded sediments here that became the sedimentary Jurassic formations. Regionally, three lava flows resulted from volcanic activity during the Jurassic period that interrupted the deposition of sedimentary formations and created the Jurassic basalt formations (e.g. Hook Mountain Basalt). Subsequent tilting and weathering of these formations has eroded them, leaving the more resistant basalt present in the form of ridges now known as the First, Second, and Third Watchung Mountains, with the Third Watchung Mountain being a broken ridge comprised of Towaco Mountain, Mt. Kemble, and Long Hill.

Figure 3, Glacial Deposits map, illustrates the distribution of glacial deposits in and around Harding Township. The glacial deposits were predominantly deposited during the Wisconsinan Age and are located in the southern third of the township and to a lesser degree in the northeast corner of the township. In general, the bulk of these unconsolidated sediments, and in particular the lake bottom deposits in the area of the Great Swamp National Wildlife Refuge, are too fine-grained to yield significant quantities of groundwater to wells. However, they do serve as a large reservoir that stores groundwater from recharge and can slowly release it to the underlying and adjacent bedrock during periods of time when the underlying water table is depressed.

The New Jersey Geological Survey (NJGS) developed an aquifer ranking system in order to compare the typical water supply productivities of the various formations within the state. The
aquifer rank classes range from A (> 500 gpm) to E (< 25 gpm). It should be noted that these yields are for high productivity wells that may have been favorably sited and also may have boreholes exceeding the 6-inch diameter typically used in a domestic well. The bedrock geologic formations within Harding Township can be ranked in order of decreasing potential yields as: 1) Jurassic sedimentary formations – Rank C: 101 to 250 gpm, and 2) Pre-Cambrian and Jurassic basalt formations – Rank D: 25 to 100 gpm. A very small portion of the township (the area to the north of Woodland Avenue) lies within a productive overburden region, comprised of Wisconsinan Aged Deltaic and Lacustrine Fan deposits having an Aquifer Rank of B: 251 to 500 gpm.

In general, the primary porosity of the Pre-Cambrian formations is near zero. The storage and movement of water in these formations is the result of secondary porosity. Recharge to the Pre-Cambrian formations generally occurs through overlying soils and surficial deposits. Groundwater is typically present under water table conditions (unconfined) in these formations. However, local confined conditions may occur both in low-lying areas where overlain by low permeability sediments and in situations where a poorly interconnected fracture system is recharged at an elevation higher than that of the well intersecting the fractures. As is typical of the consolidated formations of New Jersey, fracture size and density in the Pre-Cambrian formations decreases considerably below a depth of approximately 300 feet due to the increasing pressure exerted by the overlying rock and overburden. As such, the yield of a well completed in these formations generally will not increase significantly below this depth. Due to the fact that water flow and storage is a result of secondary porosity in these formations, well yields can be significantly improved by siting wells at locations near fault zones where fracture size and density is typically greater than that of the surrounding formation. Fracture trace and lineament analyses can be performed relatively inexpensively to identify locations where several fractures intersect.

Similar to the Pre-Cambrian formations, the Jurassic sedimentary and basalt formations within Harding Township have near-zero primary porosities. Secondary porosity is responsible for the bulk of water movement and storage in these formations. Groundwater is typically present under water table conditions in these formations. As with the Pre-Cambrian formations, local artesian conditions may occur both in low lying areas where overlain by low permeability sediments and in situations where a poorly interconnected fracture system is recharged at a higher elevation than that of the well intersecting the fractures.

The Wisconsinan Aged Deltaic and Lacustrine Fan deposits located in the northeastern corner of the township have the highest potential for large groundwater yields. The Southeast Morris County Municipal Utilities Authority’s McCabe Well taps this source from a depth of approximately 200 feet and is located approximately 1,000 feet northeast of the intersection of Woodland Avenue and the township boundary with Morris Township. Unfortunately, this resource underlies only a small fraction of Harding Township.
Buried Valley Aquifer

Southeastern Morris County is underlain by the “Buried Valley Aquifer,” formally known as the “Buried Valley Aquifer in southeastern Morris and western Essex counties.” On January 15, 1979, the City of East Orange and the Passaic River Coalition of Basking Ridge petitioned the Administrator of the U.S. Department of Environmental Protection to declare the Buried Valley Aquifer System a “sole source aquifer” under the provisions of the 1974 Safe Drinking Water Act. In 1980 the Administrator determined that the system is a sole or principal drinking water source which “if contaminated would create a significant hazard to public health.” Figure 4, Buried Valley Sole Source Aquifer map, illustrates the location of the Buried Valley Aquifer with respect to northeastern New Jersey and the location of Harding Township within the aquifer. All of Harding is located within the recharge zone of the Buried Valley Aquifer.

As a result of this designation, no project undertaken in the area may receive federal financial assistance if the EPA Administrator determines that such a project may contaminate the aquifer through a recharge zone so as to endanger public health. A commitment for assistance may be made, however, authorized by another provision of the law, to plan or design the project to assure that the aquifer will not be contaminated.

The Buried Valley Aquifer is based on political boundaries, not hydrogeologic boundaries. There is a misconception that it represents a single aquifer when, in reality, there are multiple aquifers, not necessarily interconnected, within this political boundary. In fact, the boundaries of the Buried Valley Aquifer overlap with the Northwest New Jersey sole source aquifer and the Rockaway River sole source aquifer.

Topography

The northwestern part of Harding (generally west of Route 202), located within the Appalachian Highlands, has a typical elevation roughly between 500 to 700 feet above sea level. The valleys have eroded to between 200 to 300 feet below the tops of the ridges. The remainder of the township, in the Piedmont Plain, is characterized by elevations of approximately 160 to 500 feet with rolling plains and swampy areas.

Figure 5, Topography map, shows the outline of Harding Township overlaid on the USGS topographic map of the area. Elevations within the township range from approximately 740 feet above sea level on Sugar Loaf Hill in Morristown National Historical Park (Jockey Hollow) to a low of approximately 225 feet in the Great Swamp National Wildlife Refuge. Although the more steeply sloping areas of the township are generally found west and north of Route 202 and are contained within Jockey Hollow and further to the north, Lewis Morris Park, there are substantial areas to the south and west of Route 202 which contain slopes of 15 percent to 25 percent.

Another area of steeply sloping land is found around Mt. Kemble Lake. Here, slopes of 15 percent to 25 percent predominate, with three ridge lines of stronger slopes over 25 percent.

This section was prepared by Robert L. Zelley, P.G., Maser Consulting, July 2003.
Aside from the above areas, there are sporadic sites which contain slopes ranging from 15 percent to 25 percent and above, but these areas are not expansive. The bulk of the township east of Route 202 is gently to moderately sloping and is comprised of gently rolling open and wooded land areas, ranging from 250 feet to 450 feet in elevation. The Great Swamp in the southern third of the township is nearly level.

Steeply sloping terrain can have both positive and negative implications on water resources. On the positive side, such terrain is often associated with fast moving (oxygenating) and highly shaded (cool) streams, conditions that promote high water quality. On the negative side, such areas are more prone to severe soil erosion when the land is cleared or disturbed. Areas in excess of 25% slopes are highly prone to soil erosion with potentially substantial impacts on surface water quality.

**Soils**

Planning decisions should be made based upon an understanding of the basic capacity of the land to "carry" development. This is reflected in part by soils types, but also in terms of topography, vegetation, watercourses, etc. Soils are formed as a result of the interaction of:

1. **Parent Material** - The unconsolidated mass in which soils form. In Morris County soils formed in glacial till, glacial outwash, recent stream alluvium, organic material and rock material weathered in place.
2. **Climate** - In Morris County, average annual precipitation of approximately 44 inches and average annual temperature of 49°F.
3. **Plant and Animal Life** - Delivering organic matter to the soil and bringing nutrients from lower layers to upper layers of the soil.
4. **Topography** - The slope of the land - influencing rates of runoff, drainage, erosion, and seepage.
5. **Time** - The long period required to form soils from the parent material.

The soils found in Harding Township form a fundamental basis for the area's environmental sensitivity. The predominant types are the result of soils formed in:

1. Organic deposits, glacial lake sediment or glacial outwashes such as the Riverhead, Carlisle, and Parsippany soils.
2. Old glacial deposits or material weathered from bedrock such as the Neshaminy, Penn, Reaville, Califon, Cokesbury, Parker, and Edneyville soils.

Generally, the township can be characterized by four major areas:

1. The southern third of the township (Great Swamp) is the location of principally Parsippany, Carlisle, and Pompton soils, although the Loantaka Reservation and Great Brook areas are also formed of these soils which are basically organic deposits.
2. The central portion of the township is crossed by an expansive band of Neshaminy and Ellington soils which are fairly well drained soils.
3. The north-central part of the township, east of Route 202, is largely composed of Penn, Parsippany, and Pattenburg soils with scattered areas of Reaville soils.

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7 The information for this section was derived from the *Soil Survey of Morris Co., NJ*, US Dept. of Agriculture Soil Conservation Service, 1976.
4. The northwestern part of the township west of Route 202 contains extensive areas of Edneyville, Califon, and Parker-Edneyville soils. Much of this area is steeply sloping, and the northernmost portion is the site of Morristown National Historical Park and Lewis Morris Park.

The United States Department of Agriculture Soil Conservation Service prepared a Soil Survey of Morris County in 1976. The survey contains extensive data concerning the soils found in the township and provides detailed mapping of the various soils - such areas shown on the soil maps are referred to as "mapping units." A mapping unit is similar to a soil "phase," which is a component of a soil series - or soils, which have like profiles. Soils within a "series" often vary in their surface layers or slope, stoniness, or other features, which may have an impact on our ability to use the land. Soil series are divided into "phases" to reflect such differences and to enable mapping each soil phase (or mapping unit) based upon some of these differing characteristics. The specificity of the mapping and soil descriptions is therefore enhanced to reflect multiple land characteristics.

The Soil Survey contains extensive information related to the suitability of soils types to support various types of human uses. Soil characteristics determine, in part, the suitability of a site or area for a variety of uses such as agricultural, building foundations, septic tank absorption, streets and parking areas, landscaping and recreation areas. Also, and of increasing importance today, soil characteristics determine an area's drainage capability, aquifer recharge potential, and erosion hazard. Of particular importance to planning decisions in Harding Township is the classification of soils in terms of their limitations in connection with septic systems because the township largely depends upon such systems.

Figure 6, Soil Limitations for Septic Systems map, generally classifies soils in the township based upon their limitations to support septic systems. The soils in the northwestern part of the township and in a band through the center of the township (running east to west) have the fewest limitations (i.e. slight) for septic systems. More common however, in the northern and southern parts of the township, are soils that have moderate to severe limitations for septic systems. A table at the end of this section lists specific soils particular to Harding with their properties.

Wetlands

In general, wetlands are transitional areas between well-drained, rarely flooded uplands and permanently flooded deep waters, lakes, rivers, and streams. Wetlands typically are found in upland depressions or along waterways where they are subject to periodic flooding. However, they are sometimes located on slope areas where they are fed by groundwater seepage. The preservation of wetlands is critical to the protection of the environmental resources that are the most fragile and important in the township: water resources.

There are a variety of definitions of wetlands, but the definition adopted by the New Jersey Department of Environmental Protection (DEP) in the New Jersey Freshwater Wetlands Protection Act and which was originally established under Section 404 of the Clean Water Act is as follows:

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a
prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (EPA, 40 CFR 230.3 and CE, 33 CFR 328.3)

This definition includes three criteria, which determine if an area is a wetland: hydrology, vegetation, and soils. Wetland areas must have a sufficient exposure to water to produce saturated soil conditions (i.e., hydric soils) and to support a predominance of wetlands plant species (i.e., hydrophytic vegetation). Some wetlands, such as marshes, are obvious, but others such as forested wetlands, are much less distinct.

In the past, wetlands were once considered nuisance areas which should be drained and converted to "productive" upland. However, they are now appreciated for their positive role in the natural ecosystem. Unfortunately, as development of upland areas continues, increasing pressure is placed on wetland areas for their development potential. The benefits of wetlands to nature and man are briefly summarized below.

Flood Control - Wetlands reduce the flood potential of waterways by detaining storm water in natural depressions and dissipating flood waters which overflow river banks. In addition, the flood energy can be reduced by wetland trees and plants in a flood plain area. Urban flood damages and erosion are thereby reduced.

Aquifer Recharge - Wetlands are often important areas for the recharge of groundwater aquifers. Because wetlands detain storm water, the opportunity for infiltration into aquifers is greater than in upland areas. Water entering wetlands also serves to maintain base flow in adjoining streams. Since aquifers (and rivers) serve as sources of drinking water, protection of wetlands related to aquifers is vitally important.

Erosion Control - Wetland plants can often reduce stream bank erosion due to the stabilizing nature of the root systems and reduction of current velocity. Maintenance of wetland vegetation or specific planting schemes is recommended to protect stream banks from erosion.

Water Quality Improvement - Wetlands can greatly improve the quality of waterways by removing and retaining nutrients, processing chemical and organic wastes and reducing sediment loads. Because wetlands naturally are found between uplands and open water, they intercept runoff from the land and filter contaminants. The wetlands' ability to cleanse the water is an important consideration as we try to improve the quality of our streams and rivers, an important resource in Harding Township.

Recreation/Aesthetics Open Space - Many active and passive recreation activities take place in wetlands, including environmental education. Wetlands are aesthetically appealing to many people, even from a distance, and they can provide scarce open space in urbanized areas.

Wildlife Habitat - Wetlands are required by many types of animals and plants for survival. More than one-third of the nation's endangered and threatened species depend on wetlands. While a primary home to some animals (such as the wood duck, muskrat, and beaver), wetlands provide food, water, or cover to many additional species. Freshwater and coastal marshes serve as important spawning and nursery grounds. Almost all of our important sport fishes spawn in the open water or emergent portions of wetlands. Wetlands also serve as critical nesting and resting areas for migratory waterfowl. Protection of wetland resources can have significant positive impacts on wildlife habitat maintenance and enhancement as well as helping to lessen potential damage and costs to the public from flooding and degradation of sources of drinking water.
In New Jersey, wetlands are regulated by the Army Corps of Engineers and the New Jersey Department of Environmental Protection (DEP) through the New Jersey Freshwater Wetlands Protection Act. The Act prohibits disturbance of wetlands in New Jersey without a permit from DEP and describes the very limited circumstances under which permits may be granted. As part of the Act, the freshwater wetlands of New Jersey are divided into three categories:

1. **Wetlands of exceptional resource value** are those which discharge into trout production waters or their tributaries or which serve as habitat for threatened or endangered species.
2. **Wetlands of ordinary value** do not exhibit the characteristics of "exceptional value" wetlands and are isolated wetlands that are more than 50 percent surrounded by development and less than 5,000 square feet in size. Also included in this category are drainage ditches, swales, and detention facilities.
3. **Wetlands of intermediate resource value** are those not defined as exceptional or ordinary.

The Freshwater Wetlands Protection Act also established transition areas (or buffer zones) between wetlands and uplands. Wetland areas of exceptional resource value will require transition areas of 150 feet and those of intermediate resource value will require transition areas of 50 feet. To instill flexibility for site planning purposes, the DEP rules provide the opportunity to average the transition area on a particular site under certain circumstances.

The Army Corps of Engineers (COE) retains jurisdiction over wetlands in New Jersey through Section 404 of the Clean Water Act. However, because DEP's Statewide General Permit program duplicates the COE's Nationwide Permit program, the COE only retains jurisdiction over permitting in the following circumstances: impacts to tidal waters and their tributaries; impacts to wetlands that are hydrologically connected to tidal waters and their tributaries; impacts to wetlands greater than one acre; and violations of wetland regulations that occurred prior to enactment of New Jersey's Freshwater Wetlands Protection Act.

The Freshwater Wetlands Protection Act specifically supersedes all existing county and municipal wetlands regulations and prohibits new regulations. As a result, the role of municipalities in protection of wetland areas is to support DEP in its enforcement of the Act. The Act invites input to DEP from local governments and the public, and it requires notification of adjacent landowners, local governments, and the general public by applicants for wetlands permits. Otherwise, municipalities are permitted to regulate activities in other critical areas to enhance natural resource protection.

Figure 7, Wetlands map, shows the probable locations of various general categories of wetlands in Harding Township. It was produced from information provided by the New Jersey Department of Environmental Protection based upon photo-interpretation of 1995/97 photos. The Wetlands map should be used only for planning purposes; site-specific applications require a detailed delineation of the wetlands boundary. Such delineation requires extensive field investigation and careful documentation of the site's soils, vegetation, and hydrology.
Drainage Basins

Out of Harding's total of 13,108 acres, 12,793 acres lie within the drainage basin of the Passaic River. This can be broken down into five sub-basins, defined by waters flowing into the five largest waterways in the township: Loantaka Brook, Great Brook, Primrose Brook, Black Brook and the Passaic River. Figure 8, Drainage Basins map, displays these areas. Over 97 percent of Harding’s land area drains into the Great Swamp. A small area, comprised of about 300 acres in the northwesterly corner of the township, lies within the headwaters of the Whippany River drainage basin and is not directly tributary to either the Great Swamp or the Passaic River. All but the aforementioned 300 acres within Harding Township lies within the Great Swamp basin and approximately 36 percent of the basin itself is comprised of lands within Harding.

In the southern portion of the township, the Great Swamp and the immediate upslope areas comprise a total of 4,460 acres. Great Brook is the principal drainage way within Harding Township's portion of the Great Swamp and is the discharge waterway for the Swamp where it merges with the Passaic River. Great Brook enters the Great Swamp in the southeast portion of the township. Its headwaters are located in Morristown to the north and it traverses Morris Township before entering Harding Township. Not including any part of the Great Swamp, the drainage area of the Great Brook basin within Harding Township is 3,560 acres.

Included within Great Brook Basin area is Silver Brook drainage basin comprised of 1,230 acres within the township. Silver Brook, a tributary stream to Great Brook, drains the north central portion of the township and extends into Morris Township to the north. Both Silver Brook and the entire reach of Great Brook are classified as non-trout waters by the DEP. Also included within Great Brook Basin are Silver Lake and Pine Brook.

To the east of Great Brook, Loantaka Brook, a stream tributary to Great Swamp, enters Harding Township from Morris Township and after a short distance leaves Harding and enters Chatham Township. Loantaka Brook, also a non-trout stream, drains approximately 510 acres of Harding Township and its entire reach within Harding Township is located within the Loantaka Reservation, a county park. Loantaka Brook is the receiving water for the Woodland Avenue Sewage Treatment Plant located upstream in Morris Township.

Slightly south and west of Great Brook basin is Mill Brook and Mill Brook drainage basin comprising a total of 280 acres. Mill Brook's headwaters are located within the New Vernon area. Mill Brook parallels Millbrook Road and crosses Pleasantville Road before it enters the Great Swamp. Mill Brook is classified as a non-trout stream.

To the west of Great Brook and its drainage basin is Primrose Brook and Primrose Brook drainage basin. Primrose, which has its headwaters for the most part within Harding Township and is directly tributary to the Great Swamp, drains an area of 3,100 acres. Included within Primrose Brook drainage basin is Mt. Kemble Lake and its tributary drainage area of 510 acres. Mt. Kemble Lake is a recreation lake for a private community in the township. In accordance with the Surface Water Quality Standards adopted by the DEP Division of Water Resources, the Primrose Brook is categorized as a fresh water 2 category 1 trout production stream above Lee’s
Hill Road and a non-trout stream below Lee’s Hill Road. The fact that a portion of Primrose is in the "trout production" category indicates its existing high quality.

It is important to note that all waterways are designated category 1 waters as soon as they enter the Great Swamp National Wildlife Refuge. Not directly tributary to the Great Swamp, the Passaic River, a freshwater 2 trout production stream above Route 202 and a non-trout stream below Route 202, drains 930 acres of the extreme western portion of the township.

Floodways and Flood Hazard Areas

Along its eastern border, Morris County contains a chain of low-lying lands that function as a giant sponge. One of the largest links in this chain, lying almost wholly within Harding Township, is the Great Swamp National Wildlife Refuge, its feeder streams, and their associated floodplains and wetlands. These floodplain and wetland areas, when properly managed, have the capacity to absorb huge quantities of rain and flood waters. A substantial amount of this absorbed moisture is returned to the water table. The remainder is released slowly to the rivers, and returned to the atmosphere, thus completing the natural cycle. As in most natural systems, the operative potential of a floodplain can easily be disrupted. Soil conditions combined with the slope areas, make floodplain planning essential to the retention of the present ecological balance in Harding Township. Floodplain and storm water management have become increasingly recognized as an essential element in the community planning process and are now required as part of the Municipal Land Use Law.

Figure 9, Flood-prone Areas map, shows flood-prone areas in the township. It is based upon information provided by the Federal Emergency Management Agency in September 1996. Flood-prone areas are generally defined as having a one percent chance of flooding each year. Flood hazard areas were initially delineated by the Township Engineer in partial fulfillment of the National Flood Insurance Act of 1968 and accepted by the US Department of Housing and Urban Development in 1974. Revised flood hazard areas were adopted in 1976, in March 1982 and September 1996. The current Flood Insurance Rate Maps were adopted December 2001. Designated flood hazard areas for 100-year floods are located along Silver Brook and Great Brook in the north-central portion of the township, Loantaka Brook in the northeastern corner of the township, Primrose Brook and the Passaic River in the southwestern portion of the township and the Great Swamp National Wildlife Refuge area in the southern portion of the township. Copies of the current official Federal Flood Insurance Rate maps are on file with the Township Clerk.

There are state regulations in place which, together with township ordinances, ensure that development in and along the delineated floodways and flood fringe areas does not encroach on these sensitive areas and that the lowest floor elevation (including basement) of residential structures is built one foot above the level of potential flooding (as mapped by FEMA). The township’s Flood Damage Prevention Ordinance defines the following:

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8 Figure 9, Flood-prone Areas, displays areas based upon the 1996 FEMA mapping which was the most recent GIS data available when the figures for this ERI were developed.
Floodway - The Floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than two-tenths (0.2) of one (1) foot.

Flood Fringe Area - The area between the floodway and the boundary of the 100-year flood. The "flood fringe area" is synonymous with the term "flood way fringe" as used in the Flood Insurance Study.

Flood Hazard Area - The floodway and the flood fringe area as determined by the New Jersey Department of Environmental Protection pursuant to New Jersey Flood Hazard Control Act, NJSA 58:16A-50 et seq.

Approximately 4,653 acres, amounting to about 35 percent of the township, are located within flood hazard areas of various streams and rivers. The predominant flood hazard area is within the Great Swamp National Wildlife Refuge. The Passaic River, Primrose Brook, Great Brook, Silver Brook, and Loantaka Brook have delineated flood hazard areas.

Annually, Harding Township and its residents are impacted by the flooding of these waterways. Great Brook, as it traverses the Great Swamp, floods Long Hill Road almost on an annual basis, requiring the road to be closed. Once every four to five years, Lee’s Hill Road and Baileys Mill Road are closed due to flooding along Primrose Brook. In addition, Woodland Road is closed on a four- to five-year frequency due to flooding along Great Brook. Properties immediately adjacent to the Great Swamp along Woodland Road, Meyersville Road, and Miller Road are partially flooded annually due to a back up of flood waters from the Wilderness Area of the Great Swamp National Wildlife Refuge.

Vegetation

The great diversity of land use and vegetative cover in Harding Township is graphically illustrated in Figure 10, Vegetative Cover map. It is based upon 2002 information from the Landscape Project, a NJDEP Division of Fish and Wildlife project to characterize vegetative cover throughout the state to a single standard. Diverse ecosystems are known to be more resilient to environmental disturbance than are ecosystems characterized by one or two dominant species. The maintenance of a wide spectrum of vegetative types helps to ensure the perpetuation of native wildlife species. Extensive areas of natural vegetation contribute to the general environmental quality of the entire township.

Lush vegetation and aquatic plants extract and utilize common air and water pollutants and large stands of mature woodland help to moderate the local climate by breaking the force of winds and trapping heat re-radiated from the earth's surface at night. The scenic value of naturally diverse vegetation makes the township an aesthetically pleasing place. Seven categories have been used to characterize the township’s vegetation:

1. Open Water
2. Emergent/Scrub-Shrub
3. Wetland Forest
4. Grassland
5. Forest
6. Suburban Wooded
7. Dense Residential/Commercial
Open Water habitats include lakes and ponds, but, as mapped, do not include streams and rivers. The vegetation in open water habitats includes numerous algal species and macrophytes such as pondweed, water lilies, and tape grass. These species are well adapted to deeper water that is not suitable habitat for emergent species.

Emergent/Scrub-Shrub lands are one of the most valuable yet least appreciated kinds of communities. These lands are among the most productive ecosystems in the world. They improve water quality by filtering suspended solids and utilizing nutrients to support plant growth. These areas play an important role in reducing flood peaks and recharging groundwater supplies. Plants common in emergent areas include rushes, sedges, reed grass, cattails, iris, and mallow. Scrub-shrub vegetation includes spicebush, silky and red osier dogwood, red raspberry, multiflora rose, and swamp azalea.

Wetland Forests generally have seasonally high water tables and so support species tolerant of moist conditions. Trees in these woodlands include red maple, green ash, pin oak, swamp white oak, and sweet gum.

Grasslands consist of cultivated and fallow fields. Some abandoned fields are in various stages of succession, which involves a natural transition from field to forest. Vegetation in these areas includes perennial grasses, goldenrod, milkweed, asters, numerous wildflower species, black raspberry, Allegheny blackberry, multiflora rose.

Forests are located on well-drained soils. Some upland forests are dominated by a single species such as oak or hickory and others are composed of mixed species, where no one species is more prevalent than any other. Trees in these areas commonly include red and white oak, red cedar, Norway spruce, shagbark hickory, black cherry, and flowering dogwood.

Suburban Wooded lands are areas of upland forest in which the density of housing is sufficient to disturb the natural community. The same vegetational species found in upland forests are present in suburban woodlands.

Dense Residential/Commercial areas provide very little habitat value. Constant disturbance in these areas changes and often eliminates the natural communities that were originally present. Perennial grasses and ornamental trees and shrubs make up most of the vegetation in these areas.

Although Harding is not known principally for its agricultural qualities, there are a number of working farms located in the township. Some properties are pasture lands and/or hay fields, with a few devoted to horses or sheep; others contain apple orchards, tree farms and to a lesser extent, croplands. There are a handful of working farms including Fawn Hill Farm, Red Gate Farm, Walling Farm, Frelingshuysen, a portion of Hartley Farms, and Wightman Farms, which also operates a business on Route 202. In addition to agricultural activities, there are a number of active boarding stables in Harding including Hilltop Stables and Floradale Farm.

It is important to maintain a variety of vegetation for aesthetic, educational, and ecological reasons. Some kinds of vegetation, however, are more valuable than others due to their role in protecting other environmental resources and their wildlife habitat potential. Sensitive planning should encourage the development of the least useful areas.
Invasive Plants

"Exotic" species have been introduced into Harding either by accident or intentionally from other parts of the world. Because they have few, if any, natural diseases or insects to contain them in this location, they compete aggressively for space and nutrients and often form dense stands or thickets that crowd out native vegetation. This causes a loss of plant biodiversity. The degree of biodiversity is a general indicator of an ecosystem’s health. Wildlife that depend on displaced native species for food are also affected. Most invasives flourish in disturbed habitats. The following are invasive exotic species in Morris County.

<table>
<thead>
<tr>
<th>Trees</th>
<th>Shrubs</th>
<th>Vines</th>
<th>Annuals, Biennials and Perennials</th>
<th>Grasses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer platanoides</td>
<td>Berberis thunbergii</td>
<td>Ampelopsis brevipedunculata</td>
<td>Alliaria petiolata</td>
<td>Microstegium vimineum</td>
</tr>
<tr>
<td>Ailanthus altissima</td>
<td>Eleagnus umbellata</td>
<td>Celastrus orbiculatus</td>
<td>Artemisia vulgaris</td>
<td>Japanese stiltgrass, basket or wire grass</td>
</tr>
<tr>
<td>Paulownia tomentosa</td>
<td>Euonymus alata</td>
<td>Hedera helix</td>
<td>Coronilla varia</td>
<td></td>
</tr>
<tr>
<td>Prunus avium</td>
<td>Ligustrum obtusifolium</td>
<td>Lonicera tatarica</td>
<td>Fallopia japonica</td>
<td></td>
</tr>
<tr>
<td>Robinia pseudoacacia</td>
<td>Lonicera japonica</td>
<td>Rosa multiflora</td>
<td>Lythrum salicaria</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubus phoenicolasius</td>
<td>Phragmites australis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Viburnum sieboldii</td>
<td>Vinca minor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wisteria floribunda</td>
<td></td>
</tr>
</tbody>
</table>

* Some grapevine species are native.

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9 Table was a handout at the May 2003 “Morris County’s Green Table” Program, sponsored by the Morris County Park Commission.
Wildlife Habitats

The vegetative communities that exist across the township form a complex pattern. This pattern is shown on Figure 10, Vegetative Cover map. Different animal species have different requirements for food and shelter. An area with diverse vegetation provides a variety of wildlife habitats that can support a larger number of wildlife species than an area with little vegetational diversity. Besides the habitats corresponding to the seven vegetation categories presented previously, the transitional area where two of these habitat types meet (i.e., forest grading into open field) is valuable to wildlife. These transitional areas are termed "edge" habitat. Due to the greater variety of vegetational species in edge habitats these areas provide excellent nesting, resting, and feeding sites for wildlife.

Harding Township contains two large relatively undisturbed areas that provide excellent wildlife habitat: the upland forest of the Jockey Hollow section of Morristown National Historical Park and the wetland forest/emergent habitat of the Great Swamp. In addition, there are many areas of undeveloped forest and open land throughout the township. A number of streams cross the township and very few areas have been densely developed. There are many acres of high quality wildlife habitat within Harding Township.

Open water habitat in the township includes Silver Lake and Mt. Kemble Lake as well as numerous smaller lakes and ponds. Fish species as well as certain species of amphibians (northern red salamander, cricket frog) and reptiles (mud turtle, stinkpot turtle) utilize this habitat. Many species of waterfowl including geese, ducks, and loons use open water habitats extensively for resting and feeding.

Emergent habitat hosts a wide variety of wildlife species. Waterfowl use these areas for resting, nesting, and feeding. This habitat contains more amphibian and reptile species than any other habitat in the township. Mammals utilizing this habitat for food and shelter include muskrat, moles, foxes, raccoons, and bats. Most of the Great Swamp is composed of this habitat type.

Wetland forests cover large portions of the Great Swamp as well as areas adjacent to the township's streams. Mammals such as the red-backed mouse, star-nosed mole, raccoon, and opossum live in this habitat. Certain species of frogs, salamanders, turtles, and snakes are adapted for life in these moist woodlands. Birds, including flycatchers, woodpeckers, owls, warblers, kinglets, nuthatches, and thrushes nest and feed in these areas.

Grassland comprises the majority of the central section and isolated areas are found in all sections of the township. Many species and classes of wildlife use open lands for feeding. This is a particularly important habitat for birds. In addition, the white-tailed deer and certain small mammals (mice, moles) occupy this habitat.

Dense residential or commercial areas contain very little wildlife. Animals common to this habitat are not disturbed by the noise and disruption of concentrated human activity. These species include the house mouse, Norway rat, striped skunk, mourning dove, bluejay, robin, and starling.
Forest is common throughout the township and it is the predominant habitat in Jockey Hollow. These areas provide ideal habitat for the white-tailed deer which has undergone a significant increase in population in recent years. Other animals that use these areas for shelter and feeding include mice, squirrels, foxes, toads, snakes, owls, hawks, woodpeckers, and warblers. A number of wildlife species found in upland forests also occur in suburban woods. However, due to the increased disruption of habitat from housing, many species are present in lower densities and some species (particularly avians such as hawks and owls) are nearly absent from these areas.

Figure 11, Critical Habitats map, indicates the presence of various kinds of wildlife, including both federal and state Threatened and Endangered Species. The map is color coded with a rank that indicates the presence of the various classes of wildlife. Within the areas shown as red, yellow, or orange are the following species:10

<table>
<thead>
<tr>
<th>Federal Threatened or Endangered</th>
<th>State Endangered</th>
<th>State Threatened</th>
<th>State Special Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bog Turtle</td>
<td>American Bittern</td>
<td>Barred Owl</td>
<td>Great Blue Heron</td>
</tr>
<tr>
<td>Bobolink</td>
<td></td>
<td>Cooper's Hawk</td>
<td></td>
</tr>
<tr>
<td>Bog Turtle</td>
<td></td>
<td>Red Headed Woodpecker</td>
<td></td>
</tr>
<tr>
<td>Blue Spotted Salamander</td>
<td></td>
<td>Wood Turtle</td>
<td></td>
</tr>
<tr>
<td>Red Shouldered Hawk</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Nuisance Wildlife Species**

Reduction of natural predators and/or creation of more favorable environments can cause population explosions of species, substantially affecting the environment and quality of life. Both causes have rapidly increased the populations of white-tailed deer and non-migrating Canada geese in Harding Township. Reduction of hunting and natural predators and changes in land use, especially the fragmentation of forested areas and increased areas of lawn, have favored their proliferation. The increasingly large populations of these species have caused substantial ecological impacts.

**White-tailed Deer**  
(Odocoileus virginianus)

As large herbivores, white-tailed deer (Odocoileus virginianus) individually consume large amounts of vegetation and collectively can have a substantial effect on the forest understory, reducing the amount and health of understory vegetation and in some areas virtually eliminating it. Harding’s deer population is estimated at more than 100 per square mile, more than five times the generally accepted biological carrying capacity of 15-20 deer per square mile.11 In many areas the “browse line” is clearly visible, four to five feet above the forest floor. Thriving and varied native plant communities are being replaced by invasive monocultures of Japanese stiltgrass, garlic mustard and Japanese barberry, plants not preferred by deer. These changes reduce biodiversity and the health of impacted ecosystems. Food and breeding habitat for birds

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10 Species listing and category is from Version 1.0 of the New Jersey Landscape Project, 2002.
11 NJDEP Division of Fish and Wildlife estimate based on analysis of 2002-2003 deer harvest in the area.
and mammals are reduced. Tree seedlings are destroyed or damaged, leaving few saplings to replace aging trees.

**Canada Geese**

(\textit{Branta canadensis})

Large numbers of Canada geese (\textit{Branta canadensis}) have taken up residence in Harding Township since the 1980s, attracted by grassy lawns and numerous ponds. They compete for food and nesting sites with other species of waterfowl, stripping vegetation from newly planted fields, and polluting ponds with 3/4 pound of droppings per goose per day. Nutrients from goose droppings can cause excessive growth of algae in ponds and slow-moving streams, making these waterbeds less able to support fish, frogs and other water-dependent species.

**Vital Stream and Forest Corridor Habitat**

Morristown National Historical Park and the Great Swamp National Wildlife Refuge are the most unique habitats in Harding Township. Each area provides a thriving, undisturbed reservoir of vegetation and wildlife because it is protected from major disruption and development. Other critical habitats in the township are those that provide corridors connecting these two unique habitats. Two such critical corridors, Primrose Brook and Silver Brook, are particularly important links between the large undisturbed areas of high quality wildlife habitat. By allowing animals to move from one major habitat area to another, the value and quality of all these areas is enhanced. The continuing viability of these corridors as habitats for wildlife in Harding is essential to maintaining a high diversity of wildlife species resulting in more diverse ecosystems resilient to disturbance.

The scrub-shrub habitat at the edge of both brooks is an important element making both corridors suitable for wildlife movement. Much of the length of both brooks has not been highly disturbed by dense residential areas. Primrose Brook passes just west of a housing development around Mt. Kemble Lake. Silver Brook passes through an area of significant undeveloped open space and areas of houses on large lots. In many areas, the stream corridors are surrounded by upland forest and suburban woods. Silver Brook is bordered by extensive floodplain and wetland areas. These provide habitat beyond the immediate stream corridor, which can accommodate wildlife movement. These areas adjacent to streams are also very critical to protecting their fragile water quality.

Habitats that are utilized by threatened and endangered species and that are currently large enough in area to support these species are also critical. The township contains numerous large areas of open land and suburban woods as well as smaller areas of upland forest (see Figure 10, Vegetative Cover map). These habitats are utilized by a number of the threatened or endangered bird species in the township. Merlins, grasshopper sparrows and the peregrine falcon utilize open lands. Cooper's hawk and the barred owl use upland forests. Maintaining contiguous areas of these habitats large enough to support these threatened and endangered species will assure the continued presence of these valuable wildlife species in Harding Township.
These varied and undisturbed habitats are an important natural resource for the township. These areas improve Harding's overall environmental quality, ensure the perpetuation of valuable wildlife species, provide opportunities for public education and awareness, and contribute to the aesthetic appeal of the township. Through the maintenance of wildlife movement corridors, the "green buffering" of streams, and the protection of large areas of habitat important to threatened and endangered species, Harding Township will be able to maintain these diverse and unique natural habitats.
### A Listing of Soils Particular to Harding Township with Their Properties

<table>
<thead>
<tr>
<th>MAP SYMBOL</th>
<th>SOIL NAME</th>
<th>GENERAL CHARACTERISTICS</th>
<th>DRAINAGE QUALITIES</th>
<th>EROSION HAZARD</th>
<th>DEPTH TO SEASONAL HIGH WATER TABLE</th>
<th>DEPTH TO BEDROCK</th>
<th>LIMITATIONS FOR SEPTIC</th>
<th>LIMITATIONS FOR SEPTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad</td>
<td>Adrian Muck</td>
<td>Nearly level organic soil with a high water table - ponding or flooding in winter and spring is typical; found in limited areas of the Great Swamp.</td>
<td>Very Poorly Drained</td>
<td>—</td>
<td>0'</td>
<td>10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Ae</td>
<td>Alluvial Land</td>
<td>Typically found near streams and in slightly higher areas at edge of flood plains, flood hazard areas (Passaic River).</td>
<td>Very Poorly Drained</td>
<td>—</td>
<td>1' - 4'</td>
<td>6'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Bd</td>
<td>Biddeford Silt</td>
<td>Deep, nearly level soils - found in depressions, along streams and in the basin of glacial Lake Passaic (extensively throughout the Great Swamp). Permeability is slow; poor workability - swampy quality and vegetation.</td>
<td>Very Poorly Drained</td>
<td>—</td>
<td>0'</td>
<td>10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Ca/Cc</td>
<td>Califon Loam/Califon Gravelly Loam</td>
<td>Deep soils found in nearly level to steeply sloping areas — mostly in waterways or seepage areas at base of slopes in granite gneiss uplands west of Route 202. Contains gravel &amp; cobbles.</td>
<td>Somewhat Poorly Drained</td>
<td>Moderate to severe especially on steeper slopes of 8 - 15%</td>
<td>1/2' - 4'</td>
<td>6'</td>
<td>Moderate to Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Cd</td>
<td>Califon Loam, Friaible subsoil Variant</td>
<td>Deep, gently sloping soils found in waterways and swales on uplands west of Route 202. Somewhat gravelly.</td>
<td>Somewhat Poorly Drained</td>
<td>—</td>
<td>1/2' - 4'</td>
<td>10'</td>
<td>Moderate to Severe</td>
<td>Moderate</td>
</tr>
<tr>
<td>Cm</td>
<td>Carlisle Muck</td>
<td>Deep organic soils in low swampy areas; Great Swamp.</td>
<td>Very Poorly Drained</td>
<td>—</td>
<td>0'</td>
<td>10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Co</td>
<td>Cokesbury Gravelly Loam</td>
<td>Deep, nearly level to gently sloping soils found in a limited area near 1-287. Coarse fragments; stone content high.</td>
<td>Poorly Drained</td>
<td>—</td>
<td>0'-1'</td>
<td>6'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Cs</td>
<td>Cokesbury Extremely Stony Loam</td>
<td>Similar to above but contains an extremely stony surface layer - boulders - parallels Primrose Brook, west of Route 202.</td>
<td>Poorly Drained</td>
<td>—</td>
<td>0'-1'</td>
<td>6'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Ed</td>
<td>Edneyville Gravelly Loam</td>
<td>Deep, gently to steeply sloping soils containing granitic gneiss gravel, cobbles and stones (covers much of the northwest part of the township west of Route 202).</td>
<td>Well Drained</td>
<td>Moderate to severe. High if steeply sloping</td>
<td>10'+</td>
<td>6' - 10'</td>
<td>Slight to moderate</td>
<td>Severe if steeply sloping</td>
</tr>
<tr>
<td>El</td>
<td>Ellington Variant</td>
<td>Formed from somewhat gravelly material derived from shale, siltstone and sandstone. High fine sand content. Found principally in the northeast portion of the township.</td>
<td>Somewhat Poorly Drained</td>
<td>Severe in the limited steeper areas</td>
<td>1/2' - 4'</td>
<td>10'</td>
<td>Severe</td>
<td>Moderate</td>
</tr>
<tr>
<td>Kl</td>
<td>Klinesville</td>
<td>Shallow, steep, well drained shaly soils formed in material weathered from shale bedrock.</td>
<td>Well Drained</td>
<td>Severe</td>
<td>N/A</td>
<td>1' - 1-1/2''</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Mi</td>
<td>Minoa Silt Loam</td>
<td>Deep, nearly level to gently sloping soils at slightly elevated areas within glacial Lake Passaic (in Harding, within the Great Swamp). Soils formed in thick lacustrine sediment. Depth to bedrock is unknown. High silt and very fine sand content.</td>
<td>Somewhat Poorly Drained</td>
<td>—</td>
<td>1/2' - 1-1/2'</td>
<td>10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Ms</td>
<td>Muck (shallow over clay)</td>
<td>Decomposed organic material over clay commonly found around bogs and swampy areas (Great Swamp). Frequently flooded.</td>
<td>Very Poorly Drained</td>
<td>—</td>
<td>0'</td>
<td>10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Mu</td>
<td>Muck (shallow over clay)</td>
<td>Decomposed organic material over stratified silt loam, loam or silt clay loam, typically found in depressions and along streams (Great Swamp).</td>
<td>Very Poorly Drained</td>
<td>—</td>
<td>0'</td>
<td>10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Ne</td>
<td>Neshavny Gravelly Silt Loam</td>
<td>Deep, gently to steeply sloping soils containing gravel and stones, formed in weathered material from underlying basalt bedrock; deep and fertile with only moderate drainage and erosion difficulties.</td>
<td>Well Drained</td>
<td>Moderate</td>
<td>10'</td>
<td>4' - 10'</td>
<td>Slight to Moderate</td>
<td>Slight to Moderate</td>
</tr>
<tr>
<td>Nf</td>
<td>Neshaminy Very Stony Silt Loam</td>
<td>Similar to above but thinner surface layer and shallower depth to bedrock. Found on steeper slopes among the Neshaminy Gravelly Silt Loam soils; contains excessive stones</td>
<td>Poorly Drained</td>
<td>Moderately Severe</td>
<td>10'</td>
<td>4' - 10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Pa</td>
<td>Parker Gravelly Sandy Loam</td>
<td>Deep, gently to steeply sloping soils containing large amounts of angular granitic stones, cobbles and gravel. Found west of Route 202, typically on the sides of or on ridge tops.</td>
<td>Well Drained</td>
<td>Severe</td>
<td>10'</td>
<td>4' - 10'</td>
<td>Slight to Moderate</td>
<td>Slight to Moderate</td>
</tr>
<tr>
<td>Pb</td>
<td>Parker Very Gravelly Sandy Loam</td>
<td>Similar to above, but with fewer stones and surface layer is 50% gravel. Generally found in very steep areas northwest of Jockey Hollow Road.</td>
<td>Well Drained</td>
<td>Severe</td>
<td>10'</td>
<td>4' - 10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>MAP SYMBOL</td>
<td>SOIL NAME</td>
<td>GENERAL CHARACTERISTICS</td>
<td>DRAINAGE QUALITIES</td>
<td>EROSION HAZARD</td>
<td>DEPTH TO SEASONAL HIGH WATER TABLE</td>
<td>DEPTH TO BEDROCK</td>
<td>LIMITATIONS FOR SEPTIC</td>
<td>LIMITATIONS FOR SEPTIC</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
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<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Pe</td>
<td>Parker-Edneyville Extremely Stony Sandy Loam</td>
<td>Combination of Parker and Edneyville soils in steep areas with boulders, stones, cobbles and gravel.</td>
<td>Well Drained</td>
<td>Severe</td>
<td>10' +</td>
<td>4' - 10'</td>
<td>Moderate to Severe</td>
<td>Moderate to Severe</td>
</tr>
<tr>
<td>Pf</td>
<td>Parker Rock Outcrop Complex</td>
<td>Parker soils with extensive rock outcropping; in very steep areas mainly west of Route 202 and north of Tempe Wick Road.</td>
<td>Excessively Drained</td>
<td>Severe</td>
<td>10' +</td>
<td>4' - 10'</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Ph</td>
<td>Parsippany Silt Loam</td>
<td>Deep, poorly drained soils found in stratified sediment of lacustrine origin with high water permeability, low stability and high water table. Found in the Great Swamp, along the Passaic River near I-287 and along Silver Brook.</td>
<td>Poorly Drained</td>
<td>—</td>
<td>0' - 1'</td>
<td>10’ +</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Pk</td>
<td>Parsippany Silt Loam, Sandy Loam Substratum</td>
<td>Similar to above but with a thin substratum of fine sandy loam. Found extensively in the Great Swamp, Loantaka Brook and Great Brook.</td>
<td>Poorly Drained</td>
<td>—</td>
<td>0' - 1'</td>
<td>10’ +</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Pl</td>
<td>Pattenburg Gravelly Loam</td>
<td>Deep, gently to strongly sloping gravelly soils found generally in an area formed by Sand Spring Road, Glen Alpin Road, and I-287. Well suited to farming and pasture.</td>
<td>Well Drained</td>
<td>Moderate</td>
<td>10’ +</td>
<td>3-1/2’ – 10’</td>
<td>Slight to Moderate</td>
<td>Slight to Moderate</td>
</tr>
<tr>
<td>Pn</td>
<td>Penn Shaly Silt Loam</td>
<td>Found extensively throughout the northern half of the township east of I-287. These soils are moderately deep, well drained with shale fragments with high silt content.</td>
<td>Well Drained</td>
<td>Moderate to Severe</td>
<td>4’ -6’</td>
<td>1-1/2’ - 3-1/2’</td>
<td>Severe</td>
<td>Slight to Moderate</td>
</tr>
<tr>
<td>Po</td>
<td>Penn-Klinesville Shaly Silt Loam</td>
<td>Combination of Penn and Klinesville found in the Van Beuren &amp; Red Gate Drained Road area amidst other Penn Soils in areas of steeper slopes. Largely shaly with a shallow range of depth to bedrock.</td>
<td>Moderately Drained</td>
<td>Severe</td>
<td>4’ -6’</td>
<td>1-1/2’ - 3-1/2’</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Pt</td>
<td>Pompton Sandy Loam</td>
<td>Deep, nearly level soils found in the south east portion of the Great Swamp in Harding and near the Loantaka and Great Brook. Formed in sandy, gravelly glacial outwash derived principally from granitic material. Very acid soils with moderate organic content in surface layer.</td>
<td>Somewhat Poorly Drained</td>
<td>Moderate</td>
<td>1/2’ - 1-1/2’</td>
<td>10’ +</td>
<td>Severe</td>
<td>Moderate to Severe</td>
</tr>
<tr>
<td>Pv</td>
<td>Preakness Sandy Loam</td>
<td>Found in a limited area of the Great Swamp amidst Pompton soils, in low areas. Sandy loam textured soil with a fairly high water table.</td>
<td>Poorly Drained</td>
<td>—</td>
<td>0’ - 1’**</td>
<td>6’ +</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Re</td>
<td>Reavllle Shaly Silt Loam, Deep Variant</td>
<td>These soils are found scattered throughout the north central portion of the Township and to the west along I-287 and the Passaic River. They are found mainly at the base of steeper slopes and in waterways and are formed in the material weathered from underlying shale bedrock or in local alluvium.</td>
<td>Moderate to Poorly Drained</td>
<td>—</td>
<td>1/2’ - 4’</td>
<td>3-1/2’ -5’</td>
<td>Severe</td>
<td>Moderate to Severe</td>
</tr>
<tr>
<td>Rm</td>
<td>Riverhead Gravelly Sandy Loam</td>
<td>These soils formed in the sandy and gravelly outwash derived mainly from granitic material containing a small amount of shale, sandstone, quartzite and conglomerate. It is found in a somewhat limited area just west of Green Village and in the northeastern tip of the Township near Madison.</td>
<td>Well Drained except when steep.</td>
<td>—</td>
<td>10’ +</td>
<td>10’ +</td>
<td>Slight</td>
<td>Slight</td>
</tr>
<tr>
<td>Ro</td>
<td>Rockaway Gravelly Sandy Loam</td>
<td>A small band of this deep, gently sloping soil is found paralleling Glen Alpin and Blue Mill Roads near Bayne Pond. They are well drained and formed in sandy loam glacial till mainly of granitic material.</td>
<td>Well Drained</td>
<td>Slight</td>
<td>1-1/2’ - 10’</td>
<td>10’ +</td>
<td>Moderate</td>
<td>Slight</td>
</tr>
<tr>
<td>Ue, Um,</td>
<td>Urban Land</td>
<td>These soils are generally re-worked as a result of community development and are therefore excluded from this review.</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Wh</td>
<td>Whippany Silt Loam</td>
<td>A few areas of these deep, poorly drained soils exist in the Great Swamp, along Pleasant Plains Road.</td>
<td>Somewhat Poorly Drained</td>
<td>—</td>
<td>1/2’ - 1-1/2’</td>
<td>10’ +</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>WI</td>
<td>Whippany Silt Loam/ Sandy Loam</td>
<td>Found along Primrose Brook, Loantaka Brook and a small area within the Great Swamp. This soil has a thin layer of sandy loam over a dominantly sandy loam layer below 40 inches.</td>
<td>Somewhat Poorly Drained</td>
<td>—</td>
<td>1/2’ - 1-1/2’</td>
<td>10’ +</td>
<td>Severe</td>
<td>Severe</td>
</tr>
</tbody>
</table>


Note: The mapping symbols contained in this chart do not contain the reference to the degree of slope typically found in the Soil Survey. The Soil Survey utilizes a letter symbol added to the above map symbols to denote steepness of slope; for example C slopes are 8 to 15 percent. This ERI contains a separate section dealing exclusively with topography in Harding.
HISTORIC DEVELOPMENT PATTERNS
(Adopted March 14, 2005; Reorganized under “Community Characteristics” February 25, 2008)

Introduction

The purpose of this section is to generally describe Harding’s history and the historic context of its historic resources. The National Register of Historic Places defines a historic resource as a property that embodies one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of history.
2. It is associated with the lives of persons significant in our past.
3. It embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
4. It has yielded, or is likely to yield, information important in prehistory or history.

Harding contains historic resources that qualify under each of these criteria. Abundant resources contributing to an understanding and appreciation of our history are scattered throughout the township, many of which form the basis for seven municipally designated historic districts, four of which are also State and Nationally Registered. The context of Harding’s historic resources generally relates to three eras in the township’s history described below.

A Concise History of Harding

The original inhabitants of Harding were the Delaware (or Lenape) Indians of Algonquin stock. Their history, in what would become Harding, is unrecorded and limited to a relatively few artifacts. Recorded history essentially begins in 1713. What is now most of Morris County was purchased from the Lenape and made part of Burlington County under the ownership of the West Jersey Proprietors. Original surveys in the Harding area were carried out in 1715 and 1717 by the first recorded landowners who included William Penn and James Logan. The general ownership of the area was disputed by factions in East Jersey and resolved in their favor in 1743.12 As early as the 1790s the center of what is now Harding was referred to as New Vernon, a place name for what was then considered part of Morristown. The earliest recorded inhabitants were the families Lindsley, Tuttle and Goble.13

By the time of the Revolution, most of Harding’s current road system was in place supporting a sparse pattern of rural development. The Morristown area, including the future area of Harding, was the focus of considerable military operations during the Revolutionary War, utilizing the road system for the movement of troops and a major encampment of the Continental Army at Jockey Hollow during the winter of 1779-80.

The long period from the Revolutionary War until after the Civil War saw slow rural development of farmsteads focused around the small compact villages of New Vernon, Green

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12 Harding a Beautiful and Historic Township, 1715 – 1948, Harold D. Hayward, ThD.
13 Ibid, pp. 8 and 9.
Village and Logansville. That pattern of tightly clustered villages surrounded by relatively open land is still evident today. In 1866, Passaic Township (now Long Hill Township) was formed, including the area of current Harding.

The early part of the 20th century saw a new and different form of development, that of large estates for wealthy families taking advantage of transportation improvements linking the area to New York and Newark. Estate building began in Morristown in the later part of the 19th century but by the early part of the 20th (particularly the teens and early twenties) Harding had become the focus of such development. The goal of these new residents was to preserve the historic rural landscape that had attracted them to the area. A group of prominent businessmen joined forces with Marcus Northup to settle a long-standing dispute between the northern and southern portions of Passaic Township over the allocation of money for road repairs needed by the wealthy residents because of their growing fleets of automobiles. This led to the formation of Harding as a separate township in September 1922, named after President Warren G. Harding.14

The new residents of the early 20th century had the resources to purchase large tracts of land, much of which became subject to the “New Vernon Neighborhood Restrictive Agreement.” This agreement essentially provided Harding with an early form of zoning, albeit entirely privately enacted. The covenant stated that “there shall be no trade, manufacture or business of any description whatsoever on the properties included in this agreement, unless properly changed by new covenants, adequately adopted by the property owners concerned.” Municipal zoning largely limiting development to low density residential development was first enacted shortly thereafter. As a result, little changed in Harding until after World War II.

Eras of Historic Significance in Harding Township

This section is a summary of the eras of historic significance in Harding. The Historic Preservation Plan describes in detail how the township’s still existing historic resources embody historic significance from these eras.

Harding’s Early Development and the Historic Rural Landscape

The early development of the Harding area is of obvious significance to the township and this first stage of development was also its longest lasting historic era. It corresponds to two of the eras that the New Jersey Historic Preservation Office has listed as historically significant in New Jersey: the period of initial colonial settlement (1630 – 1775) and the period of early industrialization, urbanization and agricultural development (1775 – 1860).15 In Harding, it encompasses the time period from the early settlement of the area by people of European origins in the early- to mid-18th century to the beginning of the 20th century and the advent of the estate era.

The first settlers were probably the John Lindsley and Stephen Tuttle families. In 1743, the Conger family opened a tavern near the corner of Blue Mill and Sand Spring roads. Additional early settlers included: Goble, Tomkins, Fairchild, Muir, Canfield, Miller and Pruden families. Samuel Oliver and Timothy Mills settled in c. 1754, Joseph Wood in c. 1748 and Jacob Bockhoven in 1764.\textsuperscript{16}

The historic resources relating to this era are found throughout the township and are still quite common, including numerous structures that make up the historic settlement pattern of the tightly clustered crossroads villages of New Vernon and Green Village, surrounded by scattered, low-density farmsteads. It is also the era during which the township’s road system was established, much of which has changed little since that time.

**The Revolutionary War**

Sites and events associated with the American Revolutionary War are a particularly significant part of Harding’s history. The area in and around Harding saw significant events associated with the Revolution during the period from 1777 to 1780. The Morristown area became strategically important when Washington’s victories at Trenton and Princeton forced the British to fall back to New York. Washington perceived that the area around Morristown had strategic benefits for the Revolutionary Army to monitor the British in and around New York, which was the headquarters for the British war effort against the colonies. In particular, the heights in the northern part of the township afforded long views of the area towards the British forces in New York. The Continental Army encamped in the area starting in the winter of 1777 at “Loantica,” just north of present day Harding, and then again during the winter of 1779-80 on what was then known as “Kimball” (now Kemble) Mountain in Harding.

Jockey Hollow was established in 1933 by the Federal Government as the nation’s first historical park to preserve the area of the encampment. Over 80 percent of the National Park is located within the township. The appreciation of the historic significance of the Park is enhanced by the preservation of historic resources in the area around it. In particular, Harding’s historic road system and the historic rural landscape add substantially to the historic significance of Jockey Hollow. The US Congress has designated the Harding area part of the Crossroads of the Revolution National Area.\textsuperscript{17}

Additionally, historic resources associated with this era include the Peter Kemble House on Mt. Kemble Avenue, which is individually listed on the State/National Register and, home of a prominent “Tory” and the site where “Mad Anthony” Wayne negotiated with mutineers from the Continental Army, near the intersection of Tempe Wick Road and Mt. Kemble Avenue.

**The Estate Era**

No consideration of the history of Harding would be complete without including its estate era. It corresponds to the New Jersey Historic Preservation Office *suburban development* era (1840-}

\textsuperscript{17} Congress has authorized the US Department of the Interior to conduct a Special Resource and National Resource Area Feasibility Study for the Crossroads of the Revolution in central New Jersey.
1940). In Harding it encompasses the later part of the *Gilded Age*, the period from the end of the 19th century to the early part of the 20th when prominent families of American industrialists first moved to the township having made fortunes in the industrial development of the country. They established country estates by buying up small farms and consolidating them. Among these were Howard Bayne, Seth Thomas, Jr., Henry Colgate, Warren Kinney, T. Towar Bates, and James McAlpin Pyle.

In 1920, they set up the New Vernon Land Company to buy up and control open space within the township subject to the *New Vernon Neighborhood Restrictive Agreement*. The subscribers to the private agreement “pledged to restrict commercial usage and division of property until 1965” and set a minimum lot size of three acres; although there was a verbal understanding that ten acres would be the minimum.\(^{18}\) The historic resources relating to this era include many surviving estates and the associated rural landscapes preserved through the efforts of this American elite.

**Harding’s Historic Rural Landscape**

In the strictest sense, Harding has long since ceased to be a truly rural community in that it no longer contains a significant population that makes its living from the land. However, it still contains many structures and landscapes that relate to the era when it was a truly rural place. The two together, the structures and the landscape patterns that form their context, give them historic significance for current Harding residents and provide insight into the township’s history.

The comprehensive survey of historic resources completed by McCabe & Associates in 2003 catalogs Harding’s abundant historic resources. Many contain substantial historic significance in of themselves. The surviving historic landscapes that surround many of them add to their historic integrity. The following is a description of the historic landscapes in Harding and how they came about.

**Historic Landscape Patterns in Harding**

Harding’s strong sense of place is based upon the historic rural landscape patterns that are still evident in many areas of the township today. William Murtagh, formerly Director of the Historic Preservation Program at Columbia University, said "Harding is a unique open space which creates a sense of identity and locality; its historicity was determined by its topography, spacial relationships, roads and circulation patterns and buildings.”\(^{19}\) Harding’s still existing historic rural landscape is centered on the two tightly developed villages of New Vernon and Green Village and the numerous structures, most of them dwellings, that make up those villages.

The township’s historic rural development pattern is one of contrasts: relatively compact and dense in the villages and open in the surrounding countryside. In both cases there is great variety in size and shape of land holdings as well as the style, size and placement of buildings. These contrasts and variety are still evident. The surrounding agricultural lands, meadows and fields

\(^{19}\) Historic Preservation Considerations, Harding Township, NJ, Heritage Studies, Princeton, NJ, 1980.
are largely gone; but the sense of surrounding open land still remains in many areas. In addition, historic hedgerows and wooded stream corridors still remain as visible reminders of the rural landscape.

Modern suburban landscapes characterized by uniformity of development are the result of strict zoning and development regulations. Harding's historic landscapes were shaped by other factors and forces. The sections below describe the major forces which shaped Harding's historic landscape and development patterns: geographical constraints and opportunities, the location and design of roads, and economic and social forces.

**The influence of Geography on Historic Development in Harding**

Geography played a primary role in shaping historic rural landscape patterns in Harding. During the period of early settlement in Harding, the geographical constraints and opportunities associated with topography and sources of water were important concerns of the early settlers, profoundly influencing their decisions on where and how they should establish settlements.

The earliest European settlement of Harding began in the early part of the 18th century, by trappers and loggers and several farm families looking for good arable land to clear and cultivate. The many good streams provided sources of power for forges and mills that provided a variety of necessary services. Little remains of this very early time, but by the Revolutionary War Harding's road system was largely in place, together with some, albeit sparse, development. What could be termed the major settlement of Harding occurred during the century that followed the American Revolution. By the turn of the 20th century a significant portion of Harding's buildings and most of its public roads were in place.

Topography profoundly affected development patterns. The northern third of Harding consists of the foothills of the New Jersey Highlands. The hilly terrain made development in this area difficult and the associated poorer soils made farming unproductive, precluding extensive clearing and development. The southern third of the township, the Great Swamp, was and is a marshland formed by the melting of the Wisconsin glacier. Though a few farmers drained and cultivated lands within the Great Swamp, settlers used it mainly as a source of building materials and wildlife. The middle third of the township, on the other hand, was relatively well suited for cultivation and development because of its well drained, gently rolling terrain. In this area a community of small compactly clustered villages surrounded by open farmsteads was established.

Water sources were also an important organizing factor in the early Harding landscape. Easy access to water was necessary for the location of farmsteads and villages. Grist mills performed a vital and necessary function for the rural Harding farming community. One mill for about every 40-50 families was typical. Lumber mills provided the necessary building materials.
The Influence of Roads on Historic Development in Harding

The importance of the location and design of roads in shaping the character of Harding's historic landscape cannot be overstated. The road system we see and use today was largely in place by the latter part of the 18th century. It came about in what might be described as an "organic" way. Built up from the trails of the original settlers of the area, the Lenape Indians, to more major pathways, they followed the path of least resistance in the natural terrain. They avoided topographic and geographic obstacles where possible, going around or over them. This resulted in the characteristic terrain-following or curvilinear road-scape with extensive horizontal and vertical curvatures we still see today. When the road needed to change direction to avoid obstacles, the resulting curves were often more abrupt than permitted by modern engineering practice.

The physical construction of early roads was also distinct from modern engineering practice. The scale of early roads was small and narrow, invariably no wider than was necessary for two wagons to pass. Drainage was by means of simple ditches along each side.

Much of Harding's public road system has not changed from colonial days. Harding was mapped in 1780 due to the winter encampment at Jockey Hollow. A revolutionary officer today could still find his way around Harding using that map. These characteristics of design and scale still set the pattern for much of Harding's roads today. Indeed they are so common we take them for granted, but their importance to the integrity of historic landscapes should not be underestimated.

The Effect of Economic and Cultural Forces on Harding's Historic Development Pattern

How and where early settlers chose to build and live and how they made their livelihood played an important role in establishing Harding's historic landscapes. Families who were not farm families in early rural America were apt to live in small, compact and relatively higher density villages, usually located at crossroads. This was the pattern for almost 200 years of Harding’s history. The typical rural village in Harding contained a school, a church or church outpost and a store. As a result, the village provided the economic and social focus for the community, providing the necessary economic and social services. Four such historic "nodes" existed in Harding: New Vernon, Green Village, Pleasantville and Logansville, although the latter two were too small to be considered true villages.

The compact and tightly developed villages provided a focus to the surrounding countryside. This focus was one of the basic features of Harding’s historic landscape providing definition, order and organization. In summary Harding’s landscape presented a complex mosaic of varying size, shape and contour defined by streams, hedgerows, tree-rows, fence-rows and roads. The inhabitants lived in widely separated farmsteads. Since the landscape was so open, long views and panoramic vistas were much more common than they are today.

**Archaeological Resources**

Evidence of occupation by the Lenape Indians or predecessors has been found in several areas of Harding. There are several sites where numerous arrowhead or other projectile points have been found concentrated in areas near streams or springs. Some of these sites may contain archaeological evidence important to the history of this area.
CONSERVATION PLAN ELEMENT
(Adopted September 27, 2004; Updated February 25, 1008)

INTRODUCTION

The purpose of a conservation plan element is to establish policy planning goals concerning the conservation and preservation of natural resources and to ensure that those goals and the characteristics of the natural resources themselves are taken into consideration in making planning and land use decisions. This update of Harding’s Conservation Plan fulfills this purpose by continuing its long-standing tradition of focusing Harding’s planning on the conservation and preservation of its high quality of natural resources as one of its central planning goals.

The township’s overall goal of protecting its natural environment has remained a constant in its planning policies over a long period of time. The 1972 Comprehensive Master Plan reflected the goals of protecting environmental resources and preserving the township’s established rural character. In 1980 the State Development Guide Plan, prepared by the Division of State and Regional Planning in the NJ Department of Community Affairs, recognized most of Harding as a Conservation Area. The New Jersey State Development and Redevelopment Plan, first adopted by the State Planning Commission in 1992 and readopted in 2001, designated virtually all of Harding as an Environmentally Sensitive Planning Area (Planning Area 5). These designations were reflective of the importance of water resources and the presence of the Great Swamp Wildlife Refuge in Harding.1

Recent years have seen dramatic improvements in our ability to measure the impacts of development on water resources, allowing the township to determine whether its land use policies will be consistent with these goals in the long term, when the township is fully developed. This is part of a broadly based effort on regional, state and federal levels to protect high quality water resources. This heightened focus on water resources in the Harding area began in 1989 when NJDEP Commissioner Daggett signed Administrative Order No. 51 raising concerns about the effects of urbanization in the Great Swamp watershed and on its water resources. Since then, there has been increasing emphasis on the importance of Harding’s water resources to the township, region, state and indeed the nation. That focus comes from state agencies (NJDEP and State Planning Commission), regional groups (watershed associations, Ten Towns Committee and Highlands Task Force) and township residents.

Our ability to predict the impact of development on these important natural resources has also dramatically improved. These improvements have led to the conclusion that previous township policies intended to protect environmental resources will not, in the long run, have the desired and previously expected effect. This update results from these changes.

CONSERVATION OBJECTIVES

The following objectives should be taken into consideration in the formulation of all of Harding Township’s planning policies:

1. **Protect the quality and quantity of water resources in the township.** The high quality of Harding’s groundwater and surface water resources are of critical importance to the township, region and state and should be protected from degradation. This objective is the overriding concern of this plan.

2. **Protect the environmental quality of the Great Swamp National Wildlife Refuge.** Harding’s uniquely close relationship with the Refuge imposes a special responsibility for protecting the Refuge from the direct and indirect effects of development.

3. **Promote sustainable levels of development.** Development densities and intensities should be consistent with the ability of the natural resources to sustain them without compromising the environmental goals of this plan.

4. **Preserve woodlands and specimen trees.** Harding contains significant woodlands and specimen trees that should be preserved because they contribute importantly to environmental quality and the rural character of the township.

5. **Create and preserve greenway corridors especially along streams of high water quality.** Corridors of natural vegetation should be promoted, especially along streams, because they are vital to their environmental quality. They protect streams, which are especially sensitive to the effects of development and provide wildlife with healthier habitats.

6. **Control deer overpopulation.** Deer overpopulation should be reduced because it is harmful to environmental quality over the long run due to its destructive impact on natural vegetation.

7. **Control the introduction and spread of invasive plant species.** Aggressively spreading plant species that are not native to Harding should be controlled to minimize damage to native species and to the native ecology in general.

SIGNIFICANT EVENTS IN CONSERVATION

Harding has a history of conservation planning spanning nearly half a century. An even longer time span is evident recognizing the establishment of Morristown National Historical Park in the 1930s as an early step in open space preservation. Over the last 25 years there has been increasing local, regional and statewide concern about damage to environmental resources and the consequences of suburban sprawl.

Following are the significant events relating to conservation planning in Harding, commencing with the creation of the Great Swamp National Wildlife Refuge and leading up to the adoption of this updated Conservation Plan element.

1960: The Great Swamp National Wildlife Refuge is created; about half of its 7,300 acres are located within Harding Township.
1968: The Harding Township Environmental Commission is created with an original focus to undertake research and studies documenting the township’s natural resources.

1976: The first Natural Resources Inventory is prepared by the Environmental Commission to serve as a resource for the township’s Planning Board, Board of Adjustment and Township Committee.


1984: NJDEP sponsors a major environmental study of the Great Swamp (Great Swamp Hydrology Study), which finds that development in its tributary drainage basin is damaging its sensitive ecosystem.

1989: NJDEP Commissioner Daggett signs Administrative Order # 51 creating the Great Swamp Watershed Advisory Committee, which in 1993 publishes a comprehensive report on the threats to the ecology of the Great Swamp, especially from upstream development in municipalities within the watershed.

1990: A new Conservation Plan is adopted by the Planning Board. This continued the long-standing commitment to conservation planning reflected in the Conservation Plan elements of the 1972 and 1984 Master Plans. Also in 1990, the Harding Land Trust is formed by local citizens as a nonprofit organization to acquire, by gift, bequest or purchase, real property or easements for conservation purposes. By 2004, the Trust acquires an interest in hundreds of acres of land in strategic locations around the township, contributing significantly to Harding’s rural character, environmental protection, through a program of proactive open space preservation.

1992: The New Jersey State Development and Redevelopment Plan is first adopted. Most of Harding is designated in the Environmentally Sensitive Planning Area reflecting its low intensity development pattern, high quality water resources, and position relative to the Great Swamp.

1995: The Ten Towns Great Swamp Watershed Committee is created by inter-municipal agreement as an advisory body made up of representatives of municipalities in the Great Swamp watershed. Its mandate is to recommend land use policies designed to protect the fragile environment of the Great Swamp, especially land use policies affecting stormwater runoff from upstream communities in the watershed.

1996: Harding voters pass a non-binding referendum recommending that the Township Committee establish an Open Space Trust Fund through dedicated tax revenues to finance the acquisition of land and easements for the preservation of open space. In establishing the fund, the Township Committee firmly commits the township to a permanent open space preservation program and stewardship role in protecting the township’s environmental resources. By 2004, the township considers a second increase in the open space tax to further enhance the potential funds available for land acquisition.

1997: Almost all of Harding Township2 is designated a Special Area by the New Jersey Site Improvement Advisory Board. This permits the use of special residential site improvement standards more compatible with Harding’s rural development pattern, to reduce impervious coverage, and to help lessen the impact of development on the Great Swamp.

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2 The portion of Harding within the Great Swamp Watershed, which includes almost the entire township, was included in the Special Area designation.
**2003:** An updated Environmental Resources Inventory is adopted by the Planning Board as a component of the Master Plan. It documents the importance and sensitivity of the township’s water and other natural resources.

**2004:** A carrying capacity analysis of Harding’s soils is conducted. The study recommends low-density development in areas where on-site wastewater disposal systems are required and suggests an examination of the township’s zoning to ensure that its planning policies promote sustainable development. Also in 2004, the New Jersey Legislature enacts the Highlands Water Protection and Planning Act, which establishes a core preservation area buffered by a planning area and broad new land use policies intended to protect the state’s critical water resources. Under the legislation, Harding is designated within the planning area of the Highlands Region.

**PROTECTION OF WATER RESOURCES**

**The Great Swamp**

The Great Swamp National Wildlife Refuge is a 7,700-acre area administered by the US Department of Interior. Over 3,600 acres of the Refuge are included in the National Wilderness Preservation System. About 3,600 acres of the Refuge is located within Harding Township. The value of the Great Swamp as a wildlife refuge is greatly dependent upon the quality of water flowing into it. Land use and development in the watershed have direct and significant impact on the Refuge. Harding, in particular, has a special responsibility to protect the Refuge since so much of it lies within the township and because Harding comprises a significant portion of the Great Swamp watershed.

As early as 1975, a surface water study prepared by graduate students at the University of Pennsylvania concluded that water quality in the Great Swamp watershed was declining as a result of upstream development density and intensity. Flash flooding had already become a problem at sites where more intense urbanization had already intensified runoff. The study states that:

"Water quality for the watershed as a whole has been declining rapidly as revealed by twelve month moving averages since 1963 for chloride, dissolved oxygen, nitrate and ammonia at Millington Gorge. Point sources are numerous. Treated sewage effluent and inappropriately located septic systems are major sources of contamination. Silt, urban runoff and channelization also have impacted the aquatic system. The capacity of some streams flowing through the upland and wilderness area to assimilate waste is already exceeded especially during low flows. In the absence of immediate action to limit density, the decline in water quality will continue and become increasingly irreversible."\(^3\)

In the 1980s the US Fish and Wildlife Service studied the effects of development on the Swamp and determined that:

\(^3\) Surface Water Resources of the Great Swamp Watershed New Jersey - An Environmental Basis for Planning Growth; David A. Guillaudeu, Eric M. Moye and Stephen B. Syz; University of Pennsylvania, Department of Landscape Architecture and Regional Planning, 1975.
"The (Great Swamp) watershed is being increasingly developed for residential, commercial and industrial purposes. Approximately 1,600 acres of wildlife habitat were lost in the watershed between 1961 and 1980."\(^4\)

In 1984, a hydrology study was prepared by the US Fish and Wildlife Service and Morris County Soil Conservation District with the US Soil Conservation Service assisting, in connection with the master planning process for the Refuge. The study examined the Master Plans of the municipalities comprising the Great Swamp watershed and determined that continued growth as outlined in local Master Plans and zoning would have negative impacts upon the Great Swamp.

"Upstream development has hastened hydrologic changes and water quality degradation in the Swamp. Increased silt loads, higher floods, greater pollution loads, quicker peak flows, and smaller low flow characteristics are common to urbanizing areas. These changes have damaged and continue to impair the ecological vitality of the Swamp throughout the Refuge, especially in the Wilderness Area where there are no water management facilities and little federally-owned buffer zones for construction of facilities to mitigate these effects."\(^5\)

In 1993, the Great Swamp Watershed Advisory Committee issued its Final Report to the NJDEP. It documented the Committee’s findings about the impact of upstream development on the Great Swamp and made recommendations for mitigation, including recommendations to the watershed’s municipalities to institute land use regulations designed to better protect the Refuge. This led to the creation, in 1995, of the Ten Towns Great Swamp Watershed Committee (the Ten Towns Committee) made up of representatives of the towns in the watershed. Its purpose was to create a Great Swamp Watershed Management Plan (accomplished in 1997) and recommend implementing ordinances. Harding Township has adopted environmental ordinances consistent with the recommendations of the Ten Towns Committee. The water quality of the streams entering the Great Swamp is being monitored by the Great Swamp Watershed Association with the assistance of Harding Township staff.

In 2002, the Ten Towns Committee completed a four-year study\(^6\) that included measuring nitrate levels in five streams during baseflow and stormflow conditions. The results of the study with respect to nitrate concentrations are presented in the table below.\(^7\) Consistent with New Jersey Water Quality Standards the Committee concurred with the mandated anti-degradation policy with respect to Category One waters and recommended a similar policy for other waterways throughout the watershed.

<table>
<thead>
<tr>
<th>Stream</th>
<th>Average Baseflow Concentration</th>
<th>Range of Baseflow Concentrations</th>
<th>Average of Stormflow Concentration</th>
<th>Range of Stormflow Concentrations</th>
</tr>
</thead>
</table>


\(^6\) Water Quality Standards for the Great Swamp Watershed; Ten Towns Great Swamp Watershed Management Committee; June 2002.

\(^7\) The table for this section was compiled by Garry Annibal, Harding Township Health Administrator.
Results are mg/l of nitrate-nitrogen

### NJDEP Surface Water Classification System

Figure 12, Stream Classifications map, illustrates the classification of all streams and surface waters in Harding according to the NJDEP surface water classification system. Approximately 44 miles of streams are present within the township. Of this figure approximately 17 miles (39%) of the aggregate stream length is classified as FW2-NT (C1), 7.2 miles (16%) as FW2-TP (C1), 2.8 miles (6%) as FW2-TP, and 17 miles (39%) as FW2-NT. The Category One classification applies to 55% of aggregate stream length in the Township and all of the streams within the Great Swamp.\(^8\) The majority of streams located within the township are of exceptional environmental value. In particular, the 2002 Ten Towns Committee monitoring report\(^9\) concluded: “both Primrose Brook and the Passaic River have good baseflow water quality and represent baseflow reference conditions for the watershed.” The surface water classifications defined in N.J.A.C. 7:9B follow.\(^10\) In connection with the protection of surface water quality, the Category One waters are of utmost importance.

<table>
<thead>
<tr>
<th>Brook</th>
<th>Nitrates (mg/l)</th>
<th>Results Classifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Brook</td>
<td>0.13</td>
<td>&lt;0.01 - 0.42</td>
</tr>
<tr>
<td>Loantaka Brook</td>
<td>6.67</td>
<td>2.9 – 8.89</td>
</tr>
<tr>
<td>Great Brook</td>
<td>0.51</td>
<td>0.08 – 0.92</td>
</tr>
<tr>
<td>Primrose Brook</td>
<td>0.40</td>
<td>0.17 – 0.58</td>
</tr>
<tr>
<td>Passaic River</td>
<td>0.26</td>
<td>0.04 – 0.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FW – The general surface water classification applied to fresh waters.</td>
<td></td>
</tr>
<tr>
<td>FW1 – Those fresh waters, as designated by N.J.A.C. 7:9B-1.15(h) Table 6, that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, other characteristics of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources.</td>
<td></td>
</tr>
<tr>
<td>FW2 – The general surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands Waters.</td>
<td></td>
</tr>
<tr>
<td>NT – Non-trout waters: fresh waters that have not been designated in N.J.A.C. 7:9B-1.15 (b) through (h) as trout production or trout maintenance. These waters are generally not suitable for trout because of their physical, chemical, or biological characteristics, but are suitable for a wide variety of other fish species.</td>
<td></td>
</tr>
<tr>
<td>TM – Trout maintenance: waters designated in N.J.A.C. 7:9B-1.15(b) through (g) for the support of trout throughout the year.</td>
<td></td>
</tr>
<tr>
<td>TP – Trout production: N.J.A.C. 7:9B-1.15(b) through (g) for use by trout for spawning or nursery purposes during their first summer.</td>
<td></td>
</tr>
</tbody>
</table>
| C1 – Category One waters: those waters designated in the tables N.J.A.C. 7:9B-1.15(c) through (h), for purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B-1.5(d), for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other

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9 Water Quality Standards for the Great Swamp Watershed; Ten Towns Great Swamp Watershed Management Committee; June 2002.
10 This material is excerpted from: Hydrogeologic Evaluation, Nitrate Based Carrying Capacity Assessment, Harding Township, Morris County, NJ, Maser Consulting, March 18, 2004.
characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s). These waters may include, but are not limited to:

1. Waters originating wholly within Federal, interstate, State, county, or municipal parks, forests, fish and wildlife lands, and other special holdings that have not been designated as FW1 in N.J.A.C. 7:9B-1.15(h) Table 6;
2. Waters classified in N.J.A.C. 7:9B-1.15(c) through (g) as FW2 trout production waters and their tributaries;
3. Surface waters classified in this subchapter as FW2 trout maintenance or FW2 nontrout that are upstream of waters classified in this subchapter as FW2 trout production;
4. Shellfish waters of exceptional resource value; or
5. Other waters and their tributaries that flow through, or border, Federal, State, county, or municipal parks, forests, fish and wildlife lands, and other special holdings.

Protection of Surface Water Quality

Pollutants from specific sources discharged directly into a waterway are known as “point source” pollutants and, depending upon the amount of discharge, are regulated by the state under the New Jersey Pollutant Discharge Elimination System (NJPDES) permit program. An example of this source of regulated activity is the Woodland Avenue Sewage Treatment Plant, which discharges into the Loantaka Brook in Morris Township. While there may not be a large number of regulated point source discharges within Harding, the township is concerned about the long-term negative impacts on discharges to waterways that lead to the Great Swamp.

“Nonpoint” sources of pollution are a major source of concern in Harding. These include stormwater runoff from paved or other impervious areas, which contain a variety of pollutants, older buildings that are not fitted with roof drain dry wells, construction sites causing soil erosion, pesticides and fertilizers from residential lawns, and nitrate loading from septic systems. These sources of pollution are difficult to control and add to the degradation of stream water quality.

Changing patterns of development in the township are increasing the impacts on surface water quality from nonpoint sources of pollution. Traditionally in Harding, very large dwellings were located on very large properties with substantial areas left in their natural state. This helped to mitigate the impact of development on water resources. Increasingly, very large homes are being constructed on relatively modest sized lots with extensive site improvements and high maintenance landscaping. This has increased the relative intensity of development, and the potential for nonpoint sources of pollution.

The protection of the quality of Harding’s surface waters has been a primary focus of Harding’s planning for decades and should continue to be so. The township’s land use and development regulations should continue to be designed to protect the water quality of all streams to ensure that there will be no degradation as future development continues to occur. Under the Special Area designation approved by the state, the township has implemented an ordinance that requires a “no net increase” in the rate of flow or volume of stormwater to achieve these goals and mitigate stormwater impacts.
Protection of Groundwater Quality:
Carrying Capacity Analysis

About 75% of Harding’s citizens are dependent upon individual wells, but most of the township is located within Triassic basalt, shale and sandstone geologic formations, which have low water bearing capabilities. In addition, all of Harding is located within the aquifer recharge zone of the Buried Valley Aquifer system, where rainfall replenishes the groundwater. In 1980 the Administrator of the U.S. Department of Environmental Protection determined under the provisions of the Safe Drinking Water Act that the Buried Valley Aquifer system was a "sole source aquifer" because the aquifer, “if contaminated would create a significant hazard to public health.”

For these reasons, the protection of groundwater quality is an important planning goal for Harding. The intensity and density of development in the township directly affects its groundwater quality because its citizens are also largely dependent upon individual septic systems for wastewater disposal. Every septic disposal system degrades groundwater quality to some extent, even when functioning properly. The impact of each individual system is small, but collectively they can have significant impacts if the density of development is greater than the ability of the land to dilute contaminants to safe levels.

The New Jersey State Development and Redevelopment Plan (State Plan) recommends the use of capacity-based analyses in making land use decisions in areas such as Harding that are designated as environmentally sensitive. The State Plan defines capacity analysis as “determining and evaluating the capacity of natural, infrastructure, social, and fiscal, systems to define the carrying capacity for existing development and future growth of a community or region.” It defines carrying capacity as “the optimum demand for system sustainability or the maximum demand a system can support without serious compromise or collapse.”

In 2003 the township was awarded a “Smart Growth Grant” from the Association of New Jersey Environmental Commissions to undertake a carrying capacity analysis of the soils in areas dependent upon septic systems. Maser Consulting Engineers undertook the analysis utilizing the model described below.

The carrying capacity of an area dependent upon individual sewage disposal systems and private wells can be assessed by utilizing a “nitrate dilution model.” In 1978 the Trela-Douglas Nitrate Dilution Model was developed to assess the impact of septic system discharges on groundwater in the Pinelands and it has been used for such evaluations throughout New Jersey since that time. The model uses nitrate levels in groundwater as the key indicator of overall quality and predicts nitrate levels for any given amount of development on a regional basis based upon septic system discharges. Regulatory programs designed to prevent groundwater pollution from septic tank effluent frequently use nitrate concentrations in groundwater as an indicator of overall quality.

groundwater quality and as a measure of compliance due to the predominantly anthropogenic sources of nitrate.

In 1993 the New Jersey Geological Survey (NJGS) published *A Method for Evaluating Ground-Water-Recharge Areas in New Jersey* to estimate groundwater recharge based on climate, soils and land uses. The Trela-Douglas Nitrate Dilution Model has been adapted by the NJGS to incorporate the recharge method. Version 5 of the model, drafted by the NJGS in 2002, is known as *A Recharge-Based Nitrate Dilution Model for New Jersey*.

Key to the use of the model is establishing a target nitrate level. As a result of the potential health impacts of excess nitrate in drinking water (e.g. methemoglobinemia) the US Environmental Protection Agency has set a maximum contaminant level of 10 mg/l for nitrate in potable water supplies. Similarly, the NJDEP has instituted nitrate groundwater quality criteria of 10 mg/l for class IIA aquifers such as those underlying the township. Because this level results in public health hazards, it is important to set the nitrate target for the model at an appropriate lower level to avoid groundwater degradation that could result in public health risks. The general statewide target used by NJDEP is 5.2 mg/l. However, it is reasonable to adjust the target in areas containing sensitive environmental resources and existing high quality water resources such as those in Harding in view of the NJDEP’s antidegradation policies for Category One waters.

A target nitrate level of 2.0 mg/l was recommended by Maser Consulting in its carrying capacity analysis as an appropriate level for Harding Township in consideration of its high quality water resources, its location with respect to the Great Swamp and its goals to protect water quality. This is the same standard that NJDEP applies to the surface waters of the New Jersey Pinelands. The Maser report states:

> NJDEP recommends that the selection of a target nitrate concentration should be a function of relevant water resource policies and standards and, furthermore, that this selection should include a “safety factor” to account for the limiting assumptions within the Version 5 Model…A target nitrate concentration of 2.0 mg/l was selected for use in the nitrate dilution calculations. This decision was based on the exceptional value of the surface waters located within the Township and the Township’s desire to protect both surface water and groundwater.

The Harding Township Health Department has concurred with the target nitrate level of 2.0 mg/l in connection with the carrying capacity analysis, based on the high quality of streams in Harding and the anti-degradation policy recommended by the Ten Towns Committee and NJDEP for Category One waters.

The Nitrate Dilution Model is intended to be used as a tool in making land use planning decisions in communities that are dependent upon both groundwater and septic systems. Appropriate levels of development can be established consistent with the goal of protecting groundwater quality. The target of 2.0 mg/l is an appropriate target nitrate level for Harding because:

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• Harding is immediately upstream of the Great Swamp National Wildlife Refuge and includes within it boundaries about half of the land area of the Refuge.

• 55% of the aggregate stream length in the township and almost all of the streams in the Great Swamp are categorized as Category One waters. These streams are of exceptional quality and should not be degraded. The goal of “no net increase in pollutant loadings and stormwater flows” recommended by the Ten Towns Committee and endorsed by NJDEP in 1993 is reasonable and attainable.

• Harding is included within Planning Area 5, the environmentally sensitive planning area, by the State Planning Commission.

• Harding is located in the planning area of the Highlands region and is also in the recharge zone of the Buried Valley Aquifer. Water resources in this area are of critical importance to the state and special care must be exercised with regard to land use and development policies to avoid contamination of the groundwater supplies upon which so many people depend.

• Harding has had a long-standing public policy to avoid the degradation of its surface and ground water resources.

The results of the carrying capacity analysis are displayed in Figure 13, Nitrate Dilution-Based Carrying Capacity Analysis, prepared by Maser Consulting Engineers. It indicates that target densities in the township range from 3.5 to 4.2 acres per septic system in the areas analyzed.\(^{15}\) This is the carrying capacity of the land in Harding to support septic systems so as to avoid future potential detrimental impacts from septic system discharges.

Zoning density is the most important public policy planning tool affecting the future quality of groundwater. This is especially true in Harding where many of the soils pose constraints to on-site septic development. In addition, there are areas in Harding where development densities already exceed those recommended by the carrying capacity analysis, as the villages and other higher density areas were developed long ago. According to the Harding Township Engineer:

> The long term concentration of nitrates from conventional septic systems in groundwater depends upon the population density of an area and the annual groundwater recharge. Thus, if the quality of the water that forms the base flow in our streams is to be protected from degradation, the population density must be controlled. Based on the recent Maser Consultants study, it appears that a population density associated with 3-acre lots is not consistent with the goal of “no net increase” of water pollution established by the NJDEP for the Great Swamp Watershed. Although Harding Township has responded to this challenge by adopting an ordinance to control pollution from stormwater, until recently there has been little effort to control pollution resulting from the nominal operation of septic systems. This is essential if it is the township’s objective to reach, or even approach, the “no net increase” goal.\(^{16}\)

Based on all of the above, the township’s land use policies should require large lot sizes in less dense areas sufficient to mitigate potential contamination from nitrate loading, but also from leakage, as well as from other impacts of development such as surface runoff and pesticides.

\(^{15}\) Areas with hydric soils (soils occasionally or perpetually saturated with water) and sewer service were not analyzed, as the Nitrate Dilution Model does not apply to these areas.

\(^{16}\) Memorandum dated May 14, 2004 from Robert H. Fox, PE to Marshall Bartlett, Chairman, Harding Township Planning Board.
PROTECTION OF CRITICAL AREAS & NATURAL RESOURCES

The protection of critical areas is an important planning goal for the township. Critical areas are those containing special environmental importance and/or sensitivity. They include stream corridors, flood plains, freshwater wetlands and steeply sloping terrain, as well as natural resources such as specimen trees, woodlands and meadows. The protection of these areas is important when development is proposed to mitigate soil erosion and maintain the high quality of the township’s surface waters, as well as to maintain natural habitat for indigenous wildlife.

Open Space Preservation

The preservation of open space through outright acquisition or easements is an important part of the township’s overall strategy to fulfill the goals of this plan. The Open Space Plan element establishes the overall policies for open space acquisition in Harding.

Funding for open space acquisition is available from a variety of sources including local (Harding Open Space Trust Fund), county (open space and agricultural preservation funds) and the state (Green Acres Program) government as well as nonprofit conservation groups. Federal funding for expansion of the National Park and the Wildlife Refuge requires congressional authorization. With limited resources and high property values, it is increasingly important to leverage funding and utilize creative methods to achieve open space preservation goals. Harding has been particularly successful in partnering with open space organizations and foundations to achieve open space preservation objectives. Creative approaches including the leveraging of funds from a variety of sources and establishing and maintaining partnerships will be of increasing importance to open space acquisition in the future as property values continue to rise.

Generally, the acquisition of land for open space should give priority to lands containing areas of critical environmental importance or those containing natural resources of special significance. In setting priorities for open space acquisition, the township should consider land that:

- Protects, enhances or restores ecosystems, aquifers, stream corridors, or other water resources.
- Preserves Harding’s rural heritage such as scenic vistas or landscapes, historic structures and bridle paths.
- Complements existing open space.
- Serves as valuable wildlife habitat including forests and meadows.
- Establishes or contributes to a system of greenways.
- Should be acquired because development would have a substantial deleterious impact on the character of the township.
Steep Slope Protection

The slope of the land is an important determinant of the impact of development on the environment, especially upon water resources. A high degree of slope increases the amount and speed of stormwater runoff, which then increases the amount of soil erosion while decreasing groundwater recharge. The water quality of nearby streams is impacted by increases in sediments and other pollutants. The natural pattern of stream flows is altered by increasing flows during storm events but decreasing them at other times. These alterations are very damaging to the natural health of the stream and in the extreme can make them little more than drainage ditches.

A reduction of groundwater recharge is especially characteristic of the development of steeply sloping areas because of the increase in the speed and amount of runoff. This adversely impacts both the quantity of groundwater and, just as importantly, groundwater quality. Groundwater quality is impacted because quality is directly dependent upon the amount of recharge to dilute pollutants, both those naturally occurring but most importantly in Harding’s case, man-made pollutants from septic discharges.

Land disturbance in steeply sloping areas should be limited as a general principle because adverse environmental effects are inevitable. Where it must occur, special construction methods and care must be taken to minimize soil loss, damage to vegetation, and maintenance of pre-existing natural drainage patterns, to the extent possible. Most of the land northwest of Route 202 is characterized by steep slopes. This area is also the headwaters area for a number of high quality streams. Special care for the protection of these headwaters should be a focus of planning concern for the township.

Stream Corridor Protection

The streams that crisscross the township eventually lead to the Great Swamp. The state regulates development in areas identified as freshwater wetlands and requires special permits for stream crossings. Although recent state regulations stipulate new setback limitations along Category One streams, there is no state regulation of the land uses along other streams.

Consistent with state planning policies for environmentally sensitive areas, the township has established land use standards protecting stream corridors from the negative effects of development. The standards include setback requirements for new structures and limitations on the removal of vegetation. Conservation easements are required to be established along wetlands and waterways as part of the subdivision and site plan review process, consistent with the goals and objectives of this Master Plan to provide lasting protection for these important water resources.

Tree Protection
The preservation of trees and hedgerows is important to maintaining the rural character of the township and to environmental protection. The indiscriminate clearing of undeveloped acreage and excessive tree removal on developed private property contribute to soil erosion, the loss of wildlife habitat, and the degradation of air and water quality. The preservation of buffer areas along perimeter property lines and the preparation and implementation of landscape plans in connection with new development are measures that support the rural preservation and environmental protection goals of this Master Plan. The Shade Tree Advisory Committee assists and advises township departments, boards and commissions in matters relating to landscape plantings and native vegetation on public lands and private property under review by appropriate boards.

Critical Habitats

Harding Township has developed over the years in a predominantly low-density residential pattern that has maintained its great variety of floral and fauna communities. This, together with the large public land holdings, has served to insulate the township from the great suburban pattern of growth which has characterized much of the surrounding region. Figure 11, Critical Areas map, at the end of the Environmental Resources Inventory (ERI) depicts areas with habitats utilized by federal and state endangered species, as well as areas of special concern and suitable habitat.

Primrose Brook connects Jockey Hollow and the Great Swamp. The maintenance of stream and forest corridors between the two reservations will promote the continuance of the township's most unique wildlife habitats. In addition, buffers along Loantaka Brook, Great Brook, Silver Brook, and Pine Brook will ensure the continued high quality of these unique habitat areas. This is particularly important in connection with Great Brook and Pine Brook, which are directly linked to the Great Swamp.

Recent development in Harding, however, has taken place in a more intensive fashion as more subdivisions have been developed with large homes, extensive impervious coverage, and formal landscaped areas. Land use planning policies should promote the goal of preserving wildlife habitats, especially in corridors that reduce the effect of creating isolated pockets. It is important that land use planning decisions are made so as to mitigate the negative impacts that can result from unchecked growth, for once destroyed, wildlife habitats and unique areas of vegetation may be impossible to retrieve. The primary land use planning strategy recommended in this plan for avoiding these impacts is low densities of permitted development.

Major applications for development should be accompanied by an Environmental Impact Statement that includes measures to avoid impacting ecologically significant areas and, if this is not possible, measures which will lessen and offset unavoidable adverse impacts so that there is no net loss of habitat value. Examples of mitigating measures include establishing limits of disturbance to protect existing trees and wooded areas, replenishing disturbed vegetation with indigenous species, and establishing conservation easements to maintain buffers along stream
corridors and wetland areas. The protection of the critical areas located in Harding is especially important because of the township’s intimate relationship with the Great Swamp.
Control of Nuisance Species

The ERI documents the threat of deer overpopulation and of invasive plants to environmental quality in Harding in general and to critical habitats in particular. The great variety and significance of Harding’s vegetative resources, particularly in critical habitats, should be protected against these threats. Efforts by the township to control deer over-population and the introduction of invasive plants, particularly those listed in the ERI, should be supported.

Energy Conservation  (Reserved)
OPEN SPACE PLAN ELEMENT
(Adopted March 24, 2008)

INTRODUCTION/EXECUTIVE SUMMARY

Harding has a long history of open space preservation with a total of almost 6,000 acres or 45.5% of the township preserved.\(^1\) This achievement has protected the township’s traditional rural development pattern and its high quality natural resources, the two over-riding goals of the township’s Master Plan. The foundation for this Plan goes back many decades with the federal and county preservation of the four largest open space areas, the Great Swamp, Morristown National Historical Park (Jockey Hollow), Lewis Morris Park and Loantaka Brook Reservation, which together comprise many thousands of acres.

In 1997 the township established the Open Space Trust Committee, also referred to as HOST, to coordinate and advise the Township committee about future land acquisition by the township. The work undertaken by HOST over the last several years was instrumental in the preparation of this Plan. The major finding of this Plan is that further open space preservation is needed in order to achieve the Master Plan’s overall goals. The major goal of this Open Space Plan is to promote additional open space preservation in strategic locations that support the overall Master Plan goals of preserving the township’s rural character and protecting the high quality of our natural environment.

This Plan also supports continuing township efforts to acquire the development rights over important tracts of land that were planned for development and establish conservation easements in portions of lots that contain environmentally sensitive areas. With 44 miles of streams, the abundance of high quality water resources within the township indirectly results in additional open space preservation because of the myriad of new state regulations designed to protect them.

PUBLIC SUPPORT FOR OPEN SPACE PRESERVATION

Preservation of additional open space remains a priority for Harding residents. In recent years they have overwhelmingly voted to use local tax dollars for additional open space acquisitions in the following four township referenda.\(^2\)

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\(^1\) This includes land owned by federal, state, county, and local governments as well as community/nonprofit-owned lands preserved as open space.

\(^2\) Source: Harding Township.
1996: To establish a township “Open Space Trust Fund” through a dedicated property tax not to exceed 2 cents per $100 of assessed valuation: 1,301 in favor, 491 against.

2000: To add to the Open Space Trust Fund by authorizing the Township Committee to enact ordinances levying additional property taxes up to and including 3 cents beyond the 2 cents (5 cents total) approved in 1996: 1,217 in favor, 720 against.

2002: To authorize the use of township tax money for acquisition and maintenance of land for conservation, recreation, and farmland preservation purposes: 1,137 in favor, 312 against.

2003: To authorize the use of tax money for the preservation and acquisition of historic properties and to allocate a sum of up to 10% of future open space tax levies for such purposes: 593 in favor, 272 against.

Public Participation

In mid-2006 the Planning Board sought input from the public and township officials, including HOST, the Environmental Commission, and the Historic Preservation Commission, in connection with its reexamination of the Master Plan. A public hearing was conducted and written comments were solicited by the Board. This Open Space Plan is responsive to input from residents and the suggestions made by HOST, the Environmental Commission, and Historic Preservation Commission concerning the importance of open space to the preservation of Harding's rural character and environmental protection objectives. In addition, as part of the Master Plan process, the public and local newspapers were given notice of a public hearing to consider the adoption of this Open Space Plan. Comments from the public were solicited and considered prior to its adoption.

OPEN SPACE PLAN GOALS

The overall philosophy of this Plan is that there remain strategically located parcels of largely undeveloped land that are of special importance to the township’s traditional rural character and high quality natural resources. These parcels should be preserved where possible. Harding’s specific open space goals are as follows:

1. Preserve open space areas that contribute to the preservation of water resources, scenic vistas, streetscapes or landscapes, and/or that contain historic features or qualities of importance to the traditional rural historic character of the township.
2. Preserve open space important to the protection of Harding’s high quality natural resources, the Great Swamp National Wildlife Refuge and Morristown National Historical Park. Particular emphasis should be placed upon areas not otherwise protected by State regulations such as forests and meadows that provide valuable wildlife habitat.
3. Preserve open space to provide for active and passive recreational needs including linkage between open space areas and greenways, and maintaining the integrity of the system of bridle trails.
4. Promote the preservation of farms and farming in the township.
5. Provide for the stewardship of publicly owned land and promote the maintenance of privately preserved areas.

SIGNIFICANT EVENTS IN OPEN SPACE PRESERVATION

Open space planning and preservation efforts in Harding have been ongoing for over 70 years, commencing with the establishment of the Morristown National Historical Park in the 1930s. In recent years there has been increasing local, regional and statewide concern about damage to environmental resources and the consequences of “sprawl” development, which has led voters to support dedicating local, county and state tax revenues for open space preservation. Planning efforts have increased at all levels of government to mitigate the negative consequences of development and depletion of natural resources. Following are the significant events relating to open space preservation in Harding.

1933: Morristown National Historical Park is established, preserving over 1,300 acres of open space in the northwestern part of the township. This highlighted the significance of this area related to important events and sites in the American Revolutionary War.

1960: The Great Swamp National Wildlife Refuge is created; close to half of its current 7,700 acres are located within Harding Township.

1980: Statewide and regional planning efforts commence with the preparation of the “State Development Guide Plan” by the NJ Department of Community Affairs, which designates most of Harding as a Conservation Area. By 1985 the “State Planning Act” establishes a new State Planning Commission to develop a statewide plan to establish planning policies; Harding is designated within Planning Area 5, the Environmentally Sensitive planning area. By 2004 the "Highlands Water Protection and Planning Act" designates Harding within the Highlands Planning Area. These statewide and regional planning efforts indicate the sensitivity of large portions of Harding and the need to protect them from the negative impacts of development.

1984: The Planning Board adopts an updated Master Plan (updating the first Master Plan adopted in 1972) incorporating a “Parks, Recreation, Conservation and Open Space Plan Element.” The element focuses on an inventory of open space and recreation areas and assumes that privately owned areas in the central portion of the township will remain open as a result of historic land use patterns.

1990: The Harding Land Trust is formed by local citizens as a nonprofit organization to acquire, by gift, bequest or purchase, real property or easements for conservation purposes. Over the ensuing 17 years, the Trust acquires an interest in hundreds of acres of land in strategic locations around the township, often partnering with Harding’s Open Space Trust Committee, thereby contributing significantly to Harding’s rural character and environmental protection through a program of proactive open space preservation.

1992: The township participates for the first time in the state Green Acres Program with the acquisition of the “Margetts” property, a 46-acre tract of land with scenic vistas and extensive road frontage on Blue Mill Road. Also in 1992, the Planning Board adopts a report entitled
“Greenway and Open Space Plan for Harding Township” originally prepared for and adopted by the township’s Environmental Commission in 1991. The plan focuses on the importance of open space preservation and stream quality, and proposes “greenways” as an effective means to protect water resources and establish linkage between Morristown National Historical Park and the Great Swamp. The plan is incorporated into the Master Plan with the adoption of the recodification in 1994.

**1993:** Morris County commences collection of a dedicated tax for open space preservation. The Morris County Open Space and Farmland Preservation Trust Fund was established by the Freeholders in late 1992 with a strong commitment to preserve open space and farmland throughout the county.

**1996:** Harding voters pass a non-binding referendum recommending that the Township Committee establish an Open Space Trust Fund through dedicated tax revenues to finance the acquisition of land and easements for the acquisition of land for conservation and recreation. In establishing the fund, the Township Committee firmly commits the township to a permanent open space preservation program. Subsequent referenda approved by the voters in 2000, 2002 and 2003 increased the authorized tax and authorized the use of funds for farmland preservation, historic preservation, and the maintenance of lands acquired for open space/recreation purposes.

**1997:** The Township Committee establishes an “Open Space Trust Committee” comprised of the Mayor, township officials and residents. The committee performs an advisory function with duties that include establishing criteria to be used in analyzing properties for potential acquisition or the purchase of an easement or development rights.

**1998:** In a statewide referendum, New Jersey voters approved a stable source of funding for open space preservation throughout the state. The program dedicates $98 million annually for the ensuing ten years from sales tax revenue to the Garden State Preservation Fund. The goal of the program is to permanently preserve approximately 1,000,000 acres from development. A subsequent statewide ballot question passes in 2007 authorizing an additional $200 million in funding for one more year.

**2000:** The Township Committee adopts the “Harding Township Open Space Plan” for submission to NJDEP in connection with funding under the state’s Green Acres Program. The plan draws upon the Master Plan’s open space inventories, goals and policies, and assesses open space needs and resources.

**OPEN SPACE INVENTORY**

Preserved open space in Harding can be broken down into two broad categories. Figure 14, Open Space, illustrates their distinct patterns. The first is made up of a relatively few but very large preserves along the periphery of the township. The second, and substantially smaller category, is made up of scattered parcels located throughout the developed area of the township.

The first category, *the border preserves*, is made up by three very large preserves of open space. The largest is the Great Swamp Wildlife Refuge, which encompasses the entire southern third of the township. The second largest preserved area is in the northwest quadrant of the township.
comprised of the two contiguous areas of Morristown National Historical Park (Jockey Hollow) and Lewis Morris Park. In the northeast, Loantaka Brook Reservation provides a linear band of preserved land centered on Loantaka Brook. In all three cases these open space areas in Harding are part of much larger preserves that include lands in the adjacent municipalities. If land adjacent to Harding is included, preserved open space exists essentially along the entire southern, western, and eastern periphery of the township. Combined they substantially buffer the township from the encroachment of surrounding suburban development and provide the foundation for the township’s traditional rural development pattern. Altogether they create a community with a strong sense of a distinct place surrounded by countryside.

The second category, the interstitial open space, is located within and throughout the area where Harding’s residents live and what most people view as the Harding community. While the total amount of land within this category is relatively modest at about 500+ acres representing less than 10% of the township’s total open space inventory, its impact in promoting Master Plan goals belies its cumulative acreage. Many of these parcels have a direct impact on the character of adjacent residential areas. A number are also located along the township’s most traveled roadways, thereby having a prominent visual impact promoting the preservation of the township’s traditional rural development pattern.

The amount of undeveloped countryside and the continuation of Harding’s traditional rural character are the features that most distinguish the township from most other communities in the region. The preservation of these characteristics is at the heart of this Master Plan. The significance of open space to Harding and its planning goals is reflected in its zoning; all publicly-owned open space areas are zoned “Public Land.”

**OPEN SPACE & RECREATION AREAS IN HARDING TOWNSHIP**

<table>
<thead>
<tr>
<th>Area</th>
<th>Acreage in Harding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Swamp National Wildlife Refuge</td>
<td>3,632.3</td>
</tr>
<tr>
<td>Morristown National Historical Park</td>
<td>1,374.2</td>
</tr>
<tr>
<td>Morris County:</td>
<td></td>
</tr>
<tr>
<td>Lewis Morris Park</td>
<td>190.6</td>
</tr>
<tr>
<td>Loantaka Brook Reservation</td>
<td>84.0</td>
</tr>
<tr>
<td>State of New Jersey: NJ Natural Lands Trust</td>
<td>87.3</td>
</tr>
<tr>
<td>Township of Harding</td>
<td></td>
</tr>
<tr>
<td>Recreation and Open Space Inventory (ROSI)</td>
<td>155.6</td>
</tr>
<tr>
<td>Board of Education (site contains recreation areas)</td>
<td>39.5</td>
</tr>
<tr>
<td>Community Organizations/Nonprofits</td>
<td>348.0</td>
</tr>
<tr>
<td><strong>TOTAL:</strong> 5,911.5</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Harding Township Geographic Information System; 2007 and Harding Township ROSI; 2006.
Acreage is rounded to the nearest 1/10th acre.
Great Swamp National Wildlife Refuge

The largest and ecologically most important natural feature in Harding is the Great Swamp National Wildlife Refuge covering approximately the lower third of the township as well as parts of neighboring municipalities. The most important goal of the Refuge is to provide habitat for migratory birds; its secondary goal is to provide high-quality environmental education and wildlife-dependent recreation opportunities that are compatible with the Refuge’s purpose.³

Parts of the Great Swamp have been in public ownership since 1956 when 450 acres were set aside for a sanctuary. In 1959 when the Port Authority of New York and New Jersey designated it as a possible site for a major regional jetport, local citizens raised funds to purchase more than 3,000 acres, which were then donated to the federal government. The Refuge was established on November 3, 1960 and formally dedicated on May 29, 1964. On September 28, 1968, Congress designated 3,660 acres of the Refuge as a Wilderness Area (of which approximately 1600 acres lie within Harding) and it was included in the National Wilderness Preservation System, to be forever left in a natural state. Over the years, acreage has been added to the Refuge from willing sellers pursuant to the federal acquisition program. Today the Refuge is the largest single holding of contiguous parcels of vacant land in the region, comprised of almost 7,700 acres in the townships of Harding, Long Hill and Chatham. In Harding, the Refuge covers over 3,600 acres of land.

The Great Swamp is one of a series of swamps remaining as a result of the draining of glacial Lake Passaic, which covered a wide area, about 30 miles long and 10 miles wide.⁴ The lake drained through Little Falls Gap, along the present course of the Passaic River and left extensive marshes in its place. Today the Great Swamp is about seven miles long and three miles wide. It is essentially a depression surrounded by low hills composed of basalt from ancient lava flows. Shales and sandstones underlie the Swamp as a result of geological formations of the Triassic Era. It serves as a large natural flood plain saving vast areas downstream from potentially damaging floodwaters.

The Great Swamp contains a series of wooded ridges interspersed with wide areas of wooded swamp and open marsh. Woodlands compose about 20 percent of the Great Swamp, while the balance is primarily composed of wooded swamp and marshland. Generally, the Swamp bed consists of several feet of peat and organic muck overlaying a thin layer of sand and ultimately a thick deposit of impermeable clays and silts. Between the clay/silt layer and the deeper bedrock is a bed of sand and gravel aquifers. Groundwater in the Swamp moves in the sand and gravel aquifer beneath the clay/silt layer. Surface water cannot, however, pass through the clay beds to add to the groundwater. Thus, groundwater in the swamp is actually below the normal levels of groundwater in areas outside the Swamp since the clay and silt layer is some 60 feet thick.⁵

³ Source: www.friendsofgreatswamp.org.
⁴ Others include Black Meadows, Great and Little Piece Meadows, Troy Meadows, and Hatfield Swamp.
Wetlands within the Great Swamp are associated with four brooks and their tributaries, which carry water into the Great Swamp. These brooks (Black, Great, Loantaka, and Primrose) form the Great Swamp Watershed, which includes virtually all of Harding and parts of Morristown, Madison, Chatham, Morris, Long Hill, Bernards and Mendham Townships and Bernardsville, Madison and Mendham Boroughs. The brooks flow across the Swamp to the Passaic River. The stream waters bring in silt, which in time can destroy the Great Swamp. As streams flow through marsh areas, water spills over the banks where the emergent vegetation absorbs it and, by transpiration, sends it into the atmosphere. As a result, stream-flows leaving the Great Swamp during the growing season contain less water than when they entered it, an important factor in flood prevention.

The Great Swamp is a valuable habitat for wildlife. In recent years, remediation actions have taken place at several former dumps, including one in Harding. Activities in the Refuge include pedestrian trails, the Morris County Outdoor Education Center, and the Wildlife Observation Center (see “Recreation Facilities” below). A new Visitor Center, named in memory of late conservationist Helen C. Fenske, is located on Pleasant Plains Road.

**Morristown National Historical Park (Jockey Hollow)**

Created by Congress in 1933, Morristown National Historical Park was the first park of its kind in the United States. Located northwest of Route 202 and comprised of a total of about 1,700 acres of land (1,374 acres in Harding) this is the site of "Jockey Hollow," the main encampment for the Continental Army during the winter of 1779-1780. Jockey Hollow is the second largest contiguous open space area in the township.

Jockey Hollow provides open space recreational opportunities, as well as habitat for wildlife and virtually undisturbed vegetation. This area contains the headwaters of Primrose Brook, which flows to the Great Swamp and is the ecological link between Jockey Hollow and the Wildlife Refuge. It is designated a "category I trout production" stream from its origin in the Park to Lees Hill Road and “non-trout” below Lees Hill Road. According to DEP standards, the stream must be protected from measurable changes (including calculable or predicted changes) to the existing water quality. The National Park is buffered by Lewis Morris Park (a county park) and two large adjacent parcels, one owned by the Morris Area Council of Girl Scouts and the other by the New Jersey Audubon Society.

**State-owned Land**

Much of the state-owned property in Harding is situated along the Route 202/287 corridor. The largest parcel is the 41-acre rest area on the easterly side of the interstate highway. Another large parcel is a nine-acre wetlands mitigation site located along Route 202. In terms of open space
preservation, the New Jersey Natural Lands Trust, a nonprofit corporation established by the State of New Jersey, owns an 87-acre parcel adjoining the Great Swamp in the southwestern portion of the township.

**County Parks**

Morris County holds approximately 275 acres in parkland in Harding Township. A portion of Lewis Morris Park in the northwestern corner of the township comprises about 190 acres (the total park area is 1,154 acres). In the northeastern corner of the township lies an 84-acre portion of the Loantaka Brook Reservation. This site, situated to the west of Woodland Avenue, includes Loantaka Brook. It is part of the 575-acre linear park that helps provide protection to Loantaka Brook and the Great Swamp. There are numerous recreational opportunities found at both county parks (see “Recreational Facilities” below).

**Township Open Space and Recreation Sites**

Parcels of land owned by the township that are dedicated to open space or contain recreation facilities comprise about 155 acres and are listed in the table below.\(^6\) The Harding Township Elementary School property (39.5 acres), located in New Vernon village, contains recreation fields and therefore is considered part of the township’s recreation sites inventory. Members of the New Vernon Garden Club maintain gardens in public places within New Vernon village, including the areas adjacent to the Tunis-Ellicks House.

Known as the “ROSI” the listing below represents parcels owned by the township that are dedicated to open space and recreation under the Green Acres Program, although Green Acres funding has not been utilized in the acquisition of all parcels (see the “Green Acres” section below).

<table>
<thead>
<tr>
<th>Name or Location</th>
<th>Block</th>
<th>Lot</th>
<th>Active or Passive Use</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayne Park</td>
<td>21</td>
<td>9</td>
<td>Active &amp; Passive</td>
<td>13.7</td>
</tr>
<tr>
<td>Barrett Field</td>
<td>46</td>
<td>2.01</td>
<td>Active &amp; Passive</td>
<td>9.3</td>
</tr>
<tr>
<td>Kirby Hall (tennis court area)</td>
<td>19</td>
<td>12.07</td>
<td>Active</td>
<td>7.0</td>
</tr>
<tr>
<td>Equestrian Park</td>
<td>20</td>
<td>6</td>
<td>Active &amp; Passive</td>
<td>8.1</td>
</tr>
<tr>
<td>Blue Mill Fields (Margetts)</td>
<td>8</td>
<td>9.01, 22, 23</td>
<td>Active &amp; Passive</td>
<td>52.7</td>
</tr>
<tr>
<td>Memorial Park</td>
<td>16</td>
<td>1</td>
<td>Active</td>
<td>0.8</td>
</tr>
<tr>
<td>James Street (Frelinghuysen)</td>
<td>5</td>
<td>13</td>
<td>Passive</td>
<td>3.3</td>
</tr>
<tr>
<td>Bailey's Mill Road (Rossell)</td>
<td>35</td>
<td>14</td>
<td>Passive</td>
<td>3.4</td>
</tr>
</tbody>
</table>

\(^6\) The township owns additional parcels of land in various locations including sites with community buildings or facilities, affordable housing, and other undeveloped land.
Bayne Park: Community Focal Point

Bayne Park is a 13+ acre site situated between Glen Alpin, Blue Mill, and Sand Spring Roads in the village of New Vernon. Harding resident Howard Bayne donated the land to the township in 1937 to be used in perpetuity as a park. With its large pond and highly visible location across from the municipal building and within walking distance of the historic village, it is a focal point and historically important for all Harding residents. The stone footbridges were constructed in the late 1930s under the Works Progress Administration (WPA) program and have become defining elements of the park. A dedication boulder has been placed in the park in appreciation of Mr. Bayne’s gift to the community.

While there is a considerable amount of open space within Harding, Bayne Park is centrally located and easily accessed, and is one of the largest parcels of land owned by the township. The pond provides opportunities for fishing; the mature plantings and expansive open lawn create a setting that offers tranquility not only for those who visit, but also for those who drive along the roads that surround the park on three sides. Recreation opportunities include a bridle trail and, during winter months, skating and ice hockey. Over the years, many trees and shrubs have been added and picnic tables and park benches provide opportunities for visitors to enjoy the setting.

In the mid-1990s, concerns arose about maintenance of the pond and park features. In 1997 the New Vernon Garden Club presented recommendations to the Planning Board in a professional Landscape Master Plan. Since then, work has been undertaken to maintain existing improvements and introduce new plantings. Friends of Trees, a local nonprofit group, has taken responsibility for, and raised funds/accepted donations for plantings and the Township Committee has established the Bayne Park Committee to provide oversight of the varied community interests in the park. The preservation of the park’s natural setting and informal character is of great importance to the township and is consistent with Harding’s historic rural heritage.

Stream Corridor Protection

In 1994, the Master Plan was amended to incorporate the “Greenway Plan” for Primrose and Silver Brooks originally prepared for the Environmental Commission in 1991. Its primary purpose was to propose the reservation of a corridor of land encompassing these high quality...
streams to protect them from the encroachment of development. Since that time, New Jersey Department of Environmental Protection regulations have become increasingly stringent regarding encroachment on all high quality streams (for detailed information on stream classifications see the Conservation Plan Element, page 10-6 and Figure 12, Stream Classifications, included at the end of the Master Plan). This presents the opportunity, particularly when a property is the subject of the site plan or subdivision review process, to preserve these areas and those areas adjacent to Category 1 streams by means of conservation easements.

In 1998 the township’s Land Use and Development Ordinance (section 105-124) was amended to require that subdivision approvals be conditioned upon the establishment of conservation easements encompassing freshwater wetlands and their transition areas, lands within fifty feet of the top of the channel bank of any state open water, stream encroachment areas, and other unique environmentally-sensitive areas. For the most part, conservation easements in Harding are not intended as a means of promoting open space preservation per se. However, they are an important part of Harding’s overall environmental protection and rural preservation strategy and indirectly promote open space preservation because the area of the easement is usually protected from any development. There are well over one hundred such easements recorded, totaling over 550 acres of land.  

Tree Protection

The Land Use Ordinance promotes the preservation of trees and wooded buffers between properties with the establishment of a “tree conservation area” along all residential property lines. Permits are required to cut down trees greater than eight inches (measured at breast height) within the conservation area. Also, in conjunction with the review and approval of major subdivisions, tree conservation easements have been established to protect extraordinary specimen trees and tree conservation areas have occasionally been expanded in order to provide enhanced buffering for neighboring properties.

Community Organization-owned Lands

Community and nonprofit organizations contribute significantly to open space preservation in Harding, particularly because most parcels are interstitially located within the developed community area of the township. Collectively they preserve a total of 348 acres of open space as detailed below.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Location</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harding Land Trust</td>
<td>Multiple parcels</td>
<td>104.5</td>
</tr>
<tr>
<td>Great Swamp Watershed Assn.</td>
<td>Tiger Lily Lane area</td>
<td>52.2</td>
</tr>
<tr>
<td>NJ Conservation Foundation</td>
<td>Village Road</td>
<td>19.9</td>
</tr>
</tbody>
</table>

7 Harding Township Geographic Information System, August 2007.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Location</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NJ Audubon Society</td>
<td>Headwaters of Passaic River</td>
<td>76.8</td>
</tr>
<tr>
<td>Morris Area Girl Scouts</td>
<td>Tempe Wick Road</td>
<td>46.9</td>
</tr>
<tr>
<td>Lakeshore Company</td>
<td>Multiple sites @ Mt. Kemble Lake</td>
<td>4.2</td>
</tr>
<tr>
<td>Harding Green Homeowners Assn.</td>
<td>Mt. Kemble Avenue</td>
<td>9.00</td>
</tr>
<tr>
<td>Shadowbrook Homeowners Assn.</td>
<td>Mt. Kemble Avenue</td>
<td>4.49</td>
</tr>
<tr>
<td>Hartley Farms</td>
<td>Multiple parcels @ Hartley Farms</td>
<td>30.0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>348.0</strong></td>
</tr>
</tbody>
</table>

Source: Harding Township Geographic Information System; August 2007. Acreage is rounded to the nearest 1/10th acre.

Note: In addition to the acreage displayed above, the Harding Land Trust has an ownership interest, with the Township of Harding, in three properties ("Waterman Meadow," Glen Alpin, and the "Gatehouse"), all of which are zoned Public Land, and are included in the township's ROSI displayed on page 4-8.
The Harding Land Trust

In 1990, a group of Harding citizens founded the Harding Land Trust to work with local residents to conserve land in Harding. The Land Trust is a 501(c)(3) nonprofit organization with a mission to acquire, by gift, bequest or purchase, real property or easements in the township for conservation. Major goals of the Land Trust are to support land use planning that promotes conservation of unique scenic, natural and historic areas, to protect the rural character of the township and to ensure the integrity of water resources.

In 1992, Jane Koven made the first donation to the Land Trust. The property is situated along Pine Brook on Dickson's Mill Road and it represents the first major portion of the Silver Brook/Pine Brook greenway, consistent with this Master Plan. The property is also a key element in Harding's bridle trail network and provides habitat, food and shelter for migratory birds and other wildlife.

The Harding Land Trust owns over 100 acres of land in various locations around the township and has partnered with the township on many open space preservation projects. HLT also holds a number of conservation easements that permanently protect the important natural features of land that remains in private ownership. Acquiring property and easements in this fashion enables the preservation of unique vistas, open space, stream corridors and wooded areas that serve to enhance and protect the township's rural character and environmental resources. These parcels are displayed on Figure 14 Open Space in the “Private Preserved” and “Easements” categories.

Bridle Trails

There is a long history of equestrian or bridle trails in Harding and many are still actively used. Over the years, Bridle Paths, Inc. established, owned and managed a series of equestrian trails, predominantly located in the eastern central portion of the township. The trails form a greenway system leading from Pleasantville Road across from the Refuge, northeast across Village road and up to Blue Mill Road. Another trail links the Glen Alpin property to Equestrian Park on Sand Spring Lane.

Bridle Paths, Inc. has since transferred ownership of its holdings to the Harding Land Trust; they are included on the Open Space map in the “private preserved” category. Bridle trail easements are also shown, but the map does not show trails that are subject to voluntary license agreements arranged as part of the subdivision process since a license may be revoked by the landowner at any time in the future. Other existing trails scattered throughout the township are not shown on the map because they have not yet been formally preserved.

The township’s subdivision regulations require the mapping of any trails that exist on property proposed for development. The Land Use and Development Ordinance and Planning Board strongly support trail preservation, preferably via formal easements.
Lakeshore Company  
(Mt. Kemble Lake)

Lakeshore Co. is an outgrowth of the development of the Mt. Kemble Lake residential community. Lakeshore owns many parcels around Mt. Kemble Lake, some of which are the subject of conservation easements and are included in the “Private Preserved” category on Figure 14. The company also owns Mt. Kemble Lake, which comprises 14+/- acres in surface water area, and serves as a recreational resource for Lake residents. Lakeshore also owns numerous other parcels throughout the lake community. Several parcels provide access to the lake while others are vacant or serve as recreational sites for such uses as tennis, a community garden and clubhouse.

New Jersey Audubon and  
Morris Area Girl Scouts

The New Jersey Audubon Society and the Morris Area Council of Girl Scouts own parcels that form an important part of the large area of open space preserved in the northwestern part of the township. A 77-acre parcel owned by the Audubon Society is part of the 260-acre Scherman-Hoffman Sanctuary that extends into Bernardsville. It contains a facility for environmental education/wildlife habitat. The Morris Area Council of Girl Scouts owns a 47-acre parcel situated between the Tempe Wick Road and the township boundary. The property adjoins the Council’s land in Mendham Township, which is the site of their camp facilities.

Great Swamp Watershed Association and  
New Jersey Conservation Foundation

The Great Swamp Watershed Association owns three parcels of land totaling over 50 acres in the Tiger Lily Lane area along Silver Brook. These parcels contain significant wetland areas. The NJ Conservation Foundation owns a 20-acre parcel adjoining a tributary stream of Great Brook, which serves as an area for wildlife habitat and wetlands protection. It adjoins a portion of the bridle trails to the east and a large vacant parcel to the south, also located on both sides of the stream. In addition, the Foundation holds conservation easements in several areas of the township.

Harding Green, Shadowbrook and Hartley Farms

Harding Green and Shadowbrook are planned developments constructed in the 1980s pursuant to Harding’s planned development/cluster zoning, which required a minimum amount of open space. Hartley Farms represents an “open space subdivision” with a voluntary setaside of about 30 acres of preserved open space in historically significant portions of the former Dodge Estate. The property was subdivided in the 1990s and is also designated a State & National and municipal Historic District (see Figure 16 Historic Districts). Taken together these open space areas total approximately 44 acres of land.
Recreation Facilities

Morris County's two major park facilities in Harding Township, Lewis Morris Park and Loantaka Brook Reservation, provide extensive active and passive recreation facilities. The Reservation is divided into three major areas: the Seaton-Hackney Stables, the Brook Recreational Area, and the Helen Hartley Jenkins Woods area, which is largely undeveloped with the exception of a bike path and hiking trails.

Morristown National Historical Park provides for hiking, nature trails, a visitor’s center and tours of the historic Tempe Wick House. The Great Swamp National Wildlife Refuge provides opportunities to view a variety of plant and animal life in a natural habitat. A series of marked trails are found in the Wilderness Area, which is bordered on the eastern edge by the Morris County Outdoor Education Center. Public access to the remainder of the Refuge is on a restricted basis on designated, elevated trails and Pleasant Plains Road. The Wildlife Observation Center is situated in the central-eastern portion, near the Wilderness Area boundary.

In addition to the recreation provided at county and federal parks, recreation facilities are provided locally at Bayne Park in the center of New Vernon, at the Municipal Building, at the Equestrian Park on Sand Spring Lane and at Barrett Field near Bailey's Mill Road. Recreation at Bayne Park includes a bridle trail, fishing, ice-skating, picnicking and passive recreation. The Harding Township Recreation Association helps provide funding for the park and recreation facilities and the Harding Department of Public Works provides maintenance of the park facilities. Recreation facilities are also available at the Board of Education property and Fire Department property in New Vernon.

<table>
<thead>
<tr>
<th>ACTIVITIES AVAILABLE TO THE PUBLIC AT MAJOR PARKS AND OPEN SPACE AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Great Swamp National Wildlife Refuge</strong></td>
</tr>
<tr>
<td>Extensive educational programs available at the Outdoor EducationCtr. (Morris Co.) and the Environ. Educ. Ctr. (Somerset Co.)</td>
</tr>
<tr>
<td>Trails: pedestrian</td>
</tr>
<tr>
<td>Wildlife Observation</td>
</tr>
<tr>
<td>Pre-arranged tours</td>
</tr>
<tr>
<td>Visitor Center exhibits</td>
</tr>
</tbody>
</table>

Source: [www.fws.gov](http://www.fws.gov) (8/07)
Source: [www.nps.gov](http://www.nps.gov) (8/07)
Source: [www.morrisparks.net](http://www.morrisparks.net) (8/07)
Source: [www.morrisparks.net](http://www.morrisparks.net) (8/07)
GREEN ACRES

The Green Acres Program was established by the State in 1961 and has evolved and grown into what is now the most important source of funds for open space in the New Jersey. From 1961 to 1995, New Jersey’s voters overwhelmingly approved nine bond issues earmarking more than $1.4 billion for land acquisition and park development. In response to a 1998 statewide ballot question, the Legislature enacted the Garden State Preservation Trust Act, providing a source of funding for the ensuring ten years for open space preservation. Continued funding is dependent upon periodic statewide election ballot questions the first of which was passed by voters in November 2007. Over 80,000 acres of land have been preserved through the programs that fund municipal and nonprofit organizations.

In recent years, the Green Acres Program has become one of the township’s most important sources of funding for open space preservation. The Green Acres Program provides low interest loans and matching grants to municipalities and nonprofit organizations to acquire land for open space and recreation purposes. Two of Harding’s “partners” in open space preservation, the private nonprofit Harding Land Trust and the Great Swamp Watershed Association, are eligible for Green Acres funding and have utilized the program to acquire land for preservation in Harding. The Green Acres Planning Incentive Program provides grants and loans to municipalities that have enacted an open space tax and have adopted an open space and recreation plan. The Tax Exemption Program provides exemption from local property taxes to eligible nonprofit organizations that own recreation or conservation land and permit public use of their private lands.

Green Acres funding was important in the township’s acquisition of numerous open space parcels over the last 15 years. Since 1992, of the 20 parcels that have been preserved by the township, the following seven utilized the Green Acres Program (see “ROSI” table on page 14-8 for acreage and location details).

- Blue Mill Fields – Margetts
- Bailey’s Mill Road – Rossell
- Waterman Meadow
- Audubon - Scudder
- Gatehouse - O’Connor
- Glen Alpin
- Wilkerson

In addition to the above, in 2007 the township utilized Green Acres Program funding toward acquisition of the Anderson property, which is located along Tempe Wick Road, and has proposed to acquire the Eggert property, located along Route 202 adjacent to the National Park.
MORRIS COUNTY PRESERVATION
TRUST & FARMLAND PRESERVATION

In 1992, Morris County established the Morris County Open Space and Farmland Preservation Trust Fund (County Trust Fund). The Freeholders review the tax rate annually and may set the tax anywhere from $0.00 to $0.05 per $100 of property valuation. Harding has received $15 million in grants under the program. The Fund is divided into the following categories:

- 20% to the Morris County Park Commission
- 5% to the Morris County Municipal Utilities Authority
- 25% to the Morris County Agricultural Development Board for open space preservation
- 20% to discretionary projects typically open space grants to municipalities and nonprofit organizations
- 5% to ancillary county projects associated with the preservation of open space, farmland and historic resources

The County Trust is the source of funding for the Morris County Farmland Preservation Program, which began in 1987. This program has been particularly important to Harding for farmland preservation. Although the township has long since ceased to be a predominantly farming community, the continuation of the remaining farms and farming-related activities is a preservation objective of this plan. Since 1995, eight parcels preserved in the township have utilized funding from this source. There are four ways to preserve farmland under the county-administered program:

1. **County Easement Purchase Program** – A landowner voluntarily agrees to sell to the County Agricultural Development Board the development rights to their farm, and a permanent deed restriction is then placed on the land.
2. **Fee Simple Purchase Program** – Interested landowners sell their land in fee simple, relinquishing all rights to the land.
3. **Direct Easement Program** – Landowners sell the development rights of their farmland directly to the State Agricultural Development Committee.
4. **Eight-Year Program** – Landowners voluntarily restrict development on their land for a period of eight years. They receive no direct compensation, but are eligible to receive grants for up to 50% of the cost of conservation projects.8

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PRESERVED FARMLAND
IN HARDING TOWNSHIP

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Block</th>
<th>Lot</th>
<th>Acres</th>
<th>Preservation Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wightman</td>
<td>Mt. Kemble Ave</td>
<td>32</td>
<td>9, 7, 9, 10</td>
<td>41.5</td>
<td>Ag easement</td>
</tr>
<tr>
<td>Nagro/Lobel</td>
<td>Sand Spring Rd</td>
<td>25.02</td>
<td>10.01</td>
<td>20.1</td>
<td>Ag easement</td>
</tr>
<tr>
<td>Lancor/McShane</td>
<td>Cherry Lane</td>
<td>8</td>
<td>2, 2, 01</td>
<td>10.0</td>
<td>Dev rights/Ag easement</td>
</tr>
<tr>
<td>Koven</td>
<td>Dickson's Mill Rd</td>
<td>8</td>
<td>3.01</td>
<td>19.4</td>
<td>Ag easement</td>
</tr>
<tr>
<td>Thebault</td>
<td>Sand Spring Rd</td>
<td>25.02</td>
<td>10.02</td>
<td>32.5</td>
<td>Ag easement</td>
</tr>
<tr>
<td>Scaff</td>
<td>Lee’s Hill Rd</td>
<td>51</td>
<td>10</td>
<td>96.3</td>
<td>Ag easement</td>
</tr>
<tr>
<td>Haeberle</td>
<td>Lee’s Hill Rd</td>
<td>51</td>
<td>7</td>
<td>28.7</td>
<td>Ag easement</td>
</tr>
<tr>
<td>Devine</td>
<td>Lee’s Hill Rd</td>
<td>51</td>
<td>12</td>
<td>32.4</td>
<td>Ag easement</td>
</tr>
</tbody>
</table>

TOTAL: 280.9

Source: Harding Township Geographic Information System; August 2007. Acreage is rounded to the nearest 1/10th acre.

Other state and local policies also promote the preservation of farmlands. As part of the township’s participation in the Morris County Farmland Preservation Program, it enacted a “Right to Farm” ordinance in 2000 intended to protect farmers pursuing normal farming activities. In addition, state legislation provides for “farmland assessment” - reduced local real estate taxes on property that meets the minimum size criteria of five acres for a vacant lot and six acres for parcels containing a dwelling. There are also annual farm-related production requirements. This program makes farming more economical and reduces financial pressures to subdivide. According to Morris County tax assessment data as of August 2007, over 1,700 acres of land (see Figure 14 Open Space) are farmland assessed (i.e. listed as “Q Farm”) in Harding.  

OPEN SPACE ACTION PLAN

Township-supported open space acquisition should be guided by a strategic plan developed by the Open Space Trust Committee advising the Township Committee about potential acquisition based upon priorities that promote Harding’s overall planning goals. The ability to obtain supporting funding from other sources, Green Acres, Morris County’s Open Space Fund or the Harding Land Trust, should be an important part of the township’s consideration. The strategic plan should have a long-term outlook to avoid being reactive when land is proposed for development. Increasingly, state requirements restricting development on environmentally sensitive lands, particularly adjacent to wetlands and streams, should be considered when evaluating areas that are essentially already barred from development.

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9 Source for farmland assessed acreage: Morris County MOD IV tax data. The county data may include the acreage of developed portions of some parcels.
Open Space Preservation
Needs and Resource Assessment

Open space preservation continues to be central to achieving the overall goals of the Master Plan, preserving the township’s traditional rural/historic character and protecting its high quality of natural resources particularly its water resources. Land use and environmental regulations should be complemented by an active open space acquisition plan.

Analysis of Future Open Space Needs

The township is designated by the State Planning Commission as Planning Area 5 Environmentally Sensitive and has been included in the Highlands Planning Area. It is also entirely within the watershed of the Great Swamp National Wildlife Refuge. State planning policies emphasize that open space preservation should be an important part of land use policies at all levels of government affecting these areas. Similarly, the Conservation Plan and Land Use Plan elements were amended in 2004 to recommend that township land use policies be changed if Harding’s long-standing overall planning goals were to be achieved (see Conservation Plan Element, page 10-8 and Land Use Plan Element, page 18-12). As a result, the township established a new lower density residential zoning district, the Rural Residential Zone, encompassing a majority of the privately owned land in the township. The Land Use Plan also emphasizes that the new lower density zoning needs to be complemented with active open space preservation as key to achieving the Master Plan’s goals.

Harding’s land use regulations by themselves cannot achieve the Master Plan’s goals. A complementary program of active open space preservation is also needed in order to preserve parcels that are strategically important to the township’s character and high quality natural resources. The goals of this Plan are consistent with the goals and objectives of the Conservation Plan and Land Use Plan, as well as the overall Master Plan goals. There are two general categories of land, still abundant in Harding, that need to be preserved to achieve the township’s planning objectives consistent with its designation within PA-5 and the Highland Regional Master Plan. They are highly visible areas important to the township’s historic/rural character and environmentally sensitive areas, as more specifically described below.

Assessment of Lands Important to the Preservation of the Township’s Character

The land areas especially important to preserving Harding’s traditional rural character are the very low density areas that give the impression of the rural countryside and of traditional farmsteads visible from the public roads. Areas outside of the villages but otherwise interstitially located throughout the developed community area of the township are particularly important to this goal.
Assessment of Lands Important to Environmental Protection

The township contains abundant areas of special environmental importance. They include Category 1 streams and important open waters such as Primrose Brook, Silver Brook, Great Brook, Mt. Kemble Lake and Silver Lake. They also include the Great Swamp and adjacent lands important to its role as a wildlife refuge. Recent strict state regulations, particularly regarding stormwater management and the 300-foot buffer to Category 1 streams, are having a dramatic effect towards protecting these environmental resources. However, open space acquisition should be complementary to regulatory efforts to protect them.

Open Space Preservation Priorities

The overall goals and objectives of this Master Plan should be considered in evaluating land contemplated for preservation. To achieve the plan’s goals, the following areas should be given priority, although they are not in any rank order because each is important to achieving Harding’s Master Plan goals.

Protection of Water Resources

There are 44 miles of streams and numerous ponds and lakes throughout the township, almost all of which drain to the Great Swamp National Wildlife Refuge. In addition, almost all Harding residents rely upon individual private wells for potable water supplies; thus the protection of groundwater resources is an imperative for the township. The Planning Board should continue its practice of requiring conservation easements that support the protection of wetlands, stream corridors and open waters.

Rural Streetscapes

The overriding goal of the Master Plan, overwhelmingly supported by Harding’s residents, is to preserve Harding’s traditional rural development pattern. Its promotion should be a primary consideration in open space acquisition. In practical terms this means undeveloped properties, including undeveloped portions of large developed properties, farmsteads and farmland that are adjacent to major township roads should be given a high priority for open space preservation. The Margetts property, with extensive frontage along Blue Mill Road, is an example of a visually prominent open space parcel that contributes importantly to preserving the township’s traditional character.

Viewsheds and Gateways

Harding is endowed with many relatively open areas providing long distance views that prominently contribute to its traditional character. Ridgelines may also provide prominent scenic vistas. “Gateways” or areas through which people first travel when entering Harding are
important first impressions that deserve special consideration. The preservation of these views should be given a high priority. Viewshed easements should be considered as a potentially more economical alternative to fee simple acquisition.

**Historic Areas**

Harding also contains many historic resources with special significance as described in the Historic Preservation Plan element. Their preservation should be given priority, especially when they are part of important viewsheds. However, this priority must be balanced with potential costs associated with the adaptive reuse of historic structures and their continued maintenance.

**Greenways and Wildlife Habitat**

This Open Space Plan continues the legacy of the Greenways Plan adopted by the Environmental Commission and Planning Board in the early 1990s. Priority should be given to linking open space areas, thereby enhancing the usability of those areas for passive and active recreational purposes. In addition, linked areas are more beneficial to natural ecological systems, wildlife habitat, and more effective in retaining the township’s rural character.

**Bridle Trails**

Where bridle trails exist and are identified as part of the development review process, they should be protected through easements. When it is not possible to obtain bridle trail easements, a licensing agreement should be obtained.

**OPEN SPACE PLAN IMPLEMENTATION**

**Open Space Trust Committee (“HOST”)**

Harding has entered a new era in open space preservation with the mandate of township voters and the establishment of the Open Space Trust Fund. Early in 1997 the Township Committee established the Open Space Trust Committee composed of nine members including the Mayor, township officials and residents. The Trust Committee is empowered to establish criteria for property acquisition and to make recommendations to the Township Committee as to which properties may be suitable for acquisition, easements or the purchase of development rights.

The Trust Committee works proactively to obtain additional funding to augment the use of township Trust funds by partnering with other public, as well as local and national nonprofit conservation organizations. The leveraging of resources to accomplish common goals has a multiplying effect on the township’s efforts to preserve open space. The Committee also undertakes baseline documentation and monitoring of open space properties to insure that the township in a good steward of its open space lands.
In 1999 the Trust Committee sought input from township boards, organizations and officials in establishing criteria for land acquisition in Harding. Recommendations were received from many interested parties including the Planning Board, Environmental Commission and the Shade Tree Advisory Committee. As a result, the Trust Committee developed the following criteria, consistent with this Master Plan, to serve as a guide in setting priorities for open space acquisition.

- Land that protects enhances or restores ecosystems, aquifers, stream corridors, or other water resources.
- Land that preserves Harding’s rural heritage such as scenic vistas or landscapes, historic structures and Bridle trails.
- Land that complements existing open space.
- Land that serves as valuable wildlife habitat including forests and meadows.
- Land that establishes or contributes to a system of greenways.
- Land that should be acquired because development would have a substantial deleterious impact on the character of the township.
- Land that supports the goals of this Master Plan.

Funds set aside through the open space tax may be used for direct acquisition or to help finance bond issues for land acquisition. No land acquired through the Trust may be sold without the authorization of the Township Committee after a public referendum.

**Partnerships and Funding for Open Space Preservation**

Historically, the federal government was the largest source of funds for open space preservation in Harding Township; that source is now very constrained. Fortunately, however, other sources for local open space funding have become increasingly available. In particular, the Green Acres Program, County Trust Fund, Harding Open Space Trust Fund, and Harding Land Trust have become increasingly important to the township’s efforts to preserve open space. The township Open Space Trust Committee has been active in forging partnerships with these funding sources.

Since the costs of fee-simple purchases of land can be prohibitive and take time and effort to arrange, alternative means of open space preservation will continue to be important in achieving this plan’s objectives. Alternatives include obtaining conservation easements, purchasing of development rights, and facilitating open space acquisition undertaken by private/third-party nonprofit groups when the goals of this plan will be advanced.

Landowners are often willing to give bargain sales or donations of land, conservation easements, or life estates to nonprofits and governments, and in so doing can reap income, inheritance, and capital gains tax benefits. Such contributions can satisfy the township's matching requirement when using county or state funding. Landowner contributions can also be used by nonprofits
working in partnership with the township, which need to match public dollars at a 1:1 ratio. The township should continue to strengthen relationships with residents and partner with groups and organizations that share its open space preservation goals.

**Open Space Maintenance and Stewardship**

The cost of open space preservation does not end with the acquisition of land. Land ownership carries with it maintenance and stewardship responsibilities. The burden of maintenance can vary greatly with each parcel and its intended use. Preserved natural woodlands may require little maintenance; developed properties are typically high maintenance. The extent and cost of continued maintenance should be carefully considered as an important part of future open space acquisition.

Most open space areas in Harding are natural preserved lands requiring relatively little maintenance. However, good stewardship requires that they be monitored and, as such, the township has established a regular monitoring program for land acquired through dedicated tax funds. The monitoring of conservation easements is also important to good stewardship. In 2002 the Harding Township Environmental Commission prepared a *Survey, Inventory and Monitoring Plan for Conservation Easements in Harding Township*. The Commission recorded 86 easements held by Harding Township at that time for various purposes, including conservation (no disturbance of land or vegetation or steep slope protection), scenic views or preservation of bridle trails. HOST has initiated and will continue to fund stewardship of appropriate resources. Township staff maintains a comprehensive database of open space, including easements, as key to stewardship of all of these important resources.

Prepared by:

Susan C. Kimball, PP (License No. 2280)
The original signed and sealed copy of this Master Plan element is on file with the Secretary of the Harding Township Planning Board and the Township Clerk.
INTRODUCTION

Harding Township is located in the designated Highlands region, an Environmentally Sensitive Planning Area (PA-5), and in the Great Swamp Watershed. In each case, Harding is an area of special State concern because of the water resources of exceptional sensitivity and importance. Their protection is a central goal of this Master Plan.

The purpose of this element is to document the strategy for mitigating the impact of development on these resources in accordance with N.J.A.C. 7:14A-25 Municipal Stormwater Regulations and 7:8 Stormwater Management Rules. It addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major developments, defined as projects that disturb one or more acres of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. This element also describes the measures for long-term operation and maintenance of existing and future stormwater facilities.

The review and updating of existing ordinances, other elements of the Master Plan, and other planning documents is also addressed to promote project designs that include low impact development techniques. The final component of this plan is a mitigation strategy for use when a variance or exemption from the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.

GOALS AND OBJECTIVES

The overall goal of this plan element is to preserve the exceptional quality of surface and groundwater resources in Harding Township. In order to achieve this, the following objectives must be implemented:

- Minimize, to the extent practical, any increase in stormwater runoff from any new development.
- Reduce soil erosion from development or construction projects.
- Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures.
- Maintain groundwater recharge and, to the extent practical, restore groundwater recharge to pre-colonial rates.
- Prevent, to the greatest extent feasible, an increase in nonpoint pollution.
- Maintain the integrity of stream channels for their biological functions, as well as for drainage.
• Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water.

• Reduce flood damage, including damage to life and property.

To achieve these objectives, specific stormwater design and performance standards for new development are outlined. Additionally, stormwater management controls to address impacts from existing development are proposed. Preventative and corrective maintenance strategies are included to ensure long-term effectiveness of stormwater management facilities. Safety standards for stormwater infrastructure to be implemented to protect public safety are also outlined.

BACKGROUND

Harding Township serves as the headwaters for major tributaries of the Passaic River. Figure 8 illustrates the various waterways and watersheds of the township. Out of Harding’s total of 13,100 acres, 12,793 acres lie within the drainage basin of the Passaic River. This can be broken down into five sub-basins, defined by waters flowing into the five largest waterways in the township: Loantaka Brook, Great Brook, Primrose Brook, Black Brook and the Passaic River. Over 97 percent of the township’s land area drains into the Great Swamp. A small area, comprised of about 300 acres in the northwesterly corner of the township, lies within the headwaters of the Whippany River drainage basin and is not directly tributary to either the Great Swamp or the Passaic River. All but 300 acres are located within the Great Swamp basin and approximately 36 percent of the basin itself is comprised of lands within Harding.

A detailed discussion of each watershed and stream is provided in the Environmental Resources Inventory of this Master Plan. Water quality classifications assigned by the NJDEP to the township’s waterways are as follows:

• Silver Brook: Freshwater-2, Non-trout
• Great Brook: Freshwater-2, Non-trout
• Mill Brook: Freshwater-2, Non-trout
• Primrose Brook (above Lee’s Hill Road): Freshwater-2, Trout Production, Category 1
• Primrose Brook (below Lee’s Hill Road): Freshwater-2, Non-trout
• Passaic River (above Osborn Pond): Freshwater-2, Trout Production, Category 1
• Passaic River (Osborn Pond and below): Freshwater-2, Non-trout

It should be noted that all township waterways are designated Category 1 waters as soon as they enter the Great Swamp National Wildlife Refuge.

Water quality studies conducted on the Great Swamp’s tributary streams point to the detrimental impact of land development without good stormwater management policies. These studies have raised concern among various groups and at all levels of government that unless development policies in the watershed, and especially those concerning stormwater management, are modified.
there will be further degradation of the waters flowing into the National Wildlife Refuge. The major concern is that urban development in the watershed is having the effect of increasing the volume, rate, and pollution of stormwater flowing into the Refuge.

**EFFECT OF DEVELOPMENT ON WATER RESOURCES**

Land development can dramatically alter the hydrologic cycle of a site and, ultimately, an entire watershed as shown in the illustration below. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration. Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site’s evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site.

Additional impacts from development are created when impervious areas are connected to each other through gutters, channels, and storm sewers. These features transport stormwater runoff to downstream waterways more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing stream flows in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream.

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*Groundwater Recharge in the Hydrologic Cycle*

Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base stream flows and increased peak stream flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

In addition to increases in stormwater runoff peak flows, stormwater volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

Land development can also adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

**DESIGN AND PERFORMANCE STANDARDS**

Effective stormwater and water resource management are vital in order to maintain high water quality and supply for a major portion of northern New Jersey (Buried Valley Sole Source Aquifer system). This aquifer system is shown on Figure 4 and groundwater recharge to this aquifer is shown on Figure 2. The township has a special responsibility in this regard in connection with the Great Swamp National Wildlife Refuge because nearly the entire township is in the Great Swamp Watershed.

The township’s current design and performance standards for stormwater management can be traced back in time to 1993. It was at that time that the NJ Department of Environmental Protection (NJDEP) adopted a goal of no net increase in the volume, rate, and pollution from stormwater runoff for the Great Swamp Watershed. Subsequently, in 1995, the ten municipalities within the watershed of the Great Swamp formally organized the Ten Towns Great Swamp Watershed Management Committee "to establish a common and comprehensive set of regulations and operating practices within their sphere of authority in order to prevent and/or minimize adverse impact upon water quality, wildlife and human well-being within the watershed."

The township worked with the Ten Towns Committee and developed a stormwater ordinance that established design and performance standards necessary to achieve the goal of no net increase in the volume, rate, and pollution from stormwater runoff in the Great Swamp Watershed. This ordinance was adopted by Harding Township in 1999. However, because of the Residential Site Improvement Standards adopted by the NJ Department of Community Affairs in 1997, the township’s stormwater ordinance was only applicable to nonresidential...
development. The township subsequently applied to the Site Improvement Advisory Board for Special Area designation of the Great Swamp Watershed. This designation allowed the township to establish Special Area Standards for stormwater management in the Great Swamp Watershed. The township’s Special Area Standards for Stormwater was approved by the NJ Site Improvement Advisory Board in 2002. This standard is substantially the same as the township’s stormwater management ordinance adopted in 1999 and is also intended to achieve the no net increase goal established for the Great Swamp Watershed by the NJDEP in 1993.

In 2004, the NJDEP adopted N.J.A.C. 7:8-5 (Stormwater Management). This regulation established stringent requirements for stormwater management and recharge as dictated by the Phase II Stormwater Discharge Permitting requirements of the Clean Water Act. The township has carefully reviewed these new regulations and concluded that its stormwater management ordinance (for nonresidential development) and its Special Area Standards for Stormwater (for residential development) meet or exceed the design, performance, and safety requirements of N.J.A.C. 7:8-5 and 7:8-6. The township has already submitted the Special Area Standards to the NJDEP for its review and is currently working with personnel from the NJDEP to identify and resolve any minor discrepancies between the township and State requirements.

**PLAN CONSISTENCY**

Harding Township is not within a regional stormwater management planning area and no total maximum daily loads (TMDLs) have been established for any contaminants for any waters within the township; therefore this plan does not need to be consistent with any regional stormwater management plan or any TMDLs. If any regional stormwater management plan or TMDLs are developed in the future, this element will be updated.

This Stormwater Management Plan Element is consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21 and the Special Area Standards established for Harding Township. The township will utilize the most current update of the RSIS Special Area Standard in the stormwater management review of residential developments. This element will be updated to be consistent with any future updates to the RSIS and the Special Area Standards.

The township’s Stormwater Management Ordinance and RSIS Special Area Standards both require the preparation of maintenance plans for stormwater management facilities. Furthermore, all applicants for final subdivision or site plan approval are required to enter into an agreement with the township to ensure the long term perpetual operation, maintenance, repair, and safety of the stormwater management facility.

The township’s Stormwater Management Ordinance and RSIS Special Area Standards require all new development and redevelopment plans to comply with New Jersey’s Soil Erosion and Sediment Control Standards. Because Harding Township is an exempt municipality, as defined by the New Jersey Soil Erosion and Sediment Control Act of 1975, the township is responsible for reviewing, certifying, and enforcing soil erosion control measures. During construction, township inspectors will observe soil erosion and sediment control measures and require compliance with the standards.
NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

Harding Township’s Stormwater Management Ordinance and RSIS Special Area Standards already incorporate extensive nonstructural stormwater management strategies. These strategies include the preservation of wooded buffers along watercourses, the disconnection of impervious surfaces, and the restoration of meadow environments. Additionally, several zoning changes intended to reduce stormwater impacts from new development have recently been adopted. These include reduced building coverage limitations, impervious coverage limitations, larger lot size requirements, and a lot size-averaging subdivision option. The township will continue to identify and evaluate potential changes to the Master Plan and land use and development ordinances that will encourage reductions in stormwater impacts from development.

LAND USE/BUILD-OUT ANALYSIS

The Stormwater Management Rules [N.J.A.C. 4.3(a)] require the preparation of a build-out analysis for the township. In accordance with the schedule set forth in the rules, this build-out analysis must be completed by February 2, 2006. When completed, this plan element will be updated to include the build-out analysis.

MITIGATION PLAN

State rules provide for variances or exceptions from design and performance standards affecting stormwater management. They should be reviewed with great care and only granted in compelling circumstances because of the importance and sensitivity of the township’s water resources. The township’s Stormwater Management Ordinance requires that applicants who are unable to meet the “no net increase” provisions of the ordinance must demonstrate that adjacent waterways will not be impacted by:

1) Deterioration or damage of existing culverts, bridges, dams, and other structures.
2) Deterioration of the waterways’ biological functions, drainage, floodwater conveyance, and other purposes.
3) Streambank or streambed erosion or siltation.
4) Increased flooding endangering public health, life, and property.

If compelling circumstances can be demonstrated and an applicant is granted a waiver from the strict requirements of the Stormwater Management Ordinance, the applicant should be required to provide mitigation, as necessary, to ensure that impacts outlined above will not be created.

Waivers from compliance with the township’s RSIS Special Area Standards are governed by the requirements established at N.J.A.C. 5:21-3.2. In accordance with the requirements of the Stormwater Management Rules (N.J.A.C. 7:8), applicants will be required to submit Mitigation Plans if they are granted a waiver from the stormwater management design and performance standards. The following is a hierarchy of options for mitigation plans.
1. The mitigation project must be implemented in the same HUC-14 drainage area as the proposed development. The project must provide additional groundwater recharge benefits, or protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards contained in the township’s Special Area Standards or Stormwater Management Ordinance. The developer must ensure the long-term maintenance of the project, including the maintenance requirements as contained in the township’s Special Area Standards.

2. If a suitable site cannot be located in the same drainage area as the proposed development, as discussed in Option 1 above, the project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue. For example, if a variance is given because the 90 percent TSS requirement is not met, the selected project may address water quality impacts due to a fecal impairment.

The township should also consider allowing a developer to provide funding or partial funding to an environmental enhancement project that has been identified by the Tens Towns Great Swamp Watershed Management Committee or contribute toward the implementation of a regional stormwater management plan. The funding should be equal to or greater than the cost to implement a mitigation plan as outlined above, including the costs associated with purchasing property or an easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.
CIRCULATION PLAN ELEMENT

(Amended May 19, 1997; Reorganized February 25, 2008)

The scale and design of Harding's roads and bridges have an important impact on the rural and historic character of the community. Notwithstanding Harding's proximity to large metropolitan areas, its roads and bridges have remained relatively unchanged for generations.

ROADWAY CLASSIFICATIONS

The Municipal Land Use Law\(^1\) requires that the standardized Federal Highway Classification System be taken into account in developing circulation plans and categorizing roads for master planning purposes. The purpose of road classification is to make distinctions among roads in terms of their existing or proposed function and the engineering design standards that may be applied to them. Utilizing this system as a basis, there are five categories of roadways within Harding.

**Freeways** (Interstate 287)

A "freeway" is a high speed, high capacity, limited access highway providing no direct access to abutting properties. Design features include the separation of opposing traffic lanes by a continuous center barrier or median strip, and full access control and grade separation at interchanges which are generally widely spaced. Freeways usually have four or more lanes and right-of-way widths in excess of 150 feet.

Interstate 287, which passes through the township without a major interchange, is classified as a freeway under the jurisdiction of the New Jersey Department of Transportation. Current NJDOT plans call for widening the highway to provide an extra travel lane in each direction in order to provide for growing traffic levels. The new lanes in Harding are expected to be provided within the median strip in the existing right of way. Noise barriers may be built in some instances, but the exact locations are not known at this time. The township expects to be consulted about the location, design and landscaping of noise barriers, including public hearings on the subject.

Traffic congestion has increased along I-287 in recent years and the extension of I-287 in the northern part of the state will further increase traffic volumes. As a result, the extension may to some extent nullify the congestion, reducing benefits of the widening.

**Minor Arterial Highways** (Mt. Kemble Avenue - Rt. 202)

This category of road serves as a feeder to and from the freeway system. Arterial highways also provide direct access to abutting properties (within the limits of the newly

\(^1\) Municipal Land Use Law. 40:55D-28 b4.
adopted state highway access code) a secondary function that interferes with the flow of traffic. Arterials usually intersect at grade and utilize timed traffic signals, jug handle intersections, center barriers, and lane markings to facilitate traffic flow. In Harding Township, Mt. Kemble Ave. functions as a minor arterial roadway (see Circulation Plan Element - Recommended Road Policies).


"Collector roads" in Harding are under the jurisdiction of the county in the case of Lee's Hill Rd., Spring Valley Rd., James St., Blue Mill Rd. (from Village to James), Glen Alpin Rd., Long Hill Rd., Tempe Wick Rd. and Village Rd. Blue Mill Rd. (from James to Spring Valley), Sand Spring Rd., and Woodland Ave. are under the jurisdiction of the township. This category of road usually has one or more local roads feeding into it. Its function is to gather traffic from local roads and provide "intra" and "inter" town traffic circulation. As a result, higher levels of traffic than for "local" roads are characteristic of these roads. They also provide direct property access.

**Local Roads**  (Anthony Wayne Rd., Brook Dr. (So. and No.), Blackwell Pl., Douglas Rd., Fawn Hill Dr., Featherbed Ln., Goosedown Dr., Hunter Dr., N. Loantaka Ln., Millbrook Rd., Military Hill Dr., Orchard Dr., Peachescroft Rd., Post House Rd., Shalebrook Dr., Spencer Pl., Stark Dr., St. Clair Rd., Tall Pines Rd., Tiger Lily Ln., and White Deer Lane)

"Local roads" are under the jurisdiction of the township. Their principal function is to serve the very limited circulation need of providing access to abutting properties of usually small areas. They also serve as easements for the various public utilities and often provide for neighborhood pedestrian access because of their characteristic low traffic volumes. Local roads in Harding typically have no curbing and little or no shoulder. Many of these roads were built as part of subdivision developments and as such were built to a modern design standard minimizing the need for additional improvements for safety or maintenance reasons. Roads on federal reservations are under the jurisdiction of the applicable federal agency.


This category of road is under the jurisdiction of the township and serves the same function as local roads with typically very low traffic volumes. These roads, however, are distinct from local roads in that they retain their historic design characteristics. They are characteristically very narrow (often 18 feet or less) and closely follow the natural features of the terrain. Indeed, most of these roads have changed very little from Harding's early settlement period. This category of road is often closely associated with environmentally sensitive areas and/or areas worthy of historic preservation.
Existing Roadway Mileage

Harding Township has within its boundaries approximately 47.6 miles of public roads and streets (exclusive of 9.9 miles of private roads). The roadway miles under the various jurisdictions are as follows:

ROADWAY MILEAGE IN HARDING: 1993

<table>
<thead>
<tr>
<th>Roads</th>
<th>Jurisdiction</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-287</td>
<td>NJDOT</td>
<td>3.6</td>
</tr>
<tr>
<td>Mt. Kemble (Rt. 202)</td>
<td>N JDOT</td>
<td>3.0</td>
</tr>
<tr>
<td>Great Swamp Access</td>
<td>US Fish &amp; Wildlife</td>
<td>0.9</td>
</tr>
<tr>
<td>Jockey Hollow</td>
<td>US Park Service</td>
<td>1.3</td>
</tr>
<tr>
<td>Total Fed. &amp; State</td>
<td></td>
<td>8.8</td>
</tr>
<tr>
<td>County Roads</td>
<td>Morris Co. Freeholders</td>
<td>12.8</td>
</tr>
<tr>
<td>Township Roads</td>
<td>Harding Twp. Cmte.</td>
<td>26.0</td>
</tr>
<tr>
<td>Private Roads</td>
<td>Private</td>
<td>9.9</td>
</tr>
<tr>
<td>Total County &amp; Local</td>
<td></td>
<td>48.7</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>57.5</td>
</tr>
</tbody>
</table>

Traffic Volumes and Trends

Increasing regional traffic due to development in other communities has affected Harding over the last decade. The increase in commuter traffic on many roads within Harding is of special concern because of the impact on residential areas. The table below compares traffic volumes between the years of 1979 and 1992. These figures show a marked increase in traffic over that time period. However, it is important to note that these figures predate the extension of limited access Route 24 from the Short Hills Mall to I-287 and thus the impact of that event on reducing traffic in Harding is not reflected.

Office development in nearby communities has been a primary cause of traffic increases on roads used by commuter traffic. The 1980's saw a rise in office development in our region especially in communities to the north and east of Harding. Three factors, however, are expected to slow and in some cases perhaps reverse that trend. First, as infrastructure is increasingly strained and vacant land disappears, the capacity for additional development is diminishing in these communities. Second, increasingly restrictive growth policies in these communities resulting from, at least in part, a heightened awareness of the need to protect the Great Swamp is slowing growth rates. Third, the opening of the extension of the limited access Route 24 may have a substantial effect of relieving traffic on Harding's roads. For these reasons a tailing off of the growth in traffic is foreseen.

Traffic increases have not affected many roads, especially local roads. This will not change in the foreseeable future. Road policies and planning in Harding need to reflect these facts.
PLANNING CONTEXT

The Land Use Plan element and the State Development and Redevelopment Plan recognize the importance of the township's location between the Morristown National Historical Park and the Great Swamp National Wildlife Refuge and have set a limited growth context for Harding. This context will permit road policies that are designed to minimize the environmental impact on the Great Swamp (especially from stormwater runoff) and to preserve the scale and character of existing roads and bridges to promote historic preservation goals.

It is recognized that some limited road work may need to be undertaken to reduce long term maintenance costs for roads and bridges and to improve public traffic safety. In addition, development will occur, albeit at generally low densities. The principal purpose of this element is to recommend road policies that balance environmental protection and historic preservation goals with the important needs of public safety and convenience.

Planning Concerns

Much attention and concern by Harding's citizens and officials has been focused upon Harding's road system in recent years. This results from a number of factors, most important of which are:

- An increase in traffic on certain township roads, especially "through" traffic.
- The relocation and improvement of Route 24 and the widening of I-287 which are expected to slow the rise in traffic volumes using county and local roads to bypass congestion on those major roadways.
- Increasing recognition that road standards and improvements can have important environmental consequences on the Great Swamp and on the rural-historic character of the township.
- Concern that various road and bridge reconstruction proposals by the county may change the character of affected county roads.
- Adoption by the NJ Department of Community Affairs of residential site improvement standards governing the design and construction of roadways in connection with residential development throughout the state.

Three overriding areas of concern have emerged in connection with Harding's road system:

1. Most of Harding's roads are in good condition. However, road and bridge work will need to be done in the future to maintain public safety and control long term maintenance and repair costs. Ways will need to found to accomplish this in a manner that is consistent with Harding Township's historic, aesthetic and environmental goals.
2. Many of Harding's roads represent an important historic legacy which is central to the character and quality of life of the region. Road maintenance and improvement policies must be sensitive to this fact.
Emphasis should be placed on preserving the scale and character of these roads, consistent with the low density development pattern established in those areas. The policies embodied in this plan should guide the township's (and county's) road programs.

3. Road improvements in connection with new development must be consistent with protection of the Great Swamp National Wildlife Refuge and the rural-historic preservation goals in the Great Swamp watershed and in rural-historic areas.

PLANNING OBJECTIVES

Substantial areas of Harding Township are located within the Morristown National Historical Park, in the northwestern portion of the township, and the Great Swamp National Wildlife Refuge, along the southern and southeastern portions of the township. The State Development and Redevelopment Plan\(^2\) has designated almost all of the remainder of Harding located between these two large areas Planning Area 5, Environmentally Sensitive Areas. This planning designation (PA-5) is consistent with this Master Plan because it calls for limited growth and an emphasis on environmental protection and preservation. Road policies in Harding need to emphasize maintenance of existing roadways rather than new road improvements to be consistent with these objectives.

A number of reports and studies of the Great Swamp in recent years have raised concern that development in the Great Swamp Watershed is having a substantial detrimental impact on water quality and quantity in the Great Swamp. Road improvements in particular can change the amount and rate of runoff and increase pollutants flowing into the Great Swamp. Road improvement standards and policies should be designed to minimize these effects.

The impact of "over-designed" road improvements on the rural and historic character of Harding is a concern of the township. Indeed, in many respects the roads in Harding define the character of the community. Harding's roads have an "organic" character because they have slowly evolved over a long period of time, beginning as trails following the path of least resistance in the natural terrain. This pattern is still evident in the terrain-following, curvilinear roadscape we see throughout the township today.

Harding is endowed with an important historic legacy. The Historic Preservation Plan element identifies historic landscapes and villages throughout the township, worthy of preservation efforts. Many of Harding's roads are important components of these historic landscapes because they retain their historic character. In other instances, roads are closely related, physically and/or visually, to historically significant structures. This creates a situation where substantial changes to the road, affecting its character, could alter the significance and value of the historic structure especially those built in the 18th

\(^2\) The New Jersey State Development and Redevelopment Plan. The New Jersey State Planning Commission, June 12, 1992. The Morris Co. Planning Board has recommended that all of Harding be included in Planning Area 5.
and 19th century characteristically close to the road. These issues are more fully discussed in the Historic Preservation Plan element.

This close association of the community of Harding to its roads and the importance of its roadways to its character is a distinguishing attribute of the township that should be fostered and protected. Harding's roads have traditionally been viewed as much more than just modes of transportation. They are attractive public spaces, safe for both motorists and pedestrians alike, tying the community together. In order to protect this close relationship of the community to its roads, policies should be encouraged which promote the following:

1. Road improvement policies should emphasize maintenance and repair so that the existing scale and character of Harding's roadways can be maintained.
2. Speed limits should be set at levels consistent with the character of individual roadways and they should be actively enforced.
3. Regional highway plans should be supported which will minimize future "through" traffic through Harding.

Finally, there are important financial consequences to road construction or upgrading that must be considered. Major infrastructure investments in roads can become financial burdens not only in terms of the initial capital investment but also as a result of long term maintenance costs. Road improvements must be carefully considered to assure that they are needed and are cost effective.

**RECOMMENDED ROAD POLICIES**

The primary focus of this plan is to recommend road and bridge policies that:

1. Control and limit long term public investment in roads and bridges.
2. Promote road improvements that are consistent with the environmentally sensitive and historically significant characteristics of the township.
3. Promote safe traffic speeds in order to ensure the safety of residents and wildlife in the township.

In order to achieve these goals, the township and county must actively maintain and repair existing roadways and bridges in their current configuration and design. New roads should be designed to fit into the existing landscape with the minimum disturbance necessary and with the minimum width necessary for public safety. An active policy of controlling speeds on township roadways should be undertaken.
Highway and Road Improvement Policies

Freeways

The I-287 widening plan and any additional improvements to the highway should be pursued in a manner consistent with the environmentally sensitive character of Planning Area 5 through which it passes, in conformance with the State Development and Redevelopment Plan. These should include best management practices to control highway and construction stormwater runoff, especially at stream crossings. The effect that the project may have on Primrose Brook, a trout production stream draining into the Great Swamp, is of particular concern. The township should review the drainage and stormwater runoff provisions for that stretch of highway to make sure they afford maximum protection, and also to be sure proper protective measures are in place during construction. In addition, the historic preservation goals of the Harding Township Master Plan should be recognized and respected to the extent possible.

Minor Arterials

The New Jersey Department of Transportation has designated Mt. Kemble Avenue (Route 202) as a "Principal Arterial" road. The existing road, however, does not have the physical characteristics and traffic carrying capacity of this category through Harding. Major improvements to Mt. Kemble Avenue, consistent with a "principal arterial" designation, could adversely impact environmentally sensitive and historically significant areas through which it passes. Since Route 202 closely parallels the alignment of I-287 in the Harding area, the latter highway is the more appropriate conduit for future traffic increases. For these reasons, NJDOT is urged to reclassify this section of Route 202 to "Minor Arterial". Road policies for Mt. Kemble Avenue should emphasize concern for the environmentally sensitive character of Planning Area 5. In addition, the historic preservation goals of the Historic Preservation Plan element should be respected, particularly in view of the road's proximity to the Morristown National Historical Park and other historic properties.

Collector Roads

Tempe Wick Road and Village Road are categorized by the County as minor arterial roads. However, they are categorized as collector roads in this plan because they are similar in character and function to other collector roads in Harding. For this reason, the County and the Federal Highway Administration should consider redesignating Tempe Wick from its current designation as a minor arterial highway to a collector road. The higher classification is inappropriate for this roadway because of the road's close association with a historic area (the Morristown National Historical Park). The higher classification would put unnecessary emphasis on its functional aspects at the expense of its historic aspects.

There is limited potential residential or employment growth that will affect collector roads in Harding. The completion and opening of Route 24 extension will divert traffic. In addition, many of these roads traverse areas that have been designated as historically
significant in the Historic Preservation Plan element. Many of these roadways are historic, dating to the early settlement of the township, and were used in the Revolutionary War era by troops based in Jockey Hollow. For these reasons, emphasis should be placed on road design that is sensitive, to the extent possible, to the character of the surrounding areas, especially historically significant areas such as historic villages and the many historic homes built close to the road.

It must be recognized, however, that collector roads perform important circulation functions. To a large extent they are used by commuter traffic with work destinations outside Harding. Although they are generally in good condition in Harding, better maintenance and repair should be emphasized. Pavement widths of 20-22 feet (or average existing width) are recommended (for both township and county roads), consistent with the scale of existing collectors in Harding. The construction of shoulders, curbing and "highly engineered" drainage structures should be avoided because they would damage the historic character of the township and encourage increased speeds inconsistent with the objectives expressed in the Traffic Speed Control section below.

**Local Roads**

The policy objective for local roads should be to maintain these roads in their existing configuration. To enhance the public safety, local roads should be posted with maximum speed limits of 25 mph. New roads should be built, to the extent possible, in keeping with Harding's rural and historic character.

**Rural Historic Local Roads**

The preservation of the existing character of rural historic local roads is important to retaining the rural character of the township. Because the "rural historic local roads" have undergone little improvement or alteration they should have their own distinct road policy. Special emphasis should be given to maintaining their existing historic character. Maintenance and improvements to these roadways should be limited to their existing alignment and a width not to exceed 18 feet (or average existing width). To the extent practical, the Harding Township Public Works Department should perform the necessary maintenance and repair work on these roads, closely monitored by township officials, to avoid compromising the environmental and historic aspects of these parts of the township. To enhance the public safety, the maximum speed limit should be posted at 25 mph.

**New Residential Subdivision Roads:**
**Special Area Designation**

New residential access roads are the most important area of road policy consideration in Harding for a number of reasons:

- Most of the township lies within the Great Swamp Watershed. Land disturbance associated with road construction can increase pollution and stormwater runoff into the Great Swamp National Wildlife Refuge.
Most of the area in the township where future development is feasible is zoned for low density single family residential development. The relatively small areas in the township where nonresidential development can occur are not anticipated to require any significant road improvements.

For these reasons, it is expected that most, if not all, new roads and drives in Harding will be local access roads/drives providing access to a relatively small number of single family homes. This can be predicted with some confidence because of the pattern, size and ownership of the remaining vacant areas. Since the remaining, privately owned vacant land lies within the Great Swamp Watershed, it is important that road standards reflect the planning goals for this area. Road improvement standards for new residential subdivision roads should be as follows:

- Four lots or less - graded to a width of sixteen feet and improved to a width of 12 feet.
- More than four lots - graded to a width of 20 feet and improved to a width of 16 feet.
- Where appropriate, common access driveways should be encouraged to minimize disturbance.

In accordance with the above, the NJ Department of Community Affairs has designated the Great Swamp Watershed in Harding a Special Area and adopted specific standards for residential site improvements intended to implement the Harding’s subdivision road policies.

**Bridge Improvements**

Bridges are important focal points that can substantially contribute to (or detract from) the attractiveness of a community. Harding is very fortunate in having bridges (with few exceptions) that are well suited to the rural and historic character of the community. Many bridges are located in, or directly contribute to the character of, historically significant areas. In addition, bridge construction or reconstruction can have a significant adverse impact on the township's brooks and associated wildlife. Of special concern is the Great Swamp because all streams in Harding drain directly into that environmentally sensitive area. Construction that changes the amount, velocity or content of runoff should be avoided because it can have a substantial effect on the Great Swamp. For all these reasons, bridge construction or reconstruction should be and is of special concern to Harding Township.

The bridges and culverts in Harding that span a stream more than 4 feet wide are under the jurisdiction of Morris County. The county should be encouraged to actively maintain existing bridges to avoid the need for replacement. To reduce repair costs and the need for replacement, the township (and county where appropriate) should pursue weight and speed limitations. The realignment of bridge approaches should be avoided in order to preserve the quality of streams and protect the community's character. In circumstances where replacement is unavoidable, such as excessive deterioration; replacement bridges
should be designed to be consistent with the scale of the existing roadway as well as the historic settings, environmental characteristics and classification of the streams they cross. In addition, historic styles of bridge construction appropriate to the character of the township should be incorporated, including the use of traditional materials.

**Traffic Speed Control**

The promotion of safe speeds must be an important objective of township policies because of the close association of the Harding community with its roads, the small scale and curvilinear design of those roads, as well as the increasing number of driveways for which there is limited visibility. Speed in this context is especially dangerous and should be checked to protect pedestrians and school children, joggers, cyclists and wildlife.

Speed limits along the township's roads should be carefully reviewed to assure they are set at levels that are safe in consideration of the character of each roadway. Where warranted, reductions of speed limits should be actively pursued with the NJ Department of Transportation. The widening or straightening of township or county roadways in Harding will not necessarily promote traffic safety. Such actions will likely encourage higher traffic speeds in the context of a community of many older buildings and villages located close to roadways.
COMMUNITY FACILITIES PLAN ELEMENT
(Adopted November 17, 2008)

INTRODUCTION

The Municipal Land Use Law (MLUL) provides that municipalities may adopt a community facilities plan and a utility service plan as elements of a municipal master plan. These elements are intended to identify existing facilities, assess their adequacy or inadequacy and incorporate recommendations, if additional needs are identified. The MLUL describes each as follows:

A community facilities plan element showing the existing and proposed location and type of educational or cultural facilities, historic sites, libraries, hospitals, firehouses, police stations and other related facilities, including their relation to the surrounding areas.

A utility service plan element analyzing the need for and showing the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provision for other related utilities, and including any storm water management plan required pursuant to the provision of PL 1981, c. 32.

This plan includes descriptions of existing and planned municipal, educational and other community facilities. Since the Historic Preservation Plan element contains comprehensive information relative to historic districts and properties, information on historic sites is not repeated in this element. However, Harding’s community facilities are complementary to Harding’s historic rural character. For this reason, it is important that the maintenance of existing facilities and planning for future municipal projects are undertaken in ways that are compatible with Harding’s abundant historic resources.

A separate utility services plan is not required because utility services in the township are limited, and this Master Plan already contains separate Recycling and Stormwater Management Plan elements. Public water and sewer utility services extend into Harding from other communities, but are geographically limited in scope. The areas served and related planning policies are discussed in this element since they are not planned for expansion.

BACKGROUND

Harding’s first comprehensive master plan, prepared in 1972,1 contained an inventory of community facilities, including administration, water supply, storm drainage and sanitary sewage disposal. Community facilities were modest; there was no municipal building and township

1 Comprehensive Master Plan; Herbert H. Smith Associates and Osborne M. Campbell & Associates; December 1972.
officials maintained official records in their homes. The New Vernon Fire House was used for township meetings; it also contained a small library operated by the Women’s Auxiliary of the Fire Department. The plan simply stated that private wells and on-site sewage disposal systems provided most residents with potable water and waste disposal. By the end of the decade, the Kirby family made possible the construction of a Municipal Building on land located at the intersection of Blue Mill and Sand Spring Roads, providing a centralized place for township administration and contributing to New Vernon Village as the focal point of the community.

The 1984 Master Plan reflected growth in community facilities in the twelve years that preceded it, including the construction of the Municipal Building, the establishment of the Public Works Garage on municipal property in the heart of New Vernon Village, the construction of the Fire Department Annex on its Bailey’s Mill Road property, and the establishment of the Rescue Squad. The plan acknowledged the presence of public sewers in fringe areas of the township near Route 202, with no plan for expansion into low density areas that comprise the majority of the township.

Volunteerism is the foundation of the high quality of services provided to the public in Harding Township. The Fire Department, Women’s Auxiliary and Rescue Squad are notable examples of organizations to which residents have long been committed to serve as volunteers. In addition, there are numerous boards, committees and community/civic organizations comprised of resident members. The active involvement of the Township Committee, Board members and resident volunteers is particularly evident in the planning and maintenance of community facilities and the provision of services to residents.

GOALS

The planning context for Harding’s community facilities goals is the township’s historic and rural character, its low development density, and its slow growth rate which is likely to diminish further as full build-out is approached. The township is designated within Planning Area 5 (PA-5 Environmentally Sensitive) by the State Planning Commission. Additionally, the vast majority of the township has been designated within either the Protection Zone or Conservation Zone by the Highlands Council. These designations reflect Harding’s established rural character and the state’s policy to shift growth away from rural, agricultural and environmentally sensitive areas to those where infrastructure is available to support growth. With this underlying assumption, goals related to community facilities and utility services are as follows:

1. To provide for limited community facilities that are appropriate and consistent with the township’s historic and rural character, development density and small population.
2. To promote the stewardship and efficient utilization of existing community facilities in a manner that maintains high quality services, encourages continued volunteerism, and minimizes public expenditures.

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2 Master Plan, Township of Harding, Morris County, New Jersey; Townplan Associates; December 1984.
3 The township is located in the Highlands Planning Area pursuant to the Highlands Water Protection and Planning Act.
3. To ensure that existing facilities are maintained and that any future facilities are designed consistent with the township’s historic and rural character and that New Vernon Village remains the focal point of the community.

4. To limit the extension of public water services consistent with the township’s overall goal of maintaining its low density of development and its designation as an environmentally sensitive area by the State Planning Commission.

5. To limit the extension of public sanitary sewer services consistent with the township’s overall goal of maintaining its low density of development and its designation as an environmentally sensitive area by the State Planning Commission.

COMMUNITY FACILITIES

Municipal facilities are a reflection of a community’s character and values. From a planning perspective, a community facility is commonly defined as a building or structure owned and operated by a government agency to provide a governmental service to the public. The essence of a community facilities plan is in its assessment of whether services can be provided adequately utilizing available facilities, or whether new facilities are required to meet the community’s present and/or predictable future needs.

Due to its rural nature, small population base, and slow growth rate, community facilities in Harding are limited in scale. Most of Harding’s traditional community facilities, as well as cultural institutions, are located in New Vernon Village, a portion of which is a state and nationally-registered historic district. Situated among the residential uses in the village are the Harding Township School, New Vernon Fire Station, New Vernon Post Office, several small-scale commercial uses, two houses of worship, the Municipal Building, Public Works Garage, and two municipal parks. It is the focal point of the community and provides the township with a strong “sense of place.” Its preservation as the center of community interaction is important to Harding’s traditional community character (see page 11-21 in the Land Use Plan element for a more complete discussion of New Vernon Village and a detailed map of the village). Figure 15, Community Facilities displays the location of the community institutions discussed in this plan. It also displays the limited areas in the township served by public water and sewer utilities.

Municipal Administration

Harding’s municipal services are administered by an elected five-member Township Committee with administrative offices for staff in the municipal building located on a 14½ acre site at the intersection of Blue Mill and Sand Spring roads in New Vernon Village. The building is referred to as “Kirby Hall” in honor of Marion S. and Allan P. Kirby, who donated the land and funds for construction. The site also contains off-street parking and tennis courts located behind the building.

Dedicated in 1980, the municipal building contains approximately 13,200 square feet of space (including the basement level and two floors above grade) and houses the township’s

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Administrative Offices, Construction Department, Health Department, and Police Headquarters. It also hosts the Municipal Court, Civil Defense Offices, a small Library, and meeting rooms. The township’s website www.hardingnj.org has become an electronic gateway for citizens to access local government, facilitating public awareness of, and access to, information about municipal services, programs and regulations.

Approximately 2,700 square feet of space in Kirby Hall is allocated to the Police Department, a significant portion of which is located in the basement level. Space allocated on the main level of the building contains offices and the main desk, which is accessible to the public during normal business hours. All calls (emergency and non-emergency) are answered/dispatched by the Morris County Communications Center, the cost of which is paid by Harding, on a 24/ basis. Designated shelters to be used in an emergency are Christ the King Church on Blue Mill Road and the Harding School on Lee’s Hill Road.

The space allocated to the Department in Kirby Hall is generally adequate for its current needs. However, there is no drive-in facility for the disposition of prisoners, known as a **sallyport**, which is normally required by the NJ Department of Corrections, nor are there separate facilities for female officers if hired in the future.

**Future Planning of Administrative Facilities**

Generally, Kirby Hall provides adequate space for the current needs of the township’s administrative departments. Recently the township replaced windows and made other cosmetic improvements. Due to the age of building, ongoing maintenance has become a priority. In terms of floor space, more rooms allocated for meetings would be of greatest value.

In the near term, construction of the new Library (described below) will allow the use of the current Library space for offices or meetings; the new Library building will also include rooms that could be used for meetings. Continued enhancement of internet-based communications and services will help increase local government efficiency and enhance the quality and speed of the delivery of services to residents.

On a much longer time horizon, if the township finds that it needs to construct a separate police facility, the department’s Kirby Hall office and storage space would become available for other municipal services and/or meeting rooms. The accessibility to and visibility of a separate police building are important considerations if a portion of the property is to be allocated for this purpose in the future. The new Library is being constructed on the Sand Spring Road side of the property opposite Bayne Park, which would allow space in the rear portion of the site to be devoted to a separate police facility. If the tennis courts could be relocated to the School property (new tennis courts are under consideration as part of planned recreational facilities) there would be even greater flexibility in the allocation of space on the site for additional municipal facilities.
**Harding Library**

The Harding Township Library is operated by a non-profit entity funded largely by private donations and annual contributions from the township. It is currently located in a small room on the main floor of Kirby Hall and is managed by a combination of volunteers and paid staff. Prior to its establishment in Kirby Hall, the Library was housed at the New Vernon Firehouse and was operated by the Women’s Auxiliary of the New Vernon Volunteer Fire Department.

Over the years demand for Library services has increased while the space allocated to the Library has remained constant. To provide improved facilities and services to township residents, the Association has raised private donations for the construction and operating expenses of a new Library with approximately 8,200 square feet of floor area. The township has agreed to allocate space for its construction on the Sand Spring Road side of the municipal building property to the rear of Kirby Hall. A new centrally-located facility will provide space for residents of all ages to utilize its resources. Construction of the Library in this location is consistent with the Master Plan goal of reinforcing the role and function of New Vernon Village as the center of community interaction.

The layout, orientation and design of the new Library complements Kirby Hall and will facilitate the joint use of meeting rooms in the new building. Collectively the two buildings will form a small municipal complex that is compatible with the township’s rural character. To facilitate the Library’s location proximate to Kirby Hall, the township has relocated the upper portion of the Sand Spring Road driveway and reconfigured and improved the parking lot to enhance safety and access to both buildings. The New Vernon Garden Club has raised funds for landscaping improvements. A ceremonial groundbreaking was held in May 2008.

**Public Works**

The Harding Township Department of Public Works (DPW) is located in the heart of New Vernon Village on an 11-acre township-owned parcel of land. The property is also the site of the historic Tunis-Ellicks House, which contains the Historical Society’s archives and is used on occasion for public gatherings. The DPW occupies the westerly half of the site, which lies behind Village Road properties, and is accessed via a driveway from Millbrook Road opposite the New Vernon Firehouse. In this location it is geographically central to the township and relatively close to Kirby Hall, but it is also largely hidden from view. DPW facilities on the site include a maintenance garage constructed in 1980, an outdoor storage area, the township’s recycling center, and underground fuel tanks. Recent improvements to this property, in fulfillment of the New Vernon Redevelopment Plan (see the Land Use Plan element), include an underground cistern for firefighting purposes, a community parking lot serving the village, and a pedestrian pathway that connects the parking area to the new Post Office.

The DPW is responsible for road maintenance and repairs, snow plowing, roadway litter collection, management of the recycling center, and maintenance of the township’s parks, buildings, vehicles and equipment. The Department manages all aspects of the township’s
recycling facility, including monitoring and reporting functions, and the disposition of all recyclable material to a facility located in Mine Hill, NJ. The disposal of solid waste in the township is the responsibility of individual property owners who contract with a private waste disposal company. The township contracts once a year for bulk curb-side clean-up, which is typically held September or October.

It is impossible to predict whether future state laws or regulations might impose new requirements on local government that would result in the need for additional public works facilities or a requirement to provide new functions. However, the DPW site and its facilities generally appear adequate to meet Harding’s needs in the near term (a five-year time horizon). In the longer term, it is possible that re-configuring existing facilities on the site could provide greater efficiency in space allocation if there is need for new or expanded public works functions or facilities.

Recreation Facilities

Representative of the importance of volunteerism in Harding is the fact that recreational programs for Harding residents are coordinated by the Harding Township Recreation Association (HTRA), which was established in 1969 and operates exclusively with private funding. Programs sponsored/coordinated by HTRA include: ice skating at Bayne Park, baseball, ice and field hockey, soccer, basketball, lacrosse, t-ball and summer day camp at the Harding School. The Open Space Plan element contains comprehensive inventories of parks and recreation resources available in the township, so they are not repeated in this plan.

HTRA recently proposed a plan for the construction of expanded recreational facilities to be located behind the Harding Township School on Lee’s Hill Road in New Vernon Village. HTRA is helping to raise private funding for construction and maintenance of the new facilities (described under “School Facilities”), which can be constructed over time under a phasing plan as resources permit. The enhancement of recreational facilities located in New Vernon Village reinforces the importance of the village to Harding’s traditional sense of community and place.

Fire Protection and Rescue Service

The New Vernon Volunteer Fire Department and the Green Village Volunteer Fire Department are designated the official fire departments serving Harding Township. Pursuant to a mutual aid agreement, the Morris Township Fire Department provides service to small areas along the township border in the northwestern part of Harding (Military Hill area). Emergency calls (911) for fire protection are received/dispatched by the County’s communications system at the township’s expense.

Fire Protection

The New Vernon Volunteer Fire Department (NVVFD) was established in 1921 and is headquartered on Village Road in the heart of New Vernon Village. The Department’s building
is located on a two-acre parcel of land at the intersection of Millbrook and Village Road and contains seven bays, two of which are for ambulances. A smaller annex building with two bays is located on a three-quarter acre site on Bailey’s Mill Road. The Ladies Auxiliary provides support at fire scenes and helps raise funds. Financially, the Department is entirely self-sustaining and raises funds in a variety of ways, including its annual auction, well-known by residents of the community and surrounding towns.

The Green Village Volunteer Fire Company was established in 1922 and is located in Chatham Township near the township’s eastern border. The primary area within Harding serviced by the Green Village company includes the northeastern section of the township from Spring Valley Road to the township border and the southeastern section of the township from the Chatham Township border to the Pleasantville-Village Road intersection and along Woodland Road and Dickson’s Mill Road.

Water Resources for Fire Protection

The New Vernon Volunteer Fire Department has cataloged and mapped water resources throughout the township with information about the reliability and access arrangements to each source. The Department’s Water Source and Site Access Committee provides advice to the Planning Board and Township Committee on available resources for fire safety and related issues. Hydrants for fire-fighting purposes are only available in the areas shown on Figure 15 as being served by public water supplies. However, there are other man-made (pools and cisterns) and natural water sources (lakes, ponds and streams) utilized for fire-fighting purposes. Silver Lake and Mt. Kemble Lake are prominent sources, but there are also drafting points along streams and ponds in other locations around the township.

Accessibility to natural water resources can be problematic due to distance, topography or vegetation. In addition, the reliability of natural water supply sources varies due to periodic drought and siltation. Swimming pools can also be a source of water in a fire emergency. Typical modern pools hold approximately 30,000 gallons (15,000 in winter months) but accessibility may be problematic unless planned for fire protection purposes.

With limited water supply infrastructure available for fire safety purposes, in 1991 the Township Committee established a Water Resources Committee, comprised of representatives of several township boards/commissions, the NVVFD Fire Chief, and residents, to investigate whether adequate water supplies and/or sources existed for fire safety purposes. The committee concluded that while water supplies for residential uses were generally adequate, water resources for fire-fighting purposes was lacking, especially in light of growth that had taken place in preceding years. It recommended consideration of a variety of alternatives to increase the supply water for fire safety, recognizing the need to balance the township’s community planning objectives with respect to infrastructure and the costs of implementation.

As a result of the Water Resources Committee’s report in the early 1990’s the township’s land use regulations now require that all new major subdivisions and flag lots be provided with a source of water supply for fire fighting purposes if an existing facility (man-made or natural) is
not in reasonable proximity to the development. Underground cisterns with storage capacity ranging from 30,000 to 40,000 gallons of water have been installed in several new subdivisions, providing a highly dependable and accessible water resource for fire-fighting purposes. Cisterns have also been installed by the township and by the Board of Education in New Vernon Village. One is located in the community parking area behind the Tunis-Ellicks House (also the site of the DPW) and the other is located at the Harding Township School.

As new development continues and very large homes are constructed, the availability and adequacy of water supply sources for fire-fighting remains a concern. The township continues to work with the Fire Department to address issues surrounding the adequacy of existing natural and man-made water sources. In particular, changes in insurance company requirements should be monitored so that appropriate adjustments can be made to the land use regulations with respect to the proximity of water sources for fire safety.

**Rescue Service**

The New Vernon Volunteer First Aid Squad was founded as a unit of the New Vernon Volunteer Fire Department in 1974. The Squad is administered by a Board of Governors and is headquartered in the Fire Department’s Village Road building where ambulances and other emergency equipment are stored. The Squad has an active volunteer group and maintains 24-hour service covering the entire township as well as mutual aid in surrounding areas.

**SCHOOL FACILITIES**

The Harding Township School system is governed by an elected Board of Education comprised of five members, one of whom also serves on the Madison Board of Education, and is administered by a full-time Superintendent. The Harding Township School, located in New Vernon Village, is comprised of an elementary and middle school (kindergarten through eighth grade) with an on-site Principal/Director of Curriculum. Secondary school education for Harding’s children is provided through an agreement with Madison High School. Thirty-two of the 41 students graduating from the Harding School in 2008 will attend Madison High School in the 2008-2009 school year.

Harding’s school facilities are located on a 39½ acre site on the northwest side of Lee's Hill Road. The campus is comprised of two buildings separated by a driveway. The Elementary School building was constructed in 1969 while the Middle School is situated in the original building established on the site in 1925. Over the years, numerous additions and alterations have been made to the historic school building (Middle School), with the most recent improvements completed in 2001. These improvements included a new gymnasium, several classrooms and an elevator/stairwell tower to comply with the Americans with Disabilities Act (ADA). These improvements enabled the old gym to be transformed into a School Library and Media Center with computers. In addition to building improvements, there are two underground cisterns for fire-fighting purposes on the school grounds.
Modest outdoor recreation facilities are situated on the school property behind the Elementary and Middle School buildings. Existing recreational facilities include an athletic field for soccer and field hockey, a playground area, and a basketball court. Plans for new recreational facilities at the school are being coordinated by the Harding Township Recreational Association (HTRA). Private funding for construction and maintenance of the new facilities is being raised by several local organizations including HTRA, the Parent Teachers Organization (PTO) and the Harding Township Educational Foundation (HTEF). Improvements under consideration include the construction of a new baseball field, tennis courts, renovation of the existing athletic field and construction of a second field, pedestrian and equestrian pathways, landscaping improvements, off-street parking and rest room/concession facilities. No lighting for athletic facilities is proposed in connection with these improvements.

A four week summer day camp, sponsored by the Harding Township Recreational Association, is offered at the school on a fee basis for Pre-K through 6th grade aged children. Priority enrollment is given to Harding residents. In addition, an after-school program is offered for enrolled K-8 grade children, providing well-supervised indoor and outdoor activities each day that school is in session.

**School Enrollment**

The table below displays the history of elementary school enrollment in ten year increments over the past 50 years. According to school records, enrollment has ranged between a peak of 477 students in the 1969-70 school year to a low of 163 students in the 1987-88 school year. Enrollment in recent years has remained very stable, in the range of about 325 pupils, with about as many students entering the system as those leaving. Based on current enrollment and class distribution, school officials anticipate a continuation of this relative stability for the foreseeable future.

<table>
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<th>SCHOOL YEAR</th>
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<td>2006-2007</td>
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</tr>
<tr>
<td>2007-2008</td>
<td>326</td>
</tr>
</tbody>
</table>

Source: Harding Township School
Other than the need for modest cosmetic improvements and HVAC upgrades, Harding’s school facilities are generally adequate for the foreseeable future (a five+ year time horizon). One area under investigation is whether providing an on-site special needs education program would be viable since the school experiences significant costs to send children with special needs to other systems. In addition, recent legislation requires every school system to provide a full-day Pre-K program for students who qualify (household income qualifications) by the 2009-10 school year. The School Board will need to consider how best to meet the new Pre-K requirements and whether children with special needs can be accommodated with programs and/or facilities available at the school.

**UTILITY SERVICES**

The development density and character of a community is inextricably linked to utility infrastructure available to support development. Utility services are defined as the generation, transmission, and/or distribution of electricity, gas, steam, communications, and water; the collection and treatment of sewage and solid waste; and the provision of mass transportation.\(^5\) In particular, public water supply and sewage disposal services are the prerequisite utility infrastructure needed to support higher density development. The presence or absence of public utilities, especially water and sewer systems, is of prime importance in establishing and/or preserving a community’s land use patterns and the density and intensity of new development.

**Underlying Principles and Assumptions**

This Master Plan is based upon the underlying assumption that the township has and will continue to have limited public water and sewer infrastructure. The permitted low densities in the zone plan are based upon that which is sustainable with individual onsite water and septic systems. In combination with major open space reservations and the overall low density of development, limited water and sewer services was the basis for the township’s designation as PA-5, Environmentally Sensitive, in the State Development and Redevelopment Plan (the “State Plan”). Funding for the construction of water and sewer infrastructure almost always involves a significant investment by federal and state agencies. As a result, the State Plan emphasizes that areas containing utility services should be targeted for future growth and higher densities because of the major public expense to build and maintain such infrastructure.\(^6\)

A fundamental policy in the State Plan for Environmentally Sensitive Planning Areas (PA-5) is that public water and sewer services should be confined to “centers.”\(^7\) Public utility services in Harding are largely limited to small border areas of the township. New Vernon Village, which is typical of a “center” as envisioned by the State Plan, is not served by public water or sewer services.

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Water Supply

The principal source of water supply in Harding is individual private wells. However, public water systems do serve some residents from water systems extending into the township from neighboring communities and Mt. Kemble Lake residents are served by their own water system (see Figure 15, Community Facilities).

The Southeast Morris County Municipal Utilities Authority (SMCMUA), which is owned and operated as a municipal utility by the towns of Morristown, Morris Township, Morris Plains and Hanover, supplies water to a limited portion of Harding via lines extending from Morris Township. Water lines extend south along Mt. Kemble Avenue (Route 202) to Tempe Wick Road, serving the Blackwell and Jenks Road areas, and the Harding Green and Shadowbrook developments. Lines extend southward from Mt. Kemble Avenue along Anthony Wayne Road and Sand Spring Road, with the latter looping back to Morris Township via Sand Spring Lane and James Street (see Figure 15). A pumping station is located on the authority’s Sand Spring Road property near I-287. Water lines in the northeast corner of the township are more limited and extend from Morris Township southward along Kitchell Road and Spring Valley Road to Loantaka Way.

The New Jersey American (NJA) Water Company supplies public water to neighboring communities and limited parts of Harding. One water line extends from Bernards Township north along Mt. Kemble Avenue in Harding for a distance of approximately 2,000 feet. In addition, an NJA water line extends into Harding from Chatham Township, but it serves only about 20 homes in the Green Village and Spencer Place/Douglas Road area.

The Mt. Kemble Lake neighborhood is serviced by a water distribution system that is limited to serving Lake residents, and is owned by the Lakeshore Company, the governing entity for this planned neighborhood. Storage tanks above the lake provide water pressure to the neighborhood’s 100+ residents. Lakeshore oversees the water system with a combination of volunteer and professional supervision.

Planning Policy

The township’s planning policy for public water service should remain consistent with this Master Plan’s overall goal of limiting future growth and the township’s designation as PA-5, Environmentally Sensitive by the State Planning Commission. As a general policy, water lines should not be extended in Harding Township beyond the areas currently served. As an existing relatively higher density area, New Vernon Village should be monitored to ensure that adequate potable water supply, currently provided by individual wells, will continue. This can be accomplished pursuant to state regulations that require well testing in association with the transfer of property ownership and by quarterly testing of the municipally-owned well at the DPW site.
Sanitary Sewage Disposal

Sewage disposal throughout most of Harding is by individual subsurface sewage disposal systems, with the exception of a limited area between Route 202 and I-287 and fringe areas along the border with Morris Township (see Figure 15, Community Facilities). These areas are connected to the Morris Township sewer system and are included in Morris Township’s Wastewater Management Plan. The Morris Township plan does not provide for expansion of the service area within Harding Township.

Planning Policy

The township’s planning policy for public sewer service should remain consistent with this Master Plan’s overall goal of limiting future growth and the township’s designation within Planning Area 5 (PA-5, Environmentally Sensitive) by the State Planning Commission. Sanitary sewer lines and the service area in Harding Township should not be extended beyond the limited higher density area and the scattered border lots currently served. Consistent with this policy, a “carrying capacity” study was undertaken in 2004 to determine whether the township’s development density was appropriate for continued reliance on septic systems (see page 3-8 of the Conservation Plan element). As a result, much of the township was subsequently rezoned to a lower development density to maintain the balance between development and environmental impact.

As an existing relatively higher density area, New Vernon Village should be monitored to ensure that safe and adequate sewage disposal, currently provided by individual septic systems, will continue. This can be accomplished with the annual inspection of the municipally-owned system at the DPW site and in the review of nonresidential septic system inspection reports that are required to be submitted to the Health Department once every two years by village businesses.

In response to recent state mandates, the Morris County Planning and Technology Department is preparing a county-wide Wastewater Management Plan. The township is working closely with the County on the Plan to ensure that it reflects the township’s utility infrastructure policies, which are consistent with statewide planning policies for PA-5 environmentally sensitive areas.

Other Utility Services

Other utility services include electricity, provided by Jersey Central Power and Light (owned by First Energy Corp.); natural gas in limited areas, provided by Public Service Electric and Gas, telephone and enhanced (FiOS - fiber optic) digital communications. Two area utility maintenance and service facilities are located in the township adjacent to each other at the southern edge of the township between Mt. Kemble Avenue (Route 202) and Interstate 287. Verizon has a facility on a 5.0-acre site while PSE&G has a facility on a 3.2-acre site.

SUMMARY OF RECOMMENDATIONS
In summary, this plan foresees no major expansion of community facilities or public utility infrastructure. Their size and scope should remain limited, in balance with the township’s overall goal of preserving its rural and historic character. This plan contains a number of specific recommendations related to the township’s community facilities and public utility services, summarized as follows.

**Municipal Administration**

1. Consideration should be given to the potential for relocation of the tennis courts from the Kirby Hall site to the Harding School property. A proposed site plan for expanded recreational facilities at the school illustrates that a satisfactory area exists for the construction of several tennis courts.
2. As the township’s website is upgraded and refined, arrangements should be made for public access to the township’s Master Plan, development regulations and current land use topics.
3. Consideration should be given to developing a specific plan for the reconfiguration of DPW facilities in New Vernon Village to enhance the efficient utilization of the site and allow for future improvements, if needed. Such a plan would be beneficial for long term planning to ensure that the facilities in this location continue to meet Harding’s current and future needs.
4. The township administration should continue to explore the potential for efficiency and cost savings that might be realized by sharing services within the region.

**Fire Protection**

1. The Township Committee should continue to work closely with the Fire Department regarding water supply for fire safety.
2. Consideration should be given to updating the land use regulations with respect to the proximity of fire safety water sources to serve new development.

**Utility Services**

1. The township should continue to work closely with the County to ensure that Harding’s utility service policies are incorporated in the new county-wide Wastewater Management Plan.
2. The Health Department should monitor inspection reports on potable water and sewage disposal in New Vernon Village to ensure that development can continue to be served by on-site systems.

**Long Range Planning**

1. The township should investigate the feasibility of establishing a community parking area to facilitate linkage with mass transit.
2. A build-out study should be undertaken based on the new lower density zoning established in 2004 to facilitate long range planning of future community facilities.
Prepared by:

Susan C. Kimball, PP (License No. 2280)
A signed and sealed copy of this Master Plan element is on file with the
Secretary of the Harding Township Planning Board and the Township Clerk.
RECYCLING PLAN ELEMENT
(Adopted with Recodification: 1994)

The New Jersey Statewide Mandatory Source Separation and Recycling Act, adopted in 1987, requires that municipal master plans include a Recycling Plan Element which incorporates State recycling goals for solid waste. Moreover, it requires that municipal development regulations controlling site plan and subdivision approval include provisions which will ensure conformity with a municipal recycling ordinance.

The Harding Township recycling program predates the Recycling Act of 1987. Prior to adoption of the Act, the township promoted a voluntary program established through the Recycling Association of Harding Township, a civic association. In compliance with the state law, the township has conducted an on-going mandatory recycling plan since June 1987 in accordance with Ordinance No. 5-87 and its subsequent amendments. The township has required that all occupants of both residential and non-residential properties source-separate designated materials from all other solid waste for recycling purposes.

The ordinance implementing the township's recycling program regulates the types of solid waste to be separated by all occupants of residential properties, as well as institutional and commercial establishments. The ordinance also provides for the collection and disposition of recycling materials and requires composting of yard waste (either on-site or at other designated facilities). By definition, the mandatory recycling program applies to residents occupying any residential dwelling within the township, including all single and multifamily dwellings regardless of the total size of the development. Similarly, the program requires compliance by the occupants of all commercial and institutional establishments regardless of size. Therefore, all future, as well as existing residential and commercial developments built within the township will comply with the recycling goals and objectives of the township.

The Planning Board encourages the strict enforcement of the recycling program and continued monitoring of state, county and local recycling efforts so as to promote appropriate program modifications as solid waste technology changes or collection and disposition logistics warrant.
HISTORIC PRESERVATION PLAN ELEMENT
(Adopted March 14, 2005)

Introduction

The purpose of this Plan element is to delineate municipal historic districts, describe their significance and set forth the assumptions, goals and policies for their preservation. Harding’s historic resources are in jeopardy. Its historic landscape is under pressure from suburban residential development and its old homes are at risk of being torn down. Historic preservation is, however, in every resident’s interest because it defines the character of Harding. This Plan outlines an overall strategy of promoting historic preservation primarily by voluntary, rather than regulatory, means. The identification of historic resources, with clear explanation of their significance, will encourage their preservation.

The chapter entitled Historic Context and Landscape Patterns in the Background Studies provides background information including a summary description of Harding's historic resources and their context within the township’s history. In addition, it describes the township’s historic landscape and development patterns and how they came about. As such, it is a companion to this Plan element.

The township’s original Historic Preservation Plan was adopted in 1993; this is the first major revision of it. The 1993 Plan had a limited purpose of generally identifying the township’s historic resources in municipally designated historic districts. This provided the basis for advisory reviews by the Historic Preservation Commission of applications to the Planning Board and Board of Adjustment. This amendment continues that purpose, with three additional purposes:

1. To incorporate the findings of the first comprehensive survey of the township’s historic resources by McCabe & Associates, Inc.
2. To provide an update of the Plan reflecting important changes, particularly new historic districts and district boundaries
3. To comply with the Municipal Land Use Law’s requirements.

The focus of this Plan is the seven municipally designated historic districts: New Vernon, Green Village, Logansville, Pleasantville, Silver Lake, Tempe Wick and Hartley Farms. An eighth “district” is made up of about 150 individual sites of historic significance, located outside the seven delineated districts. New Vernon and Green Village are historically significant because they embody the character of 19th and early 20th century rural villages. The remaining districts are significant because they contribute to the character of the historic rural countryside.

The role of the Historic Preservation Plan element of the Master Plan is defined by law as follows:

a. To indicate the location and significance of historic sites and historic districts
b. To identify the standards used to assess worthiness for historic site and district identification
c. To analyze the impact of each component and element of the master plan on the preservation of historic sites and districts\(^1\)

**Historic Districts and Their Effect on Development**

The establishment of a historic district provides defined borders that encompass historically significant resources which can include structures, landscape features and even roads. The comprehensive list of historic resources worthy of preservation is contained in another document that is the foundation for this Plan. The *Intensive Level Architectural Survey*, prepared by McCabe & Associates, Inc. in January 2004 provides the means for identifying specific historic resources in each district, their historic significance, and the particular elements that should be preserved.

Although historic districting is an increasingly common strategy used by communities, it is often misunderstood. There are two forms of historic districts, each having different effects:

1. **Registered historic districts** created by the state and federal governments.
2. **Municipal historic districts** enacted by the township through the municipal master plan and township development regulations.

There is considerable overlap between Harding’s municipal designated districts and the State and National Register districts. The New Vernon, Tempe Wick and Silver Lake districts encompass slightly larger areas than the state and nationally registered areas. The Hartley Farms municipal district is the same as the State and National Register district. The three other municipal districts, as well as other scattered structures, sites, and areas, could qualify for future state and national registration.

State and federal historic register districts are legally distinct from the municipal districts identified in this Plan. They are established through a state agency: the New Jersey Historic Preservation Office (NJHPO). A nomination to create a state and federal registered district is most often the result of a local initiative, either by individual citizens, property owners or the local community. The nominated district is evaluated by the NJHPO for its historic significance and integrity according to specific state and federal criteria. A registered historic district is an official acknowledgement by the state and federal governments of a property’s or structure’s historic significance and integrity; it does not regulate or restrict the private use of property.

State and federal registration do, however, provide important protections in the implementation of public projects. When a property is listed on the New Jersey Register of Historic Places, any undertaking by a public entity that would encroach upon, damage or destroy the historic property must be reviewed by NJHPO and receive prior authorization. When the property is also listed on the National Register, any federally funded, licensed or

permitted activity that may impact the property must undergo an assessment of the impacts, including an investigation of alternatives to mitigate the impact.\(^2\) In many instances this has resulted in the preservation of historic resources that would have otherwise been adversely impacted. In Harding the historic registration of the Marcellus Hartley Dodge estate at Hartley Farms was an important factor in protecting it from a potential county road widening. More recently, the township ensured that a historic roadway (Cherry Lane) retain its historic character despite additional development along it.

Municipal historic districts are the principal focus of this Plan. The law that governs municipal planning in New Jersey, the Municipal Land Use Law (MLUL), has among its purposes “to promote the conservation of historic sites and districts.”\(^3\) It grants substantial powers to municipalities to enact regulations for that purpose; however, it does not require them to do so. If a municipality desires to regulate for historic preservation, it must designate historic districts in its master plan and address specific MLUL requirements.

The MLUL does not prescribe how districts are designated as is the case with the State and National Registers. However, the same criteria for historic significance and for defining district boundaries are utilized in this Plan as required by the State and National Registers, since they are the most widely recognized and accepted. In addition, the MLUL permits wide discretion in the degree of regulation through zoning, including design criteria and standards.\(^4\) In Harding’s case, the township has utilized these powers to delay the demolition of historic buildings to allow time for options to be explored for their preservation. In addition, the township has received *special area* designation under the New Jersey Residential Site Improvement Standards permitting narrower road widths more consistent with the township’s historic rural road pattern.

**Chronology of Major Events Affecting Historic Preservation**

Following is a chronology of the major events affecting historic preservation in Harding Township leading up to this Plan.

**18th Century:** Harding’s development pattern was first established: tightly clustered crossroads rural villages surrounded by low density and open farmland areas on a framework of narrow meandering roads focused on New Vernon Village. This pattern still remains.

**1779-1780:** The area within which Harding is located became the center of important military activities of the American Continental Army, including a major encampment at Jockey Hollow. Historic resources, landscapes, and roads associated with this era of great historic significance still exist in the township, contributing to the historic integrity and significance of the Morristown National Historical Park.

**1783-1900:** The area within which Harding is located became firmly established as a rural farming community, lasting for the long period from the Revolutionary War to the beginning of the 20th century. Compared to many other communities in the region, it was an economic

\(^2\) For a fuller discussion of state and federal rules and procedures see the New Jersey Historic Preservation Office website: www.state.nj.us/dep/hpo/2protection/protect.htm

\(^3\) N.J.S.A. 40:55D-2. J.

\(^4\) Chapter 291, Municipal Land Use Law, Section C:40:55D-65.
backwater, seeing little change in the built environment and in landscape patterns. Many still-existing historic resources in Harding were created during this period.

**Early 1900s:** In the early part of the 20th century, the area’s long established “antique” rural landscape became attractive to wealthy families looking for a nostalgic retreat from an otherwise rapidly industrializing metropolitan area. They purchased small farms and consolidated them into large estates, many of which became subject to the *New Vernon Neighborhood Restrictive Agreement an early form of zoning*. This agreement, and the desire of these new residents to preserve what had attracted them to the area, resulted in the preservation of many historic structures and landscapes.

**1933:** The Morristown National Historical Park was established, preserving and enhancing the historic resources in a large part of the township. This highlighted the significance of the area related to important events and sites in the American Revolutionary War.

**Post-World War II:** The existing large estates throughout Harding for the most part insulated it from the effects of rapid suburbanization that affected much of northern New Jersey shortly after the War. In 1965, the New Vernon Neighborhood Restrictive Agreement expired, increasing subdivision activity. Except for I-287, Harding’s road pattern remained largely unchanged despite a dramatic increase in the use of motor vehicles.

**1982:** The New Vernon Historic District was created as the first Registered Historic District in the township. It was followed by Hartley Farms in 1991, Silver Lake in 1999 and Tempe Wick in 2000.

**Early 1990s:** Many township residents became concerned about the destruction of historic resources because of increased development pressures. This led to the adoption of the first Historic Preservation Plan (1993) and the creation of the Harding Township Historic Preservation Commission (1994) authorized to advise the Planning Board and township citizens about historic preservation issues.

**1992:** The New Jersey State Development and Redevelopment Plan was first adopted. Most of Harding was designated as an *environmentally sensitive planning area* (PA-5) consistent with its natural resources and its low density/rural character, which is a significant contributing factor to Harding’s historic resources. Policy objectives for PA-5 designated areas include coordinating historic preservation needs with open space preservation efforts.  

**1993:** An amended township Circulation Plan was adopted detailing the design characteristics of the township’s historic roads and recommending that their historic characteristics be preserved.

**1997:** The New Jersey State Site Improvement Advisory Board designated Harding as a *special area* under the New Jersey Residential Site Improvement Standards, in part because of its abundant historic resources and development pattern.

**2002-2004:** McCabe & Associates, Inc. undertook the first comprehensive survey of historic resources and districts in the township, providing the basis for this updated and amended Historic Preservation Plan in compliance with the requirements of the MLUL.

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Goals and Assumptions Concerning Historic Preservation in Harding Township

The following are the township’s major historic preservation goals with their associated assumptions.

1. **The historic character and integrity of Harding’s roads should be preserved.** The township’s public road network is one of its most important historic resources because of its association with the township’s beginnings and events in the American Revolutionary War. However, only a small portion of it is in registered or municipal historic districts. The Circulation Plan of this Master Plan details design characteristics of those roads that contribute to their historic significance and integrity and that should be preserved.

2. **The historic character and integrity of Harding’s historic buildings should be preserved.** There are many buildings with historic significance and integrity located throughout the township in municipally designated, as well as state/national registered, historic districts. They were built in a great variety of styles, sizes and placement before building codes, zoning and land development requirements. As a result, many do not conform to modern standards, especially zoning. Municipal development regulations should reflect a policy that encourages continued investment in their maintenance and rehabilitation consistent with their historic integrity.

3. **Harding’s abundant heritage trees should be preserved.** There are many ancient trees throughout the township that are very visible because they are close to public roads. They contribute significantly to the character and integrity of historic districts, and to the character of the township as a whole, and should be preserved.

4. **Harding’s historic development pattern should be preserved.** Harding Township still retains many features of its historic rural landscape development pattern. The major elements of this pattern are described in the Background Studies. In summary they are:

   - A network of historic roads that is narrow and curvilinear in design
   - Contrast between relatively dense but compact villages and surrounding relatively open and low density areas
   - Large areas of open space
   - Hedgerows and wooded stream corridors
   - Working farms
   - Great variety of lot sizes and configurations
   - Great variety in the size and location of buildings on lots

   These landscape patterns are the foundation of historic significance and integrity in the township and should be preserved.

5. **Historic preservation should be actively promoted in the best interests of all residents.** Harding’s abundant historic resources are the foundation of its character and unique sense of place. Whenever development projects will affect historic resources, the Historic Preservation Commission, Township Committee, Planning Board and Zoning Board of Adjustment should work with owners and developers to protect those resources.
Standards Used to Assess Worthiness for Historic District Identification 6

The MLUL requires that the municipal historic preservation plan “identify the standards used to assess worthiness for historic site and district identification.” The historic resources, sites and districts identified in this Plan are based upon a comprehensive survey of historic resources and districts in Harding performed by McCabe & Associates, Inc. in 2002 and 2003. Following is a summary of the standards used by McCabe & Associates to conduct that survey. They are the standards upon which this Plan is based.

Standards of Worthiness

Historic sites and resources in this Plan are identified utilizing the following criteria. In one or more of these categories, the property is:

1. Associated with events that have made a significant contribution to the broad patterns of our history
2. Associated with the lives of persons significant in our past
3. Distinctive in one of the following ways:
   - Embodies distinctive characteristics of a type, period, or method of construction
   - Represents the work of a master (architect, engineer, landscape architect or builder)
   - Possesses high artistic values 7
   - Represents a significant and distinguishable entity whose components lack individual distinction
4. Has yielded, or is likely to yield, information important in prehistory or history

Ordinarily, properties that have achieved significance within the past 50 years are not included unless they are of exceptional importance. In addition to meeting these criteria, a historic property (historic resource) must retain its “integrity of location, design, setting, materials, workmanship, feeling and association.” Integrity is defined as a property’s ability to convey its historic significance, and a clear differentiation is made between integrity and physical condition. If a building has suffered unsympathetic alteration so that style-defining elements are lost, it is considered to have lost integrity. Extreme alterations, especially those that threaten the integrity of historic districts, should be avoided. Conversely, an unaltered building is considered to have retained integrity, even if it is in extremely dilapidated condition.8

Historic Context

Research conducted by McCabe & Associates indicates that the buildings in the township fall into four distinct chronological and historical phases. These phases correspond to contexts 7,
8, 9 and 12 of the historic contexts approved by the New Jersey Historic Preservation Office for evaluating the historic significance of cultural resources (Guidelines for Architectural Surveys, n.d., p. 16). 9

Following are the HPO contexts for evaluating historic significance and a description prepared by McCabe & Associates of how Harding’s eras of historic significance relate to them.

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- The earliest phase (the Settlement Era) corresponds to HPO Context 7: Initial Colonial Settlement. It covers the initial European settlement of the region in the 18th century and the events that took place in the township during the Revolution. The majority of structures belonging to this phase are simple East Jersey cottages and two-story houses with vernacular Georgian or Federal style details.

- The second phase (the Farming Era) corresponds to HPO Context 8: Early Industrialization, Urbanization and Agricultural Development. It covers the 19th century, when the township was a farming community served by two small villages and a number of mills. While the East Jersey cottage persists in the early part of the century, the majority of structures belonging to this era are vernacular Victorian farmhouse and barns. Some display a bit of Gothic or Italianate trim, and there are a handful of mansard-roofed Second Empire style houses. There are also some exceptional structures such as the New Vernon Presbyterian church, which is an excellent example of Gibbs inspired Neoclassical architecture, and the Hoyt house on Mt. Kemble Avenue (Block 34/Lot 1) in the Tempe Wick district which is a textbook Gothic Revival cottage.

- In the early 20th century the township evolved into a rural retreat for the wealthy (the Estate Era). Although the region retained its bucolic character during this era, the relatively modest working farms were transformed into estates and gentlemen’s farms, with deed restrictions and covenants to preserve the open spaces and create amenities such as a network of bridle paths. This transformation was fueled by the new landowner’s desire to create a gracious and wholesome living environment, and made possible by the advances in transportation and communication. In many ways it is the elite response to the same impulses that led to the creation of middle class garden suburbs closer to urban centers, and so it can be placed in HPO Context 9: Suburban Development. The majority of homes from this era are Colonial Revival in style, although there are a number of houses in other styles fashionable in that period.

The final phase, which falls outside of the scope of this (Historic Preservation Plan), began in the 1940s and continues today, with the subdivision of open fields and woodlands to erect large scale suburban homes. It corresponds to the final HPO Context, Context 12: Modern New Jersey.\(^{10}\)

**Standards for Establishing District Boundaries**

Harding Township’s municipal historic districts were identified and delineated by McCabe & Associates as part of their comprehensive survey of Harding’s historic resources. This was guided by the National Register definition that “a historic district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.” The determination of historic district boundaries was based upon the following five major considerations.

- **Historic Factors:**
  - Boundaries of an original settlement or an early planned community
  - Concentrations of early buildings and sites
- **Visual Factors:**
  - Edges determined or influenced by an architectural survey
  - Edges relating to other changes in the visual character of an area
  - Edges based on topographical considerations
  - Edges drawn to include gateways, entrances and vistas to and from the district
- **Physical Factors:**
  - Railroads, expressways and major highways
  - Major open spaces
  - Rivers, marshlands and other natural features.
  - Major changes in land use
  - Walls, embankments and fence lines
  - Limits of settled or developed areas
- **Surveyed Lines and Lines of Convenience:**
  - Legally established boundary lines
  - Streets and other local rights-of-way
  - Property boundary lines
  - Uniform setback lines (as established in a zoning ordinance)
  - Other lines of convenience, such as a circle of a given radius from an identified landmark or other cultural resource
- **Political, Economic and Social Factors:**
  - Political considerations – based upon comments received from public hearings on a proposed historic district
  - Socioeconomic factors\(^{11}\)

These standards were used to identify and delineate the state/national registered districts in Harding as throughout the country. They were also used to delineate Harding’s municipal districts. Where there are differences in the delineation between a registered district and a municipal district, the difference is described below.

**Harding’s Historic Districts**

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\(^{10}\) Ibid.

\(^{11}\) Ibid.
& Their Historic Significance

The Municipal Land Use Law requires the Historic Preservation Plan to indicate the location and significance of historic sites and districts. The boundaries of the seven historic districts are displayed in Figure 16, Historic Districts (a detailed map of each district is contained in the Appendix). The location of the eighth “district” of individual sites is indicated by the list of properties found in the Appendix.

This section also provides a description of the historic significance of each of the municipal historic districts based upon the comprehensive survey conducted by McCabe & Associates in 2002-04. The historic resources in each have been classified by McCabe & Associates as either contributing or key contributing to the historic significance of the district as follows:

- **Contributing**: A building, site, structure or object that adds to the historic architectural qualities, historic association, or archaeological values for which a property is significant because a) it was present during the period of significance, possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period, or b) it independently meets the National Register criteria for historic significance

- **Key Contributing**: A building, site, structure or object which is associated with individuals or events of major importance in local, state or national history, or which is an outstanding example of its architectural style and/or represents the significant work of a major architect. It must meet the National Register criteria for historic significance

**New Vernon Municipal Historic District**

The history of New Vernon is central to the history of Harding because it has always been the focal point of the community. The sense of focus is also reflected in its geographical location in the center of the township at the intersection of four of its most important (and historic) roads: Glen Alpin, Lee’s Hill, Village and Blue Mill Roads. The district extends for varying distances along each. It was designated a State and National Register Historic District in 1982. A larger area was designated as a municipal district in 1993. In this plan, the municipal district has been expanded west along Glen Alpin Road to include the New Vernon Cemetery and south and west on Village and Millbrook Roads in order to include a cluster of modest homes that are an integral part of the village in terms of scale and setting. The unifying element is its sense of “village” distinct from the surrounding lower density countryside. The overall goal is to preserve this distinct sense of village as the focal point of the Harding community. The McCabe & Associates Historic Resources Final Report contains the following history of the village.

The earliest records relating to the township, the 1715 deeds between John Alford and John Lindsley, and Alford and Simon Tuttle relate to the New Vernon area, which was settled in the middle decades of the 18th century. Among the earliest and most prominent settlers to the region was Abraham Canfield who settled in New Vernon …. and established a country store, blacksmith shop and cider mill. The ruins of his house on Block 17, Lot 55 were still visible in the 1980s. The village grew rapidly after the Revolution, and by 1789, it had the population and resources to support an Academy which stood at the corner of Lee’s Hill and Glen Alpin Roads next to the Presbyterian Church. By 1853, the village boasted two churches: the Presbyterian Church built in 1833, and a Methodist Church on Village Road which was built in 1852. Unfortunately, it was demolished in the 1920s.

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The village grew slowly through the late 19th century, with the addition of a few homes on Village Road. A new school house was built in the 1870s on the lot formerly occupied by the Academy. It served the village until the current consolidated school was built on Lee’s Hill Road in 1926. Additional homes, businesses and two churches were built in the village in the course of the late 18th and early 19th centuries. By 1882, New Vernon was the largest village in Passaic Township, although the waning prosperity of the region served to fossilize the village somewhat, preserving much of its 19th century appearance and character.

The district contains numerous historically significant properties. Three key contributing properties relate to the early development of the village. The Tunis-Ellicks House (c.1795) is a carefully restored example of a late 18th and early 19th century 1½ story New Jersey cottage, built by an early settlement family and now home of the Harding Township Historical Society. The William Tunis House was built around 1760 and is a good example of vernacular Georgian architecture. In the 1860s it was used as William Tunis’ tailor shop and is significant because it demonstrates the varied economic strategies of 19th century residents of Harding. The New Vernon Academy was built in the 1790s and used for religious services and instruction, before churches were built. The fourth key contributing property is the New Vernon Presbyterian Church built in 1833. It is an excellent example of the Neoclassical variant of the Federal style, based upon styles developed by the British architects Christopher Wren and James Gibbs.13

Many of the historic resources in New Vernon relate to the period of time when the village grew very slowly as a rural farming community. They collectively contribute to its significance as an example of a rural farming village of the 19th century. Most of the structures contributing to this significance are 1½- to 2-story structures with pitched rooflines, a characteristic that should be preserved in the district. Many of the structures that post-date the 19th century also contribute to the historic significance because they were built in a scale,

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style and pattern consistent with a 19th century rural village character. As such, the district is significant because it still illustrates the township’s rural agrarian history.

The historic pattern of landholdings in New Vernon contrasts sharply with that of modern suburbia, which is characterized by homogeneity resulting from zoning standards. In New Vernon, lot size and configuration vary widely, although of an overall relative high density. Land uses in the village also reflect the historic pattern in the variety and mix of residential, public and commercial uses. This again is unlike the modern suburban pattern of uniformity enforced by zoning. The inconsistency of the historic pattern with modern development standards poses obstacles for the restoration and revitalization of the village. To overcome them, the Township Committee has designated the central portion of the village as a redevelopment area pursuant to the Local Redevelopment and Housing Law with the goal of promoting the restoration and revitalization of the area consistent with its historical roots.

Although there was, and is, no predominant architectural style in New Vernon, the early inhabitants clearly favored simplicity and little or no ornamentation in building design. Buildings reflect a straightforward, utilitarian design. Most buildings were, and are, of wooden frame construction, with pitched roofs and sited relatively close to the road on narrow lots, close to one another.

The village street was the most important public space in the community. Its human scale and character made a comfortable setting for social interaction, notwithstanding a lack of formal sidewalks. Framed and enclosed by the buildings and street trees, it provided a comfortable setting for the residents to walk and interact, despite its function as the main mode of transportation. This pedestrian-friendly scale and the framing pattern of buildings and trees around the street should be protected. Of special concern is the modern tendency to modify the street to accommodate the needs of the automobile. Any changes to the design details of the street should be carefully considered to assure that the village’s historic character is not unnecessarily compromised.

The municipal district is larger than the state/national register district, based upon the McCabe & Associates survey and delineation. It can be placed in the New Jersey Historic Preservation Office’s context 7: initial colonial settlement and context 8: early industrialization, urbanization & agricultural development. Its historic significance is its association with events that have made a significant contribution to the broad patterns of our history. This is enhanced by the high proportion of properties within the district that contribute to its historic significance, resulting in a high degree of historic integrity. The McCabe Survey lists over 70% of the properties in the district as contributing to its historic significance, including four key contributing properties.

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15 Criterion A, National Register of Historic Places.
Green Village Municipal Historic District

This district is located along the eastern border of Harding with Chatham Township. While the following description is limited to Harding, the Green Village Historic District extends into Chatham Township centered upon the intersection of Meyersville Road and Village Road. In Harding, the district extends for varying distances along these roads and Dickson’s Mill Road. Green Village was designated as a Harding Township municipal historic district in 1993. The unifying element of the district is its sense of “village” distinct from the surrounding lower density countryside, which is enhanced by its orientation around a small triangular village green. The overall goal of this district is to preserve its distinct sense as a “village.”

Methodist Church - Spring Valley Road - Green Village Historic District (McCabe & Associates)

The historic roots of Green Village were as a small crossroads village serving the surrounding countryside dating from the early 19th century. In 1853 there were about 20 houses, a Methodist church, and two stores. By 1868 a school, blacksmith shop, post office and saloon had been added. Notable historic resources include the Methodist church, a tavern, school, store, post office, blacksmith shop and several dwellings. The McCabe Survey contains the following description of historic resources in the village.

The village contains two very fine Federal-style homes, a number of large Folk Victorian houses with Gothic Revival and Italianate details and some well-preserved one-and one-half story East Jersey cottages dating to the late 18th or early 19th century. Two of the properties on Meyersville Road originally had quasi-agricultural uses. Block 12, Lot 19 contains the remains of an extensive greenhouse complex, presumably associated with the florists’ trade which flourished nearby in Madison in the late 19th and early 20th century. And Block 12, Lot 8 was the site of a stockyard and slaughterhouse, portions of which are still intact. There is also a cluster of late 19th and early 20th

nineteenth-century vernacular homes at the north end of the village at the intersection of Village and Dickson’s Mill Road.

Its historic significance relates to its representation of a 19th and early 20th century rural farming village and to its place as a major component of Harding’s overall historic rural landscape pattern. It can be placed in the New Jersey Historic Preservation Office’s context 8: *early industrialization, urbanization & agricultural development*. As such, it is associated with events that have made a significant contribution to the broad patterns of our history.

Overall, the district is notable for retaining its character as a 19th century rural village and for the number and percentage of buildings, built according to a variety of architectural styles, relating to this period. Like New Vernon, its historic significance is enhanced by the high proportion of properties that contribute to this historic significance. The McCabe Survey lists about 85% of the properties in the district as contributing to its historic significance. Simplicity and utilitarian objectives were the main principals of design of the buildings. The physical characteristics of a rural farming village, outlined above for New Vernon, also apply to Green Village.

**Logansville Municipal Historic District**

This district is located in the southwestern corner of the township bordering the Great Swamp. It was designated a municipal historic district in 1993. The name “Logansville” originally identified a hamlet. Today that sense of hamlet no longer exists because the area is almost entirely residential. Instead the district identifies a cluster of about a dozen houses near the historic crossroads of Lee’s Hill Road and Bailey’s Mill Road, some of which were used for a variety of purposes dating from the 18th and 19th centuries. The unifying element of the district is the collection of contributing buildings and their visual relationship to the surrounding countryside which still exhibits a sense of Harding’s agrarian past. Since the sense of a rural hamlet no longer exists, the primary goal of this district is to preserve its rural agrarian landscape.

The origin of Logansville was as a rural hamlet serving the surrounding countryside. In the 1790s it was the home of George Logan, a Philadelphia Quaker and friend of Thomas Jefferson whose personal diplomatic mission to France provoked Congress to pass the Logan Act prohibiting unauthorized civilian diplomacy. By 1853 it contained a school, blacksmith shop, wagon shop and brickyard and in 1868 there were “factories” and stores. Notable historic resources in the district include a cluster of early 19th century farmsteads located close to the road and two 18th century homes, both East Jersey cottages. The remaining open undeveloped areas in the district, which are reminiscent of rural agricultural meadows and fields, are important to the historic integrity of the district. Although the district no longer retains its sense of a cohesive rural hamlet, it still retains historic significance based upon the retention of a high degree of historic integrity as a 19th century rural countryside area and by

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18 Criterion A, National Register of Historic Places.
virtue of containing a substantial number of surviving buildings reflecting that era. Both of these aspects of historic significance should be preserved.

The McCabe Final Report contains the following description of historic resources in the village.

At the western end of the district, at the intersection of Lee’s Hill Road and Bailey’s Mill Road there are a cluster of homes on small lots. The two on the west side of Bailey’s Mill Road are 19th century vernacular dwellings, while two and possibly three of the four on the north side of Lee’s Hill Road are modern, although they are in keeping with the scale and character of the district. Progressing east, the district is made of a series of farmhouses and working farms interspersed with modern developments, all on large lots. On the north side of Lee’s Hill Road, just east of Primrose Brook, is an early 19th century East Jersey Cottage that belonged to the Lindsley family, and there is a cluster of three early 19th century houses at the corner of Lee’s Hill Road and Young’s Road, the Miller house, the Young’s house and the Avon’s house. There are also three large farms in the district, one of which includes an elaborate complex of outbuildings.

In summary, the Logansville District is historically significant because it represents the characteristics of the 19th century rural countryside. It can be placed in the New Jersey Historic Preservation Office’s context 8: early industrialization, urbanization & agricultural development. As such, it is associated with events that have made a significant contribution to the broad patterns of our history. Like most of Harding’s historic districts the Logansville District is notable for the high proportion of properties within the district that contribute to its historic significance. The McCabe Survey lists over 60% of the properties in the district as contributing to its historic significance.

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21 Criterion A, National Register of Historic Places.
Pleasantville Municipal Historic District

This district is located in the south-central part of the township, south of New Vernon. It is centered on the intersection of Pleasantville and Millbrook Roads, extending for varying distances along each. It was designated a municipal historic district in 1993. The unifying elements of the district are the focus of historic buildings on this intersection, together with their visual relationship to the surrounding countryside which still exhibits a sense of Harding’s agrarian past. The primary goal of the district is to preserve the sense of the 19th century rural landscape.

Although never truly a village, Pleasantville was developed in the 18th and 19th centuries as a crossroads with a mix of commercial, service and residential uses. In the 19th century there was a school and a grist mill, later used for making baskets near the crossroads. The Tunis family ran a store in an embanked East Jersey cottage on Millbrook Road. This building was demolished before the enactment of the Demolition Delay Ordinance. The contributing buildings in the district were built to a variety of styles over an extended period. Another notable historic resource is the Ogden farmhouse on Pleasantville Road which is a beautifully preserved example of 19th century architecture.

![Image of Pleasantville Road - Pleasantville Historic District](image)

The historic significance of the district relates to its concentration of historic structures representing the 19th century rural landscape. It can be placed in the New Jersey Historic Preservation Office’s context 8: early industrialization, urbanization & agricultural development.\(^\text{22}\) As such, it is associated with events that have made a significant contribution to the broad patterns of our history.\(^\text{23}\) The McCabe Survey lists well over 50% of the properties in the district as contributing to its historic significance. Preservation efforts

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\(^{23}\) Criterion A, National Register of Historic Places.
should be focused on the contributing structures and on the undeveloped land contributing to its rural character.

**Silver Lake Municipal Historic District**

This district is located in the northeastern part of the township. It is Harding’s largest, both geographically and in numbers of properties incorporated. It extends along James Street, Sand Spring Road, Sand Spring Lane, Blue Mill Road, Van Beuren Road, Red Gate Road, Dickson’s Mill Road, and Spring Valley Road. Portions were designated a municipal historic district in 1993, as part of what was then called Dickson’s Mill Historic District, and as a state and national registered historic district in 1999. The boundary of the municipal district is larger than the registered district because it contains an expanded area along Sand Spring Road and Sand Spring Lane. This area has been determined by the State Historic Preservation Office to be eligible for historic registration status, but has not yet been formally registered.

The unifying element of the district is the concentration of properties that collectively embody the character of Harding’s historic rural countryside, particularly as it evolved during the township’s *estate era* which occurred during the latter part of the *Gilded Age* in United States history (late 19th and early 20th century). The district contains a mixture of 19th century farms, a mill site and a number of late 19th century and early 20th century estates. The evolution from farmland to estates conserved the open countryside but with subtle albeit important changes associated with the new residents’ desire to create an idealized rural landscape. The main preservation goal is centered on preserving the many estate buildings associated with the *Gilded Age* and their associated countryside. In particular, the large open meadows still existing provide historic vistas which should be identified and their preservation encouraged.

The McCabe Historic Resources Final Report contains the following history of the district.

In the 19th century, the area was characterized by small family farms, and many of these early farmhouses survive, although in some cases they became tenant houses on larger estates. The focal point for the district was the gristmill on Pine Brook (later known as the Blue Mill) that was built shortly after the region was settled in the second quarter of the 18th century. There was a dam on Pine Brook by 1765 when the gristmill was owned and operated by Jonas Phillips. In 1777, Phillips assumed control of a powder mill on the Whippany River and sold the Pine Brook gristmill to Gerardus Duyckinck, Jr. Duyckinck added a sawmill to the operation, and lived across the road from the mill in a house which still stands.

The mill changed hands a number of times after Duyckinck sold it in 1791, and the sawmill moved downstream to the Dickson’s Mill site in the 1820s or 1830s. During this period a number of French émigrés settled in the area, particularly on Blue Mill Road, but they were soon assimilated into the general Anglo-German population. By the end of the 19th century the mill was growing obsolete, and the mill pond was more valuable as a resort. The owner in the 1880s at that period, Mr. Stull, gave the millpond a romantic name, “Crystal Lake,” and rented boats for recreation. By 1890, the Stulls abandoned the mill on Crystal Lake and built a new steam-powered mill by the railroad tracks in Madison. Crystal Lake gradually became known as Silver Lake, and the old mill stood empty until it was destroyed by floods in 1953.

In the early 20th century, the area around Silver Lake began to attract wealthy businessmen who were attracted to the rural lifestyle of the gentleman farmer, and appreciated the area’s unspoilt beauty and
easy access to New York via trains in Morristown, Madison and Convent Station. George Jenkins acquired the property surrounding the “Blue Mill” in 1904 and called the place “Silver Lake Farm.” His wife was Helen Hartley Jenkins, daughter of Marcellus Hartley, president of Remington Arms. In fact, Jenkins acted as president of Remington for a time until his wife’s nephew Marcellus Hartley Dodge was old enough to take the reins. Jenkins maintained the old miller’s house opposite the dam and built two large brick barns for his horses across the street.

Other influential and wealthy men followed Jenkins’ lead, including Seth Thomas, Jr. of the famous clock manufacturing family who established “Red Gate Farm,” and constructed an elaborate Colonial Revival style mansion; Henry Auchincloss Colgate a vice president of Colgate-Palmolive who purchased “Holly Hill Farm” and greatly enlarged the early 19th century farmhouse; Marcellus Hartley Dodge who succeeded George Jenkins as president of Remington Arms, Charles Scribner of the publishing house fame who purchased land on the Harding-Morris Township border.

There are four key contributing properties in the district that embody its rural agrarian and the estate era history. “Red Gate Farm” represents a beautifully preserved 19th century farmstead. It was purchased in 1915 by Seth Thomas Jr. the grandson of the original clockmaker and president of the company for many years. It was incorporated into his estate as a showcase farm. The nearby Seth Thomas, Jr. estate was the site of the original “Red Gate Farm.” The estate house was built in the early 20th century and is an excellent example of the Colonial Revival style. It was designed by noted architect Harrie T. Lindeberg.

Another estate from the Gilded Age is “Crestley,” which contains four contributing structures: the original 18th century dwelling, an early 20th century dairy barn, a garage and the large 1920s manor house designed by Walter P. Henderson. The grounds were designed by Frederick Law Olmsted’s firm. The fourth key contributing property is located on Blue Mill Road and contains a house, dating from before 1777, that was originally associated with a grist mill on the property, since gone. The property was one of the showcase farms that led to the development of the great estates in the area.
The historic resources of particular importance in the district are the large open areas, originally farmland converted into estate properties in the early part of the 20th century during the township’s estate era. Other notable historic resources are the large estate dwellings, which many of their original owners termed “manor houses” and associated out-buildings. The majority of homes from this era are Colonial Revival in style, although there are a number of houses in other styles fashionable in that period. Examples include dwellings that were originally modest structures associated with earlier historic eras, which were incorporated or converted into larger estate era manor houses. Others include mansions built by noted architects. Farmstead buildings, some from the 19th century, incorporated into estate era estates are also important historic resources in the district.

The district is associated with the creation of Harding as a separate municipality in the 1920s. Prominent and influential district residents lobbied for the separation from Passaic Township (now Long Hill Township). In addition, it is notable because it encompasses a major portion of the land subject of the New Vernon Neighborhood Restrictive Agreement. This was an early form of community planning (1928) attempting to control development and preserve rural character. As such, it embodies significant events in the history of community planning and landscape conservation. Also, it contains buildings that are the work of master architects. It can be placed in the New Jersey Historic Preservation Office’s context 8: early industrialization, urbanization & agricultural development and context 9: suburban development.24

For all these reasons, the district is associated with events that have made a significant contribution to the broad patterns of our history.25 The McCabe Survey lists about 50% of the properties in the registered portion of the district as contributing to its historic significance, including four properties as key contributing. In the expanded portion of the municipal district, over 30% of the properties are contributing. Additionally, all of the vacant properties in the municipal district contribute to its historic rural character.

**Tempe Wick Municipal Historic District**

This district is located near the northwestern border of Mendham Township centered along Tempe Wick Road from Mount Kemble Avenue (Route 202) to the border of Morristown National Historical Park. The road is the major access approach to Jockey Hollow which was an important encampment of the American Continental Army during the Revolutionary War. Jockey Hollow is not technically included in the municipal district for jurisdictional reasons. The district was designated a Harding Township municipal historic district in 1993 and as a state and national registered historic district in 2000. The state and national district designation also includes the Tempe Wick roadway. Mendham Township has designated the Tempe Wick area within its borders as a historic district as well.

The boundaries of the municipal district in Harding Township have been enlarged in two areas. A strip has been added at the northeastern corner of the district encompassing the Revolutionary Old Camp Road, and lots at the NE, SW and SE corners of the intersection of

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Tempe Wick Road and Mt. Kemble Avenue have been added in order to include the historic crossroads. Three non-contributing lots on the north side of Tempe Wick Road were included in order to connect the three lots at the western end of the district with the core and include the historic roadway in the district.26

The main unifying element of the district is the linear focal point of the historic 18th century Tempe Wick Road. Although not listed as a contributing resource, the historic road is central to the significance of the district because of its association with the history and historic significance of the National Historical Park. The district includes historic structures built in a variety of styles dating from the 18th to 20th centuries and a historic countryside that has evolved into a heavily wooded area in the 20th century. The McCabe Survey lists over 50% of the properties in the district as contributing to the historic significance of the district.

The history of the district is particularly related to the Revolutionary War. Mt Kemble Avenue and Tempe Wick Road were important roads associated with the movements of the American Army during its encampment at Jockey Hollow during the winter of 1779-80. The Peter Kemble House, built c. 1751-65 on Mount Kemble Avenue, is a key contributing historic resource to this history. Kemble was president of the Royal Assembly prior to the Revolution and a prominent Tory. In January 1781, General “Mad Anthony” Wayne is reported to have successfully confronted troops mutinying over issues of pay and terms of enlistment near the intersection of the two historic roadways.

There are two other properties in the district that are key contributing to its historic significance. Glen Alpin (c.1840), an early and important example of Gothic Revival architecture and Hurstmont, enlarged and remodeled by McKim, Mead and White, prominent American architects at the turn of the 20th century. Harding Township has recently acquired

Glen Alpin in order to preserve the historic structure and this important streetscape near Jockey Hollow.

The district possesses significance embodied in its association with the American Revolutionary War and with the history of American architecture. It can be placed in the New Jersey Historic Preservation Office’s context 7: initial colonial development, context 8: early industrialization, urbanization & agricultural development and context 9 suburban development.\footnote{Intensive Level Architectural Survey, McCabe & Associates, Inc., 2004, p. 7.} The main preservation goal should be to preserve the historic homes and estates in the district and the historic character of Tempe Wick Road as the gateway to Jockey Hollow.

**Hartley Farms Municipal Historic District**

This district is located in the northeastern part of the township adjacent to the Silver Lake district off of Blue Mill and Spring Valley Roads. *Hartley Farms* is also a state and national registered historic district. Its historic significance is its association with the township’s estate era. Marcellus Hartley and his grandson Marcellus Hartley Dodge, who each served as president of Remington Arms, were both prominent figures in the economic development of the United States.

The property, purchased by Marcellus Hartley Dodge in the late 1800s, also has significance as the site of the Morris & Essex Dog Show between 1927 and 1957. This internationally important dog judging contest was created and sponsored by Mrs. Marcellus Dodge (Geraldine Rockefeller Dodge), “The First Lady of Dogdom.” Since state and national registration, Hartley Farms has been subdivided and is being developed as a single-family residential development. The subdivision was carefully planned to preserve notable historic
structures and landscape features such as the Remington Forest and Polo Fields, and to incorporate narrow lanes so as to minimize impacts on the landscape.

Individual Properties of Historic Significance

This municipal “district” is made up of the individual properties located outside of the other seven districts throughout the township. These properties are listed in the Individual Properties of Historic Significance list included in the Master Plan’s Appendix. Each contains historic resources. The McCabe Survey lists many historic resources in this district; the following are a few notable examples:

- **Raggio**, an elaborate Mediterranean/Italianate Revival-style mansion and stable on 50 Kitchell Road built at the turn of the century.
- **Windmill Farm**, on 72 Woodland Road, with a vernacular Federal-style house dating from the first half of the 19th century with an extensive complex of well-preserved barns.
- **Bailey’s Mill House**, on 73 Bailey’s Mill Road, is a key contributing resource because it is the sole surviving element of one of the mills in the township that were important aspects of the early economy. It is a splendid example of vernacular Greek Revival-style architecture.
- **Harding Township Elementary School**, on Lee’s Hill Road just outside of the New Vernon District, built in 1925-26 and remodeled in 1931 in the Colonial Revival style.

Overall, the historic resources in the district are significant to the township’s early settlement, rural past and estate era. They can be placed in the New Jersey Historic Preservation Office’s context 7: initial colonial development, context 8: early industrialization, urbanization & agricultural development and context 9: suburban development. As such they are associated with events that have made a significant contribution to the broad patterns of our history. Preservation efforts for individual properties in this district should be focused on preserving the historic structures.

Harding’s Historic Roads

No description of historic resources in Harding would be complete without including the township’s historic public road system, fundamentally unchanged from when it was first mapped by Lt. Montresor for the British Army during the Revolutionary War. Only a few of Harding’s public roads are located within historic districts. However, they collectively contribute substantially to the historic integrity and significance of all township historic districts.

Roads were prominent features in the early rural countryside. Their design, still largely unchanged today throughout most of Harding, played an important role in shaping and defining the character of the township. Speed and ease of travel were subordinate to ease of construction and maintenance. Cuts and fills were minimal. Natural obstacles were avoided.

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28 Ibid.
29 Criterion A, National Register of Historic Places.
by means of characteristically "sharp" horizontal and vertical curvatures. As a result, rural roads were narrow, two-laned, meandering and bumpy (with minimal signage). They were frequently bordered by tree rows, hedges, walls and fences because roads were often farmstead boundaries. This provided the early rural traveler with a tree-lined, partially shaded travel experience alternating with occasional long views of mown or cultivated fields. These characteristics should be preserved.

**Standards for the Treatment of Historic Properties**

All structures need continuing maintenance and periodic rehabilitation, particularly historic structures. The federal government provides tax incentives to promote rehabilitation of historic structures if done in a manner that promotes historic preservation. For determining if such work promotes historic preservation, the U.S. Department of the Interior has adopted standards (Dept. of Interior Regulations, 36 CFR 67). They pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features and the building’s site and environment as well as attached, adjacent, or related new construction. Locally, when the Harding Township Historic Preservation Commission reviews a development application in a designated municipal historic district it utilizes broad guidelines dealing with massing, siting, height, proportion, rhythm, materials and scale.

**Public Policies Affecting Historic Preservation**

The Municipal Land Use Law requires that the Historic Preservation Plan address public plans and policies that can affect historic preservation. A wide variety of public policies can have direct and indirect effects on historic preservation. The areas of public policy discussed below are particularly important to historic preservation in Harding.

**Zoning Standards**

Zoning standards shape the pattern of new development by strictly regulating lot sizes and shapes and the placement of structures upon them. They have an equivalent impact on shaping modern development that geographic, topographic and other natural features had on historic land use and development patterns. Their most important influence is that they promote uniformity in land use and in landscape patterns over large areas of zoned districts. Over time, land use, lot size, lot shape and the placement of structures upon them become homogeneous and standardized within the district. This uniformity is fundamentally inconsistent with Harding’s historic land use and landscape patterns.

These effects of zoning are particularly important because so many of Harding’s historic preservation goals relate to the preservation of its historic landscape. The township should continue to explore innovative zoning techniques that encourage the replication of historic development patterns and streetscapes, especially in historic districts. The integrity of historic streetscapes is tied to open space and working farms, visible approaches, open lot frontage,
and an abundance of heritage trees close to public roads. New development in historic
districts should be encouraged to continue the historic patterns characterized by great variety
and individuality of sizes, shapes and placement of structures on the lot.

The demolition of historic buildings is particularly destructive to historic preservation goals.
Zoning requirements can encourage this unfortunate outcome because so many historic
buildings do not comply with setback, lot coverage, or accessory residence requirements, and
changes would require variances. In such cases, there should be more flexibility to allow
additions and accessory structures provided they retain the contributing nature of these
properties. Zoning requirements should reflect a policy that encourages private owners to use
and preserve historic structures and landscapes.

**New Vernon Village Redevelopment Plan**

A portion of New Vernon Village has been designated as an *area in need of redevelopment* under the provisions of the Local Redevelopment and Housing Law (NJSA 40A:12A-1 et seq). In February 2003, the Township Committee designated 13 lots in the central core of the village to be subject to a redevelopment plan. The redevelopment area is within the state and national register and municipal historic districts. The purpose of the redevelopment plan is to promote the economic and physical revitalization of the village so that it may continue its historic role as the center of interaction for the Harding community. It calls for a variety of municipal planning strategies including changes in municipal zoning regulations and direct investments in physical improvements.

Among the objectives of the redevelopment plan is the preservation of the historic character and integrity of New Vernon Village. The township retained a historic preservation architect to recommend design guidelines for the redevelopment area. In addition to the architectural design of buildings, other physical improvements in the village should be addressed, including those for vehicular and pedestrian circulation, landscaping and utilities, in a scale and of a design that is consistent with the historic character of the village. In this regard, the following should be given consideration:

1. A plan for the reintroduction of pathways consistent with those that can be seen in old photographs
2. Landscaping guidelines for buffering residences from commercial uses with improvements such as picket fences and shrub rows consistent with historic patterns
3. A plan to diminish the visual obtrusiveness of utility lines and poles
4. Traffic calming techniques and vehicular circulation/parking improvements compatible with the historic character of the village
5. Design guidelines for new construction to promote the preservation of historic integrity and character

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Public Road and Bridge Design

Municipal and county road design standards are another area of public policy that can have a substantial effect on historic preservation. The historic "curvilinear" design characteristics of roads are an important part of the historic landscape in Harding. Roads designed to typical modern engineering standards, which ignore the historic design characteristic of roads, can unalterably damage the historic character of a district. Today's engineers can design roads, when encouraged to do so, that achieve engineering goals without sacrificing historic character. Flexible road standards should be adopted to achieve this in historic districts, particularly road widths that are consistent with historic rural roads.

Public bridges are also an important concern for historic preservation. The Pleasant Plains Road bridge is an excellent example of a steel truss bridge built in the latter part of the 19th century. As such it has historic significance related to the history of American engineering pursuant to National Register Criterion C. Some culverts (bridges with a span of less than 20 feet) may also have historic significance, a subject that needs to be examined.

Even if a bridge or culvert is not connected with a historic event or personality or representative of an era of engineering history, it can still be considered worthy of preservation. If a bridge is in a historic district and it is in harmony with, and contributes to, the historic character of the district, it should be preserved. There are a number of such examples in the municipal historic districts. Indeed these bridges are particularly important elements of historic landscapes. They are by their nature visually prominent focal points, having more of an effect than most other single elements on the integrity of historic districts.

Bridges in historic districts should be preserved where possible and, where not, replacement bridges should be designed and sized to be reflective of the historic character of the district. Bridges in the township are for the most part under the jurisdiction of the county. In implementing its bridge repair/construction policies, Morris County is respectful of historic bridges and has demonstrated a willingness to cooperate with the township in their preservation. The Township Committee, Township Engineer and citizens should continue to work with the county to encourage the preservation of historic bridges under county jurisdiction. State historic district registration can be particularly effective in this regard, since it is an official acknowledgement of historic significance and would require impact assessment and mitigation under the New Jersey Register of Historic Places Act.

These goals were in mind when the Circulation Plan Element of this Master Plan was adopted. It outlines the importance of our roads and bridges to the character of the community and recommends design and maintenance standards consistent with the goals of historic preservation.

31 Bierce Riley, industrial archeologist, Draft New Jersey Historic Bridge Inventory.
New Jersey Statewide Residential Site Improvement Standards: Special Area Designation

In 1997 the NJ Department of Community Affairs promulgated statewide Residential Site Improvement Standards which would have superseded the township’s subdivision road standards as they pertain to residential developments. The township received special area designation in part because of its abundant historic resources. The special area standards for new subdivision roads are substantially consistent with Harding’s historic preservation goals in terms of road widths and pavement requirements for new residential subdivisions. Most importantly, they allow narrower road widths and permit more flexibility in pavement requirements (gravel roadways are permitted).

Harding’s special area designation is consistent with the goals of this element because all of the applicable historically significant areas of concern in this Plan are located within the designated area. Without a special area designation, the statewide standards would be harmful to Harding's efforts to protect its historic heritage and rural character.

Historic Preservation Commission

The Municipal Land Use Law provides authority for communities to create a municipal Historic Preservation Commission. The Commission must contain members with specific qualifications. Its role is specified by ordinance in accordance with the requirements of the MLUL. Consistent with the goals of this Plan, the Harding Township Historic Preservation Commission, established in 1994, is empowered to prepare and maintain a survey of historic districts and sites within the township and to advise and assist applicants, the Planning and Zoning Boards, and the Township Committee on the historic significance of a district or site and ways of conserving, protecting, enhancing, and perpetuating the historic character and significance of these districts and sites. The Commission makes recommendations to the Planning Board regarding the Historic Preservation Plan element and other components of the Master Plan with implications for historic preservation. The Commission also makes recommendations to the Open Space Committee for the use of Open Space funds, a portion of which may be utilized for historic preservation. All this guides township efforts to maintain and protect the integrity of Harding’s historic districts and promotes preservation of all contributing properties as well as Harding’s historic streetscape and building patterns.

The Commission should inform and educate. In particular, those who plan reuse, new construction or development within historic districts should be advised about the historic context of the district. This is accomplished principally through the review process with applicants for all projects within historic districts or other contributing properties. More generally, the Commission should look for opportunities to ensure review and to inform residents about the historic resources, and their significance, in the township. As the

32 The portion of Harding that is not within the Great Swamp Watershed is comprised of the northwest corner of the township, which is a combination of publicly-owned park land and a developed subdivision.
33 Chapter 291, Municipal Land Use Law, Section C:40:55D-107.
designated advocate for preservation, the Commission should create formal linkages with other commissions, the Harding Land Trust, and the Harding Township Historical Society to maintain and protect Harding’s historic legacy.

In the past, an important obstacle to historic preservation has been the lack of clear guidelines for new development in historic districts. Advisory guidelines should be developed by the Commission for use when assisting property owners and developers in understanding how they can develop their properties in a manner sympathetic to the historic nature of the district. The guidelines should provide advice on architectural and streetscape patterns that are consistent with Harding’s historic districts. This would be an important educational tool and would ensure a consistent evaluation of all projects in historic districts.

Recognizing that historic landscape and building patterns continue to evolve, the Commission should reevaluate and document criteria for local historic designation and update the historic survey at regular intervals. The effectiveness of all these efforts should be reviewed and changed if necessary to ensure that Harding’s preservation goals are met.