Deerfield Township, Cumberland County
Township Committee

Hon., Mayor Carol Musso
Hon. Charlotte Brago, Deputy Mayor
Cosmo J. Laurella, Committeeman
Laura Pizzo, Committeewoman
John J. Stanzione, Committeeman

Members of the Planning Board

Frank Campagna, Chairman
Larry April, Vice Chairman
Hon. Carol Musso, Mayor
Cosmo J. Laurella, Committeeman
John Barbagello
William Brock
Sam D'Agostino
Diane Lodge
Dominick Mariano
John Patitucci, Alternate
John Montana, Alternate

Beth Yacovelli, Secretary

Edward F. Duffy, Solicitor

J. Michael Fralinger, Engineer

Table of Contents

Subject | Page

Chapter 1 The Physical Community

Location 1
Figure 1 Regional Location Map Deerfield Township 2
Topography, Climate and Drainage Basins 3
Table 1 Freshwater Stream Classification 4
Figure 2 Drainage Basins 5
Geology 6
Table 2 Generalized Geologic Section and Hydrology of Cumberland County, N.J. 7
Figure 3 Primary Geology Map 8
Hydrology and Water Quality 10
Soil Descriptions and Characteristics 12
Table 3 On-Site Septic Disposal Limitations 16
Figure 4 Soil Classifications Map 17
Figure 5 Septic Capabilities Map 18
Soil Suitability for Agriculture 20
Figure 6 Agricultural Capabilities Map 21
Table 4 Soil Suitability for Various Crops, Deerfield Township, Cumberland County 23
Vegetation and Wildlife 24
Existing Land Use 25
Developed Land 25
Figure 7 Existing Land Use Map 26
Table 5 Deerfield Township Existing Land Use Survey Analysis and Comparison 30

Chapter 2 A Vision of the Future - Planning Goals and Objectives

Deerfield Township Master Plan Survey of the Community 34
The Business Community Survey 35
Identified Growth Issues 37
Current Zoning Analyzed 38
Table 6 Buildout Analysis of Existing Residential Zoning 38
Figure 8 Existing Township Zoning Map 39
Deerfield Township Planning Goals and Objectives 41

Table of Contents, continued

Subject | Page

Chapter 3 Open Space and Conservation Plan

Agricultural Lands..... 45
Figure 9 Open Space and Conservation Plan Map..... 46
Preservation and Protection of Stream Corridors..... 48
Wetlands Protection..... 50
Identification of Environmentally Significant or Sensitive Lands..... 50
Recommended Actions..... 51
Possible Sources Support..... 52

Chapter 4 Recreation Plan

Introduction..... 53
Existing Recreational Facilities..... 55
Figure 10 Recreation Plan Map..... 56
The Need?..... 57
Proposed Recreational Facilities..... 59
Enhancements and Improvements..... 61
Providing New Recreational Needs as Development Occurs..... 62
Recommendations for Action..... 63
Possible Sources of Support..... 64

Chapter V Community Facilities

Introduction..... 65
Public Safety..... 66
Figure 11 Community Facilities Plan..... 67
Police Protection..... 68
Municipal Government..... 68
Education..... 69
Solid Waste Disposal..... 71
Postal Service..... 71
Township-owned Lands..... 72
Cumberland County-owned Lands..... 72
Historic and Cultural Sites..... 73
The Cost of Services - Capital Improvement Programming Needed..... 75
Recommendations for Action..... 76
Possible Sources of Support..... 78

Table of Contents, continued

Subject | Page

Chapter VI Circulation Plan

Introduction..... 79
The Roadway Network..... 80
Figure 12 Circulation Plan Map..... 82
Table 7 Cumberland County Road Traffic Counts Within or Near Deerfield Township, 1998..... 89
Rail Line..... 90
Public Transportation..... 90
Traffic and the Growth Issue..... 91
Route 55 Impact..... 91
Centers' Traffic Safety..... 92
Truck Traffic..... 92
Preservation of the Rail Line..... 93
Strip Development..... 93
Recommendations..... 93
Possible Sources of Support..... 95

Chapter VII Utility Services Plan

Introduction..... 96
Figure 13 Utility Services Plan..... 97
Critical Planning Area No. 1..... 99
Critical Planning Area No. 2..... 99
Critical Planning Area No. 3..... 99
Water Supply..... 100
Table 8 Depletive Water Use Projections for Regional Water Resource Planning Areas of New Jersey, Deerfield Township, Cumberland County..... 102
Sanitary Sewer Planning..... 103
Stormwater Management..... 107
Solid Waste Disposal..... 108
Recommendations..... 108
Possible Sources of Support..... 110

Chapter VIII Housing Plan

Introduction..... 111
COAH Housing Allocation Explained..... 112

Table of Contents, continued

Subject | Page

Table 9 Affordability Limits for Low and Moderate Income Households Based on COAH's Regional Income Guidelines - Region 6 as of May 2, 2001. 115
Deerfield Township Housing and Population Characteristics..... 116
Table 10 Housing Units by Occupancy Status, 1990..... 117
Table 11 Housing Units by Number of Units in Structure, 1990..... 117
Table 12 Housing Units by Age of Structure, 1990..... 118
Table 13 Housing Units by Number of Rooms, 1990..... 118
Table 14 Deerfield Township and Cumberland County Owner-occupied Housing Units, 1990..... 120
Table 15 Deerfield Township and Cumberland County Gross Rent for Rental-occupied Housing Units, 1990..... 121
Deerfield Township Demographic Characteristics..... 122
Table 16 Population by Age for Deerfield Township and Cumberland County, 1990..... 122
Table 17 Household by Household Type, 1990..... 123
Income..... 123
Table 18 Household and Family Incomes - Deerfield Township, 1990..... 124
Employment Characteristics..... 125
Table 19 Deerfield Township Distribution of Employment by Industry, 1990..... 125
Table 20 Deerfield Township Employment by Occupation, 1990..... 126
Meeting the Township's Fair Share Allocation..... 127
Plan Recommendations..... 129
Possible Sources of Support..... 130

Chapter 9 Recycling Plan

Introduction..... 131
Recommendations..... 132
Possible Sources of Support..... 132

Chapter 10 Economic Development Plan

Introduction..... 133
The Plan's Proposals..... 134
In Conclusion..... 137
Possible Sources of Support..... 138

Table of Contents, continued

Subject | Page

Chapter 11 Future Land Use Plan

Introduction..... 139
Population Outlook..... 140

Table 21 Deerfield Township Population 1810 to 1990..... 140
Future Land Use Plan..... 141
The Centers - Rosenhayn and Carmel..... 141
Figure 14 Future Land Use Plan Map..... 143
The Plan for Future Land Use..... 144
Future Land Use Outside Center Boundaries..... 148
A Buildout Analysis..... 153
Recommendations..... 155
Possible Sources for Support..... 156

Chapter 12 Relationship of Master Plan to Other Plans

Municipal Plans..... 157
Cumberland County Master Plan..... 160
State Plan Consistency..... 160

Chapter I The Physical Community Today

Before solutions can be proposed for the growth issues facing a community, it is necessary that there be some understanding of the community's physical environment, both natural and man-made. Such an understanding is essential to identifying the impact of and major drawbacks to new development. Of concern are those areas in need of protection or special consideration due to their environmental sensitivity and existing land use patterns. Recognition of these conditions identifies the conflicts and problems which may result between existing and future land uses such as houses near active farming. Awareness of these drawbacks helps focus and direct planning efforts on the municipality's future growth. A municipality must identify the existing and perceived conflicts and problems before it can make sound planning decisions for future growth and development. This chapter will discuss and illustrate Deerfield Township's physical condition today and attempt to identify the major growth issues.

Location

Deerfield Township's 16.71 square miles (10,689 acres) are situate in northern mid-Cumberland County between the County's two major urban areas: the urbanized Bridgeton area and the two adjoining cities of Millville and Vineland. The Township is bounded by Fairfield and Upper Deerfield Townships, and the cities of Millville and Vineland within Cumberland County; and by Pittsgrove Township in Salem County. The Township is approximately 41 miles southeast of Philadelphia, PA (less than an hour's drive), 50 miles west of Atlantic City and 40 miles east of the Wilmington, DE. State Highway Route 56 (Landis Avenue) tranverses the northern portion of the Township and connects with State Highway Route 77 in Upper Deerfield Township and with Routes 55 and 47 in Vineland. Intercounty Route 552, locally known as Sherman and Irving Avenues, serves as the main transportation artery across the southern portion of the Township again connecting it with Upper Deerifled Township in the west and to the east Routes 47 and 55 in Vineland. **(See Figure 1. Location Map)**

There are two major settlements within the Township: the town of Rosenhayn and the village of Carmel. Rosenhayn straddles Route 56 in the north central portion of the Township and is approximately 4 miles from the Rt. 56 interchange with Route 55, making it very accessible to the Philadelphia and the urbanized portions of Camden and Gloucester Counties to the north. Carmel sits astride Route 552 and is slightly further from Route 55 at its Sherman Avenue.

interchange. These Township's two settlements and two arterial roadways are connected by Morton Avenue, County Route 634, the Township's major north/south corridor. South of Irving Avenue in Carmel, this roadway is known as Miller Avenue and leads directly to State Route 49, the main arterial roadway between the cities of Bridgeton and Millville.

GROWTH ISSUE # 1 : CLOSE PROXIMITY TO MAJOR URBANIZED AREAS AND EASY ACCESS TO THE REGION'S MAJOR ROADWAYS MAKE THE TOWNSHIP ATTRACTIVE FROM A DEVELOPMENT VIEWPOINT.

Topography, Climate and Drainage Basins

The Township's has a flat to gently rolling landscape as can be observed in the lands between the numerous streams. Most of the streams, brooks or branches as they are called, begin in western portion of the Township and flow east to the Maurice River. There are actually eight drainage basins or portions thereof within the municipal boundaries (**See Figure 2 Drainage Basins**). Most of the basins empty into and are part of the Maurice River Drainage Basin, thereby putting almost the entire Township in the regional watershed of the Maurice River. A small portion of the southwestern part of the Township drains into the Indian Fields Branch and on to the Cohansey River Basin.

There tends to be a gently flowing topography between these various basins. The Township's highest elevation occurs along a ridge south of Pindale Drive, north of Thundergust Brook. At 120 feet M.S.L., this ridge drops away as the land rolls down to Thundergust Brook. This pattern is repeated throughout the Township with various high points, ranging from 90 to 100 feet, between the valleys of the surface waterways. Drainage within the Township is largely good to excellent except along the various waterways notably Thundergust Brook, Lebanon Branch, Chatfield Branch and the Maurice River. It is along these streams that much of the Township's wetlands are to be found. Earlier municipal master plans have repeatedly recommended the preservation and protection of these natural "greenways."

The State of New Jersey has classified all the freshwater waters and these classification were included in the Township's 1990 Master Plan, adopted March 20. 1990 (**See Table 1 Fresh Water Stream Classification**). These classifications are mandated by the State surface water quality standards and they are utilized to determine use of the streams especially in the case of locating wastewater treatment facilities and how other sources of point and non-point pollution are regulated. Streams with a classification of FW2-NT can receive treated discharge.

Table 1 Freshwater Stream Classification[1]

Major River Basin Tributary Basin	NJDEP Classification
Maurice River Basin	
Union Lake Basin	
(Vineland) All tributaries within the boundaries of Union Lake Wildlife Management Area	**FW2-NT (C1)**
Mill Creek Basin	
Chatsfield, Lebanon, and all other basins	
(Carmel) Entire length, except segment below	**FW2-NT**
(Union Lake) Creek and tributaries within the boundaries of the Union Lake Wildlife Management Area	**FW2-NT (C1)**
Muddy Run Basin	
Thundergust Brook Basin	
(Deerfield) Entire length, except segments described below	**FW2-NT**
(Deerfield) That segment within the boundaries of Parvins State Park	**FW2-NT (C1)**
Lummis March Branch and all other basins	
(Centerton) Portion of the Run within Parvins State Park	**FW2-NT (C1)**
(Pittsgrove) Entire length, except segments described below	**FW2-NT**
(Vineland) Segments within Union Lake Wildlife Management Area	**FW2-NT (C1)**

Description of Classifications:

FW1 Freshwater 1, freshwater wholly within Federal or State lands, or special holdings that are preserved for posterity and are not subject to mandate wastewater discharges

FW2 Freshwater 2, Non-Trout waters

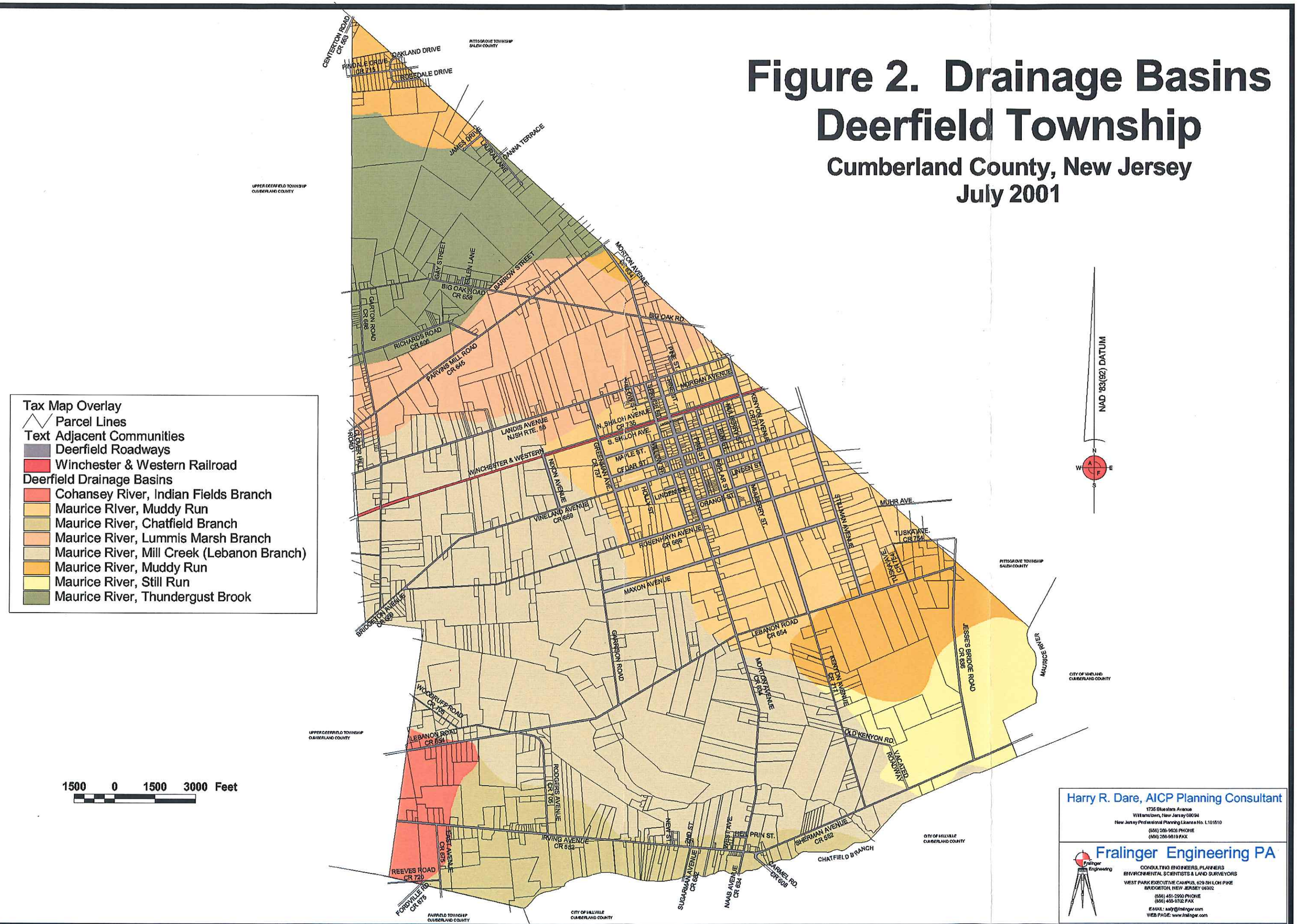
C1 Category 1, waters flowing into or entirely located with State Parks, forested (or Fish and Game lands, Federal Wildlife Refuges or other special holdings or is a State shellfish water)

---

[1] **Deerfield Township Master Plan**, John Rahenkamp Consultants, Inc., March 20, 1990.

Figure 2. Drainage Basins
Deerfield Township

Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L-101510
(856) 209-9608 PHONE
(856) 256-9519 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2990 PHONE
(856) 455-5702 FAX
E-MAIL: sally@fralinger.com
WEB PAGE: www.fralinger.com

GROWTH ISSUE #2: THE NUMEROUS STREAMS FOUND WITHIN THE TOWNSHIP CREATE NATURAL BARRIERS TO DEVELOPMENT AND REPRESENT ENVIRONMENTALLY SENSITIVE LANDS DESERVING PROTECTION AND SUBJECT TO REGULATION.

The Township's climate like that of all of Cumberland County is mild. The proximity of the County to the Delaware Bay and the Atlantic Ocean with the Gulf Stream's influence, provides a moderating effect so that summers are longer and winters less severe than other areas at the same latitude further distance from these major water bodies' impacts. The annual average temperature is 55.6o which gives the community an approximately 270 day growing season, 193 days of which are frost free. Cumberland County's prevailing wind directions are generally from the north or northeast in the late Fall, Winter, and Spring months and from the southeast, south, or southwest in the Summer and early Fall months.

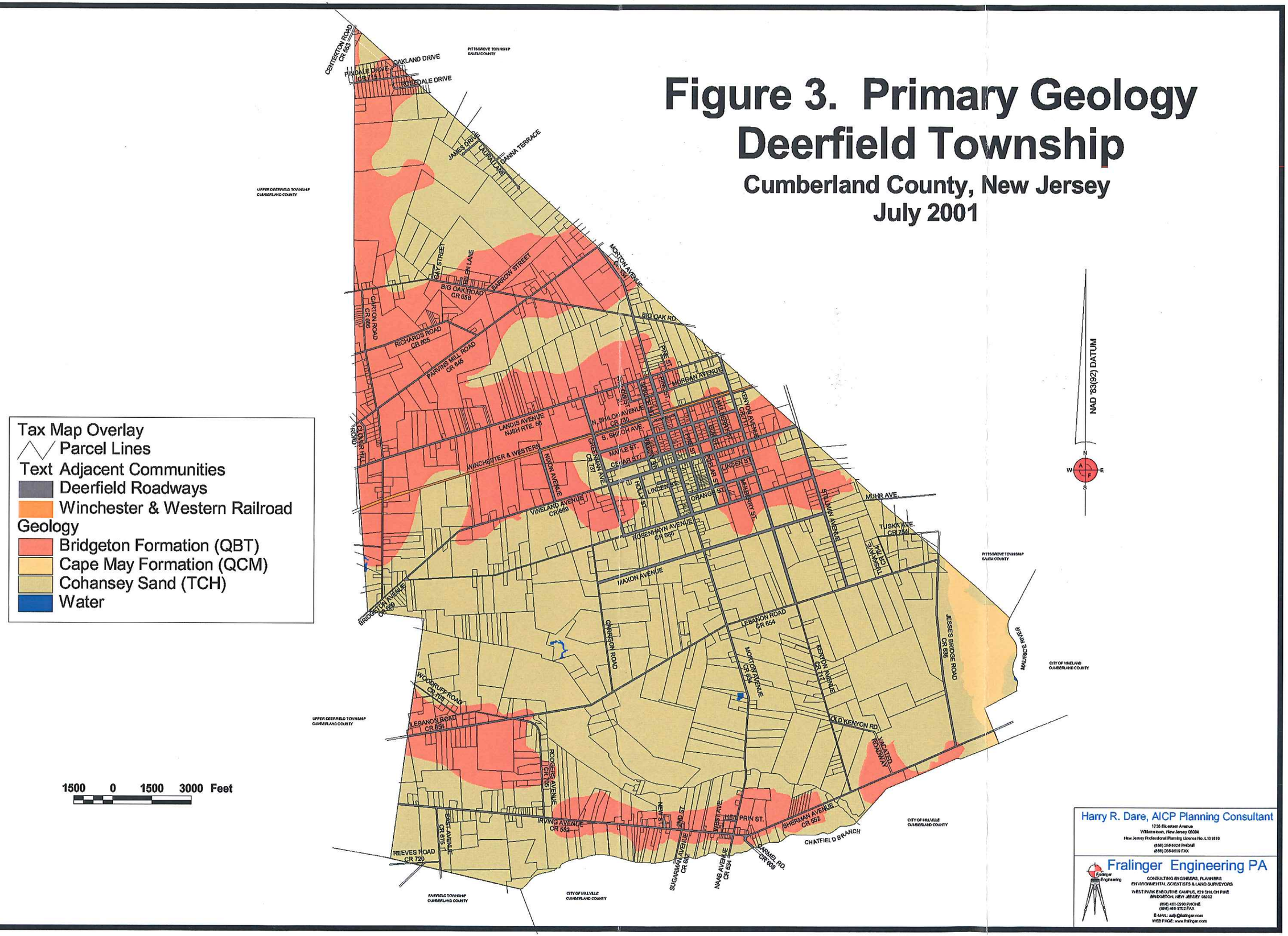
Geology

The Township is located in the Coastal Plain physiographic province of which much of southern New Jersey lies. This Coastal Plain is composed of fourteen geologic layers, five of which are water bearing. The layers in which ground water is found are known as "aquifers" and are composed of porous, course-grained sands sandwiched between relatively impervious clay (non-porous) layers. The fourteen layers were formed over three geologic periods: Cretaceous, Tertiary and Quaternary. These periods are divided into seven units known as epochs. **Table 2 Generalized Geologic Section and Hydrology of Cumberland County, N.J.** and the following description of the Township's geology is taken from ***Special Report No. 31, Ground-Water Resources, Cumberland County, New Jersey, published by the N.J. Department of Environmental Protection, Division of Water Resources, 1971.*** The geologic description below follows the accompanying Table 2 from oldest (deepest) geologic formation up to the youngest or surface layer identified and shown on **Figure 3 Primary Geology.**

The Cretaceous Period consists of one epoch, the Upper Cretaceous and is divided into four layers. The oldest is the Potomac-Raritan-Magothy group. These sediments were deposited during a marine environment, i.e., when the area was still under water. This is the deepest known aquifer, but it contains saline water in Cumberland and a large part of Salem County. The aquifer is approximately 2,200 feet thick and all of its aquifers are composed of sand and gravel.

The next layer is the Merchantville-Woodbury-Englishtown-Marshalltown which is not an aquifer. Dark silty clay acts as a confining unit to prevent leakage into the Potomac-Raritan-

Figure 3. Primary Geology
Deerfield Township
Cumberland County, New Jersey
July 2001



Magothy layer discussed earlier. This layer is approximately 400 feet thick.

The third layer is the Wenonah Formation and Mount Laurel Sand. This is the best future source of water for Deerfield Township because the static water level is above sea level. The aquifer is subject to salt water intrusion along the Delaware Bay area. The aquifer has fine to coarse grained quartz with some mica, glauconite and shells. The layer itself ranges between 75 and 110 feet in thickness. It is suspected that leakage from the overlying Navesink Formation will lessen the draw down from pumping water from this aquifer. The uppermost layer of the Cretaceous Epoch is the Navesink Formation. This is a 25-40 foot layer of glauconitic greenish-black clayey sand.

During the Tertiary Period, there were four epochs, the Paleocene, Eocene, Miocene and Pliocene, from oldest to youngest. Deposition consisted of alternating layers of sand, silt and clay. The layer overlying the Navesink is the Hornerstown Sand-Vincetown Formation (Paleocene Epoch) which acts in conjunction with the Navesink as a leaky, semi-confining unit. Again, this is a greenish-black glauconitic sandy clay. This layer is about 170 feet thick.

Above the Hornerstown Sand-Vincetown Formation is the Piney Point Formation, an aquifer. It is a minor aquifer presently tapped for domestic supplies in the western portion of Cumberland County. The aquifer consists of fine to medium grained glauconitic sand layers of greenish-gray silty clay. The Piney Point Formation dips to the southeast. Well depths in western Cumberland County tap this aquifer at 90 feet while another well tapping this layer near Millville is between 480 to 560 feet deep. The layer itself ranges between 30 and 80 feet in thickness. Tapping of this aquifer also must be monitored for salt water intrusion. Water from wells utilizing this aquifer has been potable without any special treatment necessary.

During the Miocene and Paleocene Epochs the four Kirkwood Formations occurred. Two of the four are aquifers. Starting with the deepest, the Kirkwood Formation (Unit 1) is a confining unit of dark gray and brown silty clay. The layer ranges from 40 to 130 feet thick.

Unit 2 is the Lower Kirkwood aquifer. Presently, this aquifer is being utilized in the eastern portions of the County along the Delaware Bay where the static water level is above sea level. The thickness is between 10 to 90 feet.

Unit 3 is another semi-confining unit consisting of gray and brown silty to sandy clay. The silt and sand allows vertical leakage of water both up and down between the two aquifers. Thirty to ninety feet is the thickness of this layer.

Unit 4 is the Cohansey-Kirkwood aquifer which is the most productive in the County. It can be tapped from near the surface to a dept of 1,890 feet and ranges in thickness from 30-180 feet. Wells in this layer have produced up to 1,200 g.p.m.. A well drilled near Deerfield Township's northwestern border in Upper Deerfield Township showed this aquifer to extend from

ground surface to a depth of 160 feet. The Kirkwood formation underlies this aquifer and extends from 160 to 300 feet. Below 300 feet begins the Piney Point Formation. The two water-bearing formations of the Kirkwood Formation provide 95% of the groundwater presently withdrawn in Cumberland County. The sand is fine to coarse grained in this layer and is more permeable east of the Cohansey River than it is west of the River. Where the aquifer is overlain in the Township it is by a sandy silty clay layer about 35 feet thick, although thinner near stream channels because of the down cutting of the stream.

Along the Maurice River channels and valleys are overlain by the sands of the Cape May Formation while most of the other stream channels and valleys within the Township are overlain by the sands of the Bridgeton Formation. The flatter uplands and basin divides are covered by the Cohansey Sands. Both the Bridgeton and Cape May Formations occurred during the Pleistocene Epoch of the Quaternary Period. Fluctuations of sea level resulted in alternating periods of erosion and deposition of sediments. Surface erosion and stream action have removed the Cape May Formation, exposing either the Bridgeton Formation or the still older Cohansey Sands. Prior to the advance of the last glacier during the Pleistocene, the sea level rose and deposited the Cape May Formation, filling the eroded stream beds and covering the valley lowland. When the sea level fell, erosion had reformed the stream channels to the present level. The Bridgeton Formation will range from 0 to 120 feet in thickness. Both of these layers serve as recharge areas for the Cohansey-Kirkwood Aquifer.

The most recent deposits were during the Holocene Epoch of the Quaternary Period. These two layers consist of tidal marsh and swamp deposits and beach and stream alluvium deposits. The tidal march and swamp deposits consist of fine grained sand, silt and clay and much organic material. The beach sand is homogenous fine to medium grain quartz. Stream alluvium occurs along present channels in layers with high rates of evaportranspiration[2]. These areas are also susceptible to and serve as potential sources of ground water pollution, particularly during the dry summer months when peak demand for water usage lowers the water levels.

Hydrology and Water Quality

The Cohansey-Kirkwood aquifer is the shallowest of the five aquifers noted in the geologic makeup of Cumberland County. This aquifer is the most important source of water in the Township where all supplies are from on-site, private wells. There is no public water supply

---

[2] Evaportranspiration includes all the water that is evaporated from soils, ponds, lakes, and streams and that which is transpired from plants. Rates of evaportranspiration vary seasonally and annually and are not uniform throughout Cumberland County. Actual rates depend mostly on climatic conditions, especially temperature, the distribution, intensity and duration of precipitation and sunshine, and on the availability of soil moisture. Evaportranspiration is the largest water loss item in the hydrologic budget of Cumberland County.

system in the municipality. Being the aquifer is close to the surface and possesses a high rate of transmissibility, it is easily acceptable to contamination. The evidence of this potential was discovered in the Big Oak Road area of Upper Deerfield and Deerfield Townships in the mid-1980's. A test well dug in 1984 found that "...no confining layers were found that would retard or prevent migration of contaminants in the aquifer." Since the Township also currently depends on on-site septic disposal systems as well, too dense a concentration of development could result in groundwater contamination.

The Cohansey-Kirkwood aquifer currently supplies most of the water supply for Deerfield Township. The water generally has a low pH and is corrosive and may contain levels of iron and/or manganese. Residential wells often require water treatment systems for these materials. According to local professional well drillers, the range of well depths in the Township are from 70 feet to 130 or 150 feet with probably 75% of the wells being 70 to 100 feet in depth. At Morton and Landis Avenues a depth of 130 feet provides good quality water while any well above that depth usually has nitrate problems. Near the Township school on Morton Avenue, good water can be found at 100 feet and in the Carmel area between 100 to 125 or 130 feet. Yields are more than sufficient for most uses.

According to the ***New Jersey Statewide Water Supply Plan, August, 1996, prepared by the Office of Environmental Planning of the N.J. Department of Environmental Protection,*** the Cohansey and Maurice River watersheds, Planning Area 21, in which Deerfield Township lies, has a net available water projection of 54 mgd. This figure may be subject to revision based on a careful analysis of the basin. In 1990 the Basin's water demand was 63 mgd which means there was a watershed deficit of 9 mgd. That deficit is projected to increase to a 18 mgd by 2010 when water demand is projected to be 72 mgd and to 23 mgd by 2040 when 77 mgd will be needed to meet projected water demand. The Statewide Water Supply Plan estimates that Planning Area 21 to be in deficit because there is no surface water storage (and therefore no safe yield) and because ground water use exceeds the estimated total available ground water supply of 54 MGD.

The Cumberland County Planning Board with funding from the N.J. Department of Environmental Protection has hired consultants to undertake a wastewater management plan for the basin. It is imperative that the work leading up to that new plan include a careful analysis of the amount of water available within the basin. The deficit may be the result of water which was allowed to be taken from the upper reaches of the Maurice River for use in Gloucester and Camden Counties. However, until a clearer picture of the basin is developed, the true extent or severity of the deficit will not be able to be assessed or dealt with through planning efforts.

There are a number of threats to the ground and surface waters of the Township. Development is one because it results in reduced recharge area due to land cover increasing impermutablity, contamination from on-site septic disposal, roadway chemical use and the impact of lawn and gardening care activities. Agricultural practices can also impact water quality. Since the Township is largely a rural residential and farming community the impact of agricultural and

lawn and gardening activities can be considerable especially in terms of nitrates which may build up in the soil from nitrogen used in fertilizers. In surface water nitrates cause algae and plant growth which starve the water of oxygen. In groundwater it can cause health problems for pregnant women, infants, small children and the aged. Public health standards for potable water permit only 10 ppm of nitrate. Agri-chemical usage for both farm and home should be based on sound technology and expertise such as those promulgated by the Rutgers University Agricultural Extension best management practices for the given soil types.

Other problems include the indiscriminate disposal of cleansers, solvents and other chemicals and compounds used in the residences. These are just as threatening to groundwater supplies as are site specific industrial discharges. Insufficient area for on-site septic systems also creates problems. In Deerfield Township this is compounded within the Rosenhayn area, by the large number of small lots depending on such system for a long time. Naturally occurring clays in the soils form barriers to percolation from these systems and in time they do not function well requiring frequent pumping. System failure are a threat to ground water supplies and an indication that a public sanitary sewer system is needed.

GROWTH ISSUE #3: TOWNSHIP WATER SUPPLIES APPEAR SUFFICIENT AT PRESENT ALTHOUGH THE BASIN IS PROJECTED TO HAVE A SUBSTANTIAL DEFICIT OVER THE NEXT 40 YEARS AND BOTH SURFACE AND GROUND WATER SUPPLIES ARE ESPECIALLY SUBJECT TO CONTAMINATION IF NOT CAREFULLY PROTECTED.

Soil Description and Characteristics

A great deal of information is available to community planners from soils information. The Soil Survey of Cumberland County, prepared by the United States Department of Agriculture, Soil Conservation Service, provides detailed maps of the location of the various soil types and information on the characteristics of these soils such as texture, depth of layers, natural fertility, permeability to rainfall, flood hazard, and other pertinent information. Deerfield Township has thirteen of the twenty soil types found in Cumberland County. These soils are classified by the U.S.D.A. in a variety of ways, one of which classifies them according to their limitation in relationship to respective land uses. For a number of major uses such as engineering, suburban development and agriculture, the limitations presented by soil type are rated in terms of

degree: slight, moderate or severe. The interpretation of these ratings as defined by the U.S.D.A. are:

Slight Slight ratings indicate that soil properties are generally favorable and limitations are so minor that they can easily be overcome.

Moderate Moderate ratings indicate that soil limitations can be overcome or modified by either planning, design or by special maintenance.

Severe Severe ratings indicate that costly soil reclamation, special design, intense maintenance, or a combination of these is required.[3]

An in-depth system has also been developed by the U.S.D.A. to classify different soils. This system is called "capability groupings" and its purpose is to show the suitability of each soil for various kinds of field crops. The capability system is broken down into three parts: the Capability Class, the Subclass and the Unit. Capability classes, according to the Soils Survey, are signified by Roman numerals I to VIII, ranging from little or no limitations of use to severe limitations. For example, Class I soils have few or no limitations which restrict their use. Class II soils have slightly more limitations which reduce the amount and types of crops grown on a certain soil. Class III & IV soils have more severe limitations which reduce the choice of plants and require careful management. Class V and VI soils have limitations that are generally impractical to eliminate and vary in severity. At the worst end of the scale are Class VII and VIII soils, which have limitations that preclude most kinds of development, especially agriculture.

Capability subclasses define what limitations, if any, each capability class soil has. Subclasses are designated by a small case letter added to the Roman numeral, either e, s, or w. The letter "e" signifies that the main soil limitation is related to erosion problems. A designation "w" indicates a problem with periodic or continual wetness which interferes with plant growth and agricultural development. An "s" indicates limitations of soils due to shallowness, prone to drought or stoniness.

Capability units break the subclasses down into compatible groups of soils. Soils within a capability unit are similar enough to grow the same crops, require the same conservation measures, and to have similar productivity and other responses to management. These units are designated by adding an Arabic numeral to the Class and subclass symbols. Here is an example of a capability grouping based on sloped Chillum silt loam: "IIIe-4."

Following is a listing and brief description of the thirteen soil types found in Deerfield

---

[3] **U.S.D.A. Soil Survey of Cumberland County, New Jersey**, issued April 1978.

Township:

Aura - Aura soils are well-drained and gently sloping. They consist of a dark grayish brown sandy loam, with a hard clayey substratum which slows permeability. This increases the amount of surface runoff and if improperly managed, erosion can become a problem in the Aura soils. These soils types are good for both agriculture and development with moderate limitations for septic tanks. Within the Township is found Aura gravelly sandy loam, 0 to 5 percent with a capability classification of Iis-10, and Aura gravelly sandy loam, 5 to 10 percent, eroded.

Chillum - This soils series is a well-drained, silty soil over a gravelly sand loam substratum. Chillum soils are generally level to slightly sloping. They are extremely well suited to both agriculture and development, although there are moderate septic tank problems. The capability classifications for Chillum soil found in Deerfield Township is I-4.

Downer - Downer soils consist of level to sloping, well-drained loamy sand. They are grayish brown and in Deerfield Township occur as 0-5 percent, 5-10 percent, 0-2 percent or 2-5 percent slope. Permeability is moderately rapid and erosion hazards are present on the greater slopes. The soil is best suited to vegetable and fruit production. The capability classifications for Downer soils are IIs-6, IIIe-6, I-5 and IIe-5.

Evesboro - Evesboro soils are excessively drained due to rapid permeability. They are not suited to most types of agriculture or development and severe septic tank problems are characteristic of these soils. This is due to the high possibility of groundwater pollution. The capability classification is VIIs-8.

Fallsington - This soil type is poorly drained and consists of a sandy layer over a gravelly sand loam substratum. The water table drops three to five feet in Summer. Fallsington sandy loam has severe limitations for development but is suitable for agriculture. The capability classification is IIIw-21.

Fort Mott - These soils are well-drained and consisting of a dark grayish brown loamy sand. Permeability is moderately rapid and this soil is low in natural fertility. It is suitable for most development uses. The capability classification is IIIs-7.

Hammonton - Hammonton soils consist of a brown sandy loam which is moderately well-drained to somewhat poorly drained. The water table is high in Winter and Spring and it presents considerable limitations on potential development. The capability classification is IIw-15.

Matapeake - This soil series consist of well-drained silty loams. Permeability is moderately slow and water capacity is high. Matapeake soils are well-suited to both urban and agricultural uses. The capability classifications for these soils as found in the Township are: I-4, IIe-4 and IIIe-4.

Mattapex - These soils consist of moderately well-drained, silty loams. Permeability is moderately slow and there is a seasonably high water table. This presents moderate to severe limitations on development due to septic tank problems. They are generally good as agricultural land. The capability classification is IIw-13 for Mattapex soils.

Muck - Muck is nearly level and consists of black, finely decomposed, saturated organic material. At most times, the saturated soil material is essentially liquid and has little bearing capacity. Muck ranges from 16 inches to 10 feet or more in thickness, but it generally is 3 feet or more thick. It is subject to frequent, short-duration flooding. The water table is at the surface throughout the year except during extreme droughts. Natural fertility is medium. If drained, these soils have high available water capacity. Permeability is rapid. Capability classification is VIIw-30.

Pocomoke sandy loam - This soil is nearly level and the largest area are on flats where the elevation is less than 40 feet. Included with this soil in mapping are areas of Pocomoke soils that have a loam or organic surface area, areas of Fallsington and Othello soils, and less commonly areas of Woodstown and Hammonton soils. Also included are small areas of soils that have a subsoil of sandy clay loam and areas where the surface layer and subsoil are as much as 20 percent gravel. Wetness is the main limitation to the use of this Pocomoke soil. Carefully installed and maintained deep drainage is needed if this soil is to be farmed. Open ditches or under drains can be used to drain the soil and thus lower the water table. Capability classification is IIIw-24.

Sassafras - The Sassafras series consists of nearly level to sloping, well-drained soils. In a representative profile, in a cultivated area, the plow layer is dark yellowish-brow sandy loam about 10 inches thick. The upper part of the subsoil is yellowish-brown sandy loam to a depth of 14 inches. The middle part is yellowish-brown sandy clay loam to a depth of 30 inches. The lower part is yellowish-brown sandy loam to a depth of 40 inches. The substratum is brownish-yellow loamy sand to a depth of 60 inches. In the three units which are referred to as Sassafras gravelly sandy loam, the surface layer is 20 percent gravel.

Sassafras soils are medium in natural fertility and moderate in organic matter content. Permeability is moderate, and the available water capacity is moderate. The depth to the water table is more than 5 feet in most places. The classifications for fertility varies depending on slope, e.g., Class I (0-2% slopes), Class II (2-5% slopes), and Class III (5-10% slopes). The capability classifications for both the Sassafras gravelly sandy loam and the Sassafras sandy loam are (in order of decreasing fertility): I-5, IIe-5 and IIIe-5.

Woodstown - Woodstown soils are gently sloping and moderately well-drained. They often have a mottled gray brown appearance which indicates prolonged wetness. The water table rises 2 to 3 feet in Winter and drops to 5 feet or lower in Summer. They are both generally good farmland, but have limited potential for development due to their seasonally high water tables. Capability classification is IIw-14.

Figure 4 Soil Classifications shows the location of the above outlined soils as they appear within the Township. By analyzing the soil characteristics and properties as were described above, it is possible to determine the suitability of the soils to various land uses. Mapping of soils indicates where certain types of land use activities can or cannot be supported by the soils to varying degrees of limitations as discussed. Of course, soils are not the only measure of a particular sites suitability of a given land use, but they do give an indication of what type of problems may have to be overcome or dealt with if the particular land use is to be successfully sited on these soils.

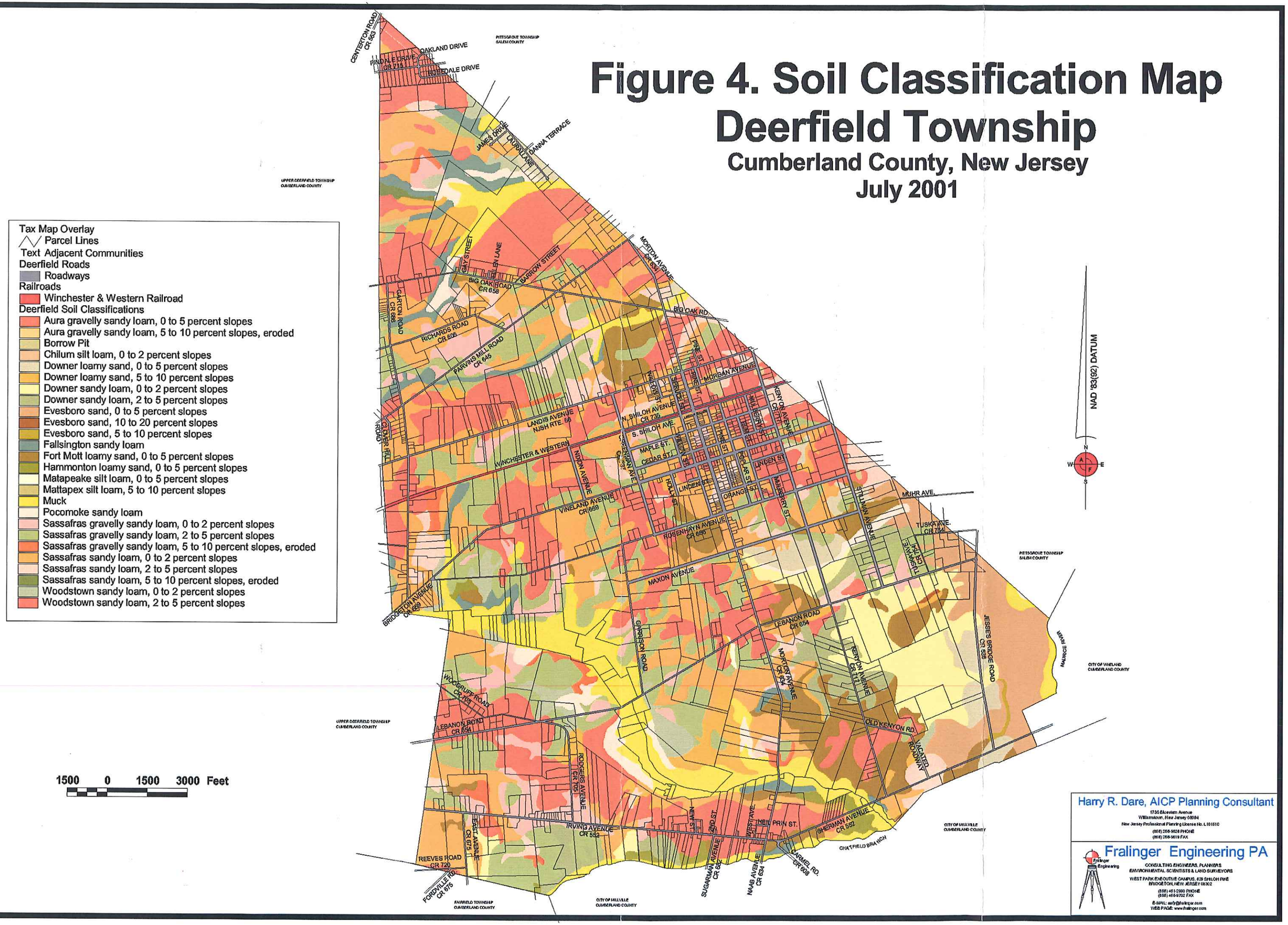
One important use of soils information is to determine whether or not the soils as found and located throughout a community can support on-site septic systems. This information becomes crucial when making planning decisions regarding density and the impact of development on ground water. There are ways of overcoming the natural conditions of a given site through placement of additional fill or specialized system design or technology. **Table 3 On-site Septic Disposal Limitations**, identifies the various soils found in the Township by category of limitations for the placement of on-site septic systems. Problem areas for septic systems are classified according to degree of limitation into three categories : slight, moderate or severe. **Figure 5 Septic Capabilities** shows the areas of the Township so designated by these three categories.

Table 3 On-Site Septic Disposal Limitations

Slight	Moderate	Severe
Downer 0-5%	Aura	Downer, clayey substratum
Fort Mott	Chillum	Evesboro
Matapeake 0-5%	Downer	Fallsington
Sassafras 0-5%	Hammonton	Landfill
	Matapeake 5-10%	Matapeake, clayey substratum
	Sassafras 5-10%	Mattapex
		Muck
		Pocomoke

Soils in the severe limitations category are there for the following reasons. Muck and Pocomoke flood. Evesboro, Fallsington and Mattapex have high water tables. Some Downer and Matapeake soils have clayey substratum which causes slow permeability and subsequent

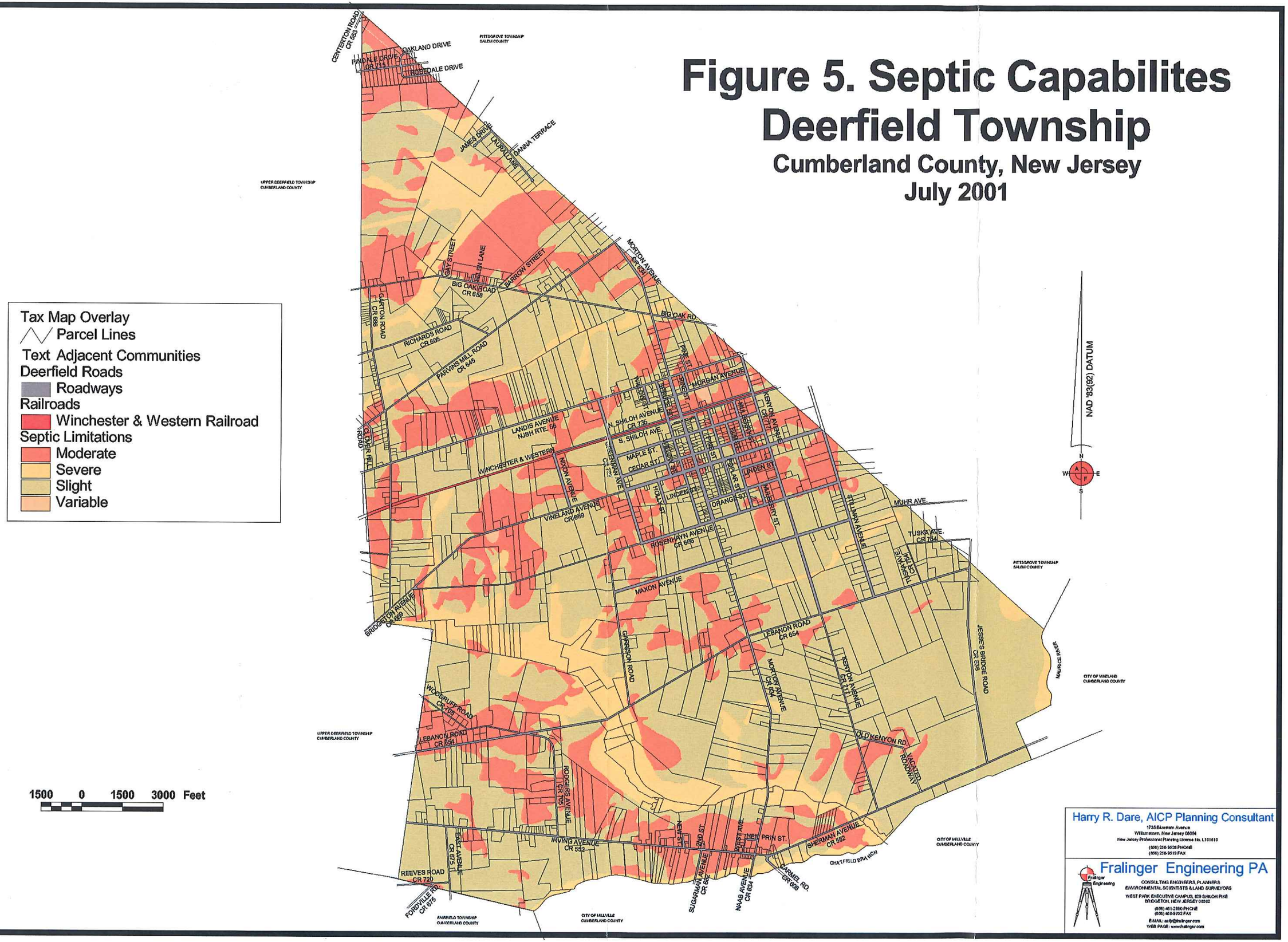
Figure 4. Soil Classification Map
Deerfield Township
Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Blackman Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L-101510
(856) 256-9628 PHONE
(856) 256-9619 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2560 PHONE
(856) 455-9702 FAX
E-MAIL: aafy@fralinger.com
WEB PAGE: www.fralinger.com

Figure 5. Septic Capabilites
Deerfield Township
Cumberland County, New Jersey
July 2001



standing water on the surface. This can be overcome by deep excavations to allow proper drainage. Landfill, which is not a natural soil type, but a man-made phenomenon, obviously has serious limitations. Landfill will not stabilize for several years after discontinued use as a disposal site.

Moderate on-site septic disposal limitations of soils include such things as seasonal high water table (Hammonton and Woodstown), slow permeability (Aura and Chillum) and slopes of greater than five percent (Downer, Matapeake and Sassafras). Steeper slopes require special filter fields while slow permeability requires deep trenching. Both of these corrections create additional costs.

GROWTH ISSUE #4: THE CONCENTRATION OF NEW DEVELOPMENT, PLANNED EXPANSION OF ECONOMIC ACTIVITIES AND THE PROTECTION OF WATER SUPPLIES WILL REQUIRE CAREFUL PLANNING AND PUBLIC SYSTEMS OF WATER SUPPLY AND SEWAGE DISPOSAL.

Another limitation which can be delineated using soils characteristics is the potential for flooding. This characteristic is very closely related to septic tank limitations as can be easily understood. The Soil Conservation Service has determined that there are four soil types which are indicative of flood hazards: tidal marsh, Berryland, Pocomoke and Muck. The structure of these soils causes them to hold large quantities of water. This in turn prevents additional flood waters to be immediately absorbed and the excess water flows over the surface of the soils. Deerfield Township has only two of these four soils, Muck and Pocomoke. Both of these two soils are found along the streams of the Township. Of course, these areas are controlled through both State and Federal regulations.

The Federal Insurance Administration, within FEMA, administers the National Flood Insurance Program (NFIP). The NFIP was created to reduce the losses due to flooding and to promote a wiser use of flood plains. The NFIP provides communities and individuals with flood hazard information and provides insurance to property owners in participating communities.

Flood Insurance Rate Maps (FIRM) are published by the NFIP for use by citizens, community officials, insurance agents, Federal agencies, and lending institutions to determine the degree of flood hazard in different areas of a community so that actuarial premium rates can be used to obtain flood insurance coverage. The FIRM provide information which identifies areas subject to flooding, locates a specific property site, determines elevation of base flood, and locates reference marks necessary for determining elevation of property. Flood risk areas within the community, shown on the FIRM, are subject to flooding. The specific zone designations are based on the magnitude of floods that could possibly occur.

Soil Suitability for Agriculture

One of most important uses of soils information and mapping is to be found in the delineation of prime farmland within a farming community. The continued maintenance and prevention of loss of prime agricultural soils is essential to continued farming stability and profitability. This is especially true in a State where land values continue to increase and the demand for more land for development seems insatiable. Unfortunately, prime agricultural soils often tend to be excellent soils for development thereby making the preservation of the farmland even more difficult. Improvement and reclamation of poor soils (those not particularly suited to agriculture) is extremely expensive and rarely gives good economic return to the farm. This is a prime reason why government today places so much emphasis on encouraging continued farming and the upkeep of prime soils where possible.

Determining the location of prime agricultural soils is necessary for communities attempting to preserve farmland. It allows planners to base their decisions on site specific geographic information about the distribution of excellent to poor soils. The Soil Conservation service has a system of correlating soils and agricultural usefulness. For agriculture, the capability classes are again designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use, defined as follows:

Class I soils have few limitations that restrict their use. Deerfield has five of these soils.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices. The township has eight of these soils.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both. There are seven soil types in this category.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful conservation practices, or both. None in Township.

Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, woodland, or wildlife habitat. None in Township.

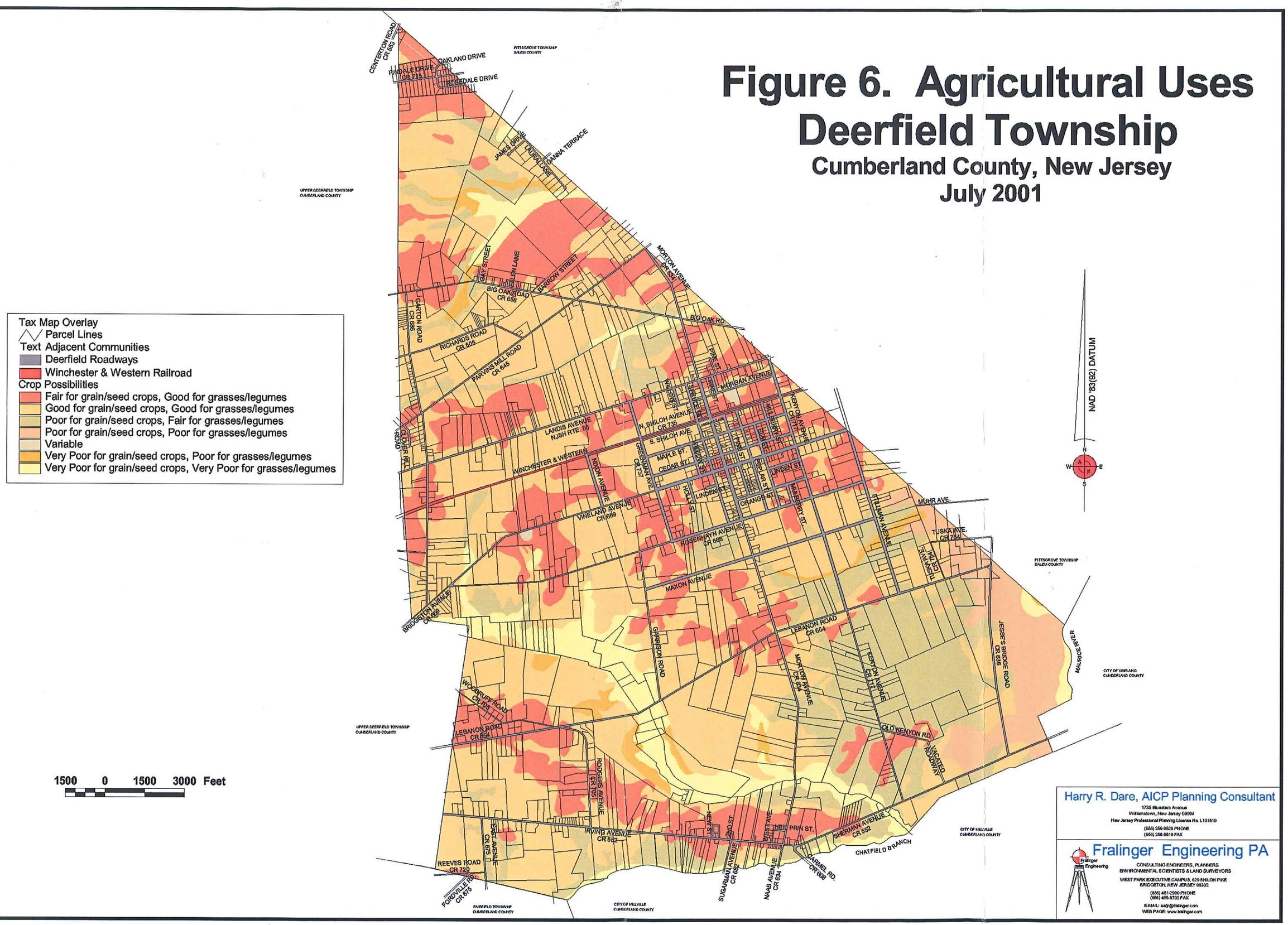
Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, woodland, or wildlife habitat. None in the Township.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture, woodland, or wildlife habitat. There are four in the Township.

Class VIII soils and land forms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply, or to esthetic purposes. None in the Township.

Figure 6 Agricultural Capabilities shows the crop possibilities locations throughout the Township based on soils classifications. It shows a considerable portion of the Township that is

Figure 6. Agricultural Uses
Deerfield Township
Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L101510
(856) 256-9826 PHONE
(856) 256-9819 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2990 PHONE
(856) 455-9702 FAX
E-MAIL: sady@fralinger.com
WEB PAGE: www.fralinger.com

considered good to fair for both grain/seed crops and grasses/legumes. The **Existing Land Use Map (Figure 7)** gives a picture of recent agricultural land use activity within the Township. Agriculture remains a major force in the economy of the Township, but considerably less so than when the last land use study was undertaken in 1977. **Table 4 Soil Suitability For Various Crops** lists the types of crops that the Soil Survey of Cumberland County indicates are suitable for the soils located within Deerfield Township. Many of these crops are currently being grown in the Township although most fruit farming (orchards or berries) is very limited.

In reviewing these maps, it is perhaps useful to note a policy recommendations cited in the Township's 1990 Master Plan. It raised a question concerning the accuracy of soils classified by the Soil Conservation Service as valuable agricultural soils contending that the classification considers only the "engineering" characteristics of the soil and not "...[t]he cultural aspects of agriculture, that is, the unique methods and customs associated with South Jersey's intensive vegetable farming have not been considered." It cites the Aura gravely sandy loam and Sassafras gravelly sand loam as two examples of being misclassified since they do not appear in the Township to be economically viable. Downer soils are conversely according to this reasoning, inappropriate recognized for their production within the community. Finally, the point is made that farmland to the north of Big Oak Road has had better management than other areas. It also notes that lands surrounding Rosenhayn are relatively unproductive and lands north of Landis Avenue are moderately productive.[4]

This recommendation is repeated again here due to the seeming reluctance of area of farmers to participate in the State's farmland preservation program. During the preparation of the 1990 Master Plan meetings were held with area farmers who indicated that agriculture was no longer a economic driving force in the Township. Difficulties with farm including new environmental regulations govern spraying of crops and the value of land for development verses agricultural profitability were noted. But in the ten years since that last Master Plan was adopted, agriculture still composes a significant land use and is certainly a very important asset to the community.

But area farmers seem less interested in maintaining their farming activities. Only one farm has been preserved as of this report's preparation and one other has been submitted for consideration. Attempts to sign up more farms for the purchase of development rights are not meeting with much success. No farm in the community is even in the eight year preservation program which provides assistance with water and soil erosion control project funding. This trend is ominous for the community desire to remain rural. How long agriculture will remain viable or a significant contributor to the openness of the landscape is very troubling. In the determination of future land use decisions for the municipality, careful consideration of the quality

---

[4] **Deerfield Township Master Plan 1990**, adopted March 20, 1990, John Rahenkamp Consultants, Inc., pp. 14-15.

of the soils regarding agriculture and the impact of their loss to development must be seriously weighed.

Table 4. SOIL SUITABILITY FOR VARIOUS CROPS DEERFIELD TOWNSHIP, CUMBERLAND COUNTY

Aura -	Fruits, vegetables, general crops, mainly peaches, apples, tomatoes, cabbage, corn and soybeans
Chillum -	High value vegetables, nursery plants, corn, wheat, barley, hay or pasture
Downer -	Vegetables and fruits, fertilizer leaches rapidly
Evesboro -	Poor for grain and seed crops as well as grasses and legumes, low fertility, available water capacity, and organic matter content; excess sand
Fallsington -	When drained, corn, soybeans, hay, and late planted vegetables. Plants must be water tolerant.
Fort Mott -	Deep rooted perennial crops such as peaches, grapes, sweet potatoes, pumpkins and cantaloupes.
Hammonton -	Vegetable and fruit (short term water tolerance needed)
Matapeake -	Corn, small grain, soybeans, hay, pasture, vegetables, nursery plants and sod
Mattapex -	Corn, small grain, soybeans, hay, pasture, vegetables, nursery plants and sod
Pocomoke -	If drained, corn, vegetables, soybeans, hay, pasture, blueberries, limited summer planted vegetables
Sassafras -	Vegetables, fruits, general crops, nursery plants, hay and pasture. Nearly all high value crops are irrigated.
Woodstown -	If drained, vegetables, fruits, sod, nursery plants and general crops. High value vegetables are generally irrigated.

GROWTH ISSUE #5: THE LOSS OF PRIME AGRICULTURAL SOILS FOR WHATEVER REASON WILL DRASTICALLY ALTER THE CHARACTER OF THE COMMUNITY AND BE IRREVERSIBLE IN ITS CONSEQUENCES.

Vegetation and Wildlife

The Township has considerable woodlands which are predominantly oak, with pine, sycamores, Atlantic white cedar and red maple. The Oaks, Genius Querqus, is divided into two groups: upland and lowland. Upland Oaks include Black Oak, Blackjack Oak, Chestnut Oak, Red Oak, Scarlet Oak, Post Oak White Oak and Scrub Oak. Two other varieties, the Pin Oak and Willow Oak, can often be found among the Upland group. These two varieties have a wider range and also will be found under wetter soil conditions with the Lowland Oaks. The Lowland Oaks consist of the Bur Oak and the Swamp White Oak. The soil classifications of the Township clearly indicate the presence of these types of trees throughout the Township. Unfortunately, there is little detailed information available locally concerning specific vegetation and its significance.

There is also not any local information on wildlife to be found within the Township although the Division of Fish, Game and Shell Fisheries of the N.J. Department of Environmental Protection does provide lists of animals generally found within various regions of the State. The Township's considerable woodlands, wetlands (stream corridors) and even its farmland no doubt serve as habitat for a wide variety of vegetative and animal species. Maintaining and preserving these habitats is essential to maintaining the community's rural character and natural character.

In a developing State like New Jersey, vegetative and animal habitat become extremely important if the various species associated with those habitats are to survive and stay viable. The New Jersey Natural Heritage Program at the Office of Natural Lands Management in the N.J. Department of Environmental Protection, Division of Parks and Forestry maintains lists (available on the Internet) of rare species and natural communities. Both the Federal and State governments also have a status for each species which indicates the degree to which the species are surviving in a given area. Of most concern is those species designated as threatened or endangered. They are defined as follows:

> **Endangered Species** are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease or contamination.
>
> **Threatened Species** are those who may become endangered if conditions surrounding them begin to or continue to deteriorate.

GROWTH ISSUE #6: LIKE THE LOSS OF AGRICULTURAL SOILS, PRESERVATION OF THE NATURAL ENVIRONMENT WITH ITS DIVERSITY AND BEAUTY OF LIFE WOULD ASSURE A DIVERSITY AND BEAUTY TO THE COMMUNITY.

Existing Land Use

The natural environment of the Township which has been the subject of this Chapter up to now tells us much about the ability of land to support development, i.e., human activity. But what has man done with the land? An analysis of the existing land use activities give a picture of development from both a historical prospective (the patterns) and the current state of affairs. Of course, land use is either intentionally or unintentionally, directly affected by the natural environment. At various stages of history, man has observed and heeded the limits of the land in how he used it. However, more often, man has disregarded natural barriers or impediments of land to meet his needs. Usually such indifference to the environment has brought serious troubles or consequences. The best results are when both man's needs and the ability of the land to support those needs are balanced.

The approximately 16.71 square miles that make up Deerfield Township are largely still undeveloped. As noted earlier, the Township has two major settlements, Rosenhayn and Carmel. It's roadway system is largely a County road system designed to collect and move traffic into and out of the community. The Township is rural and agrarian in character.

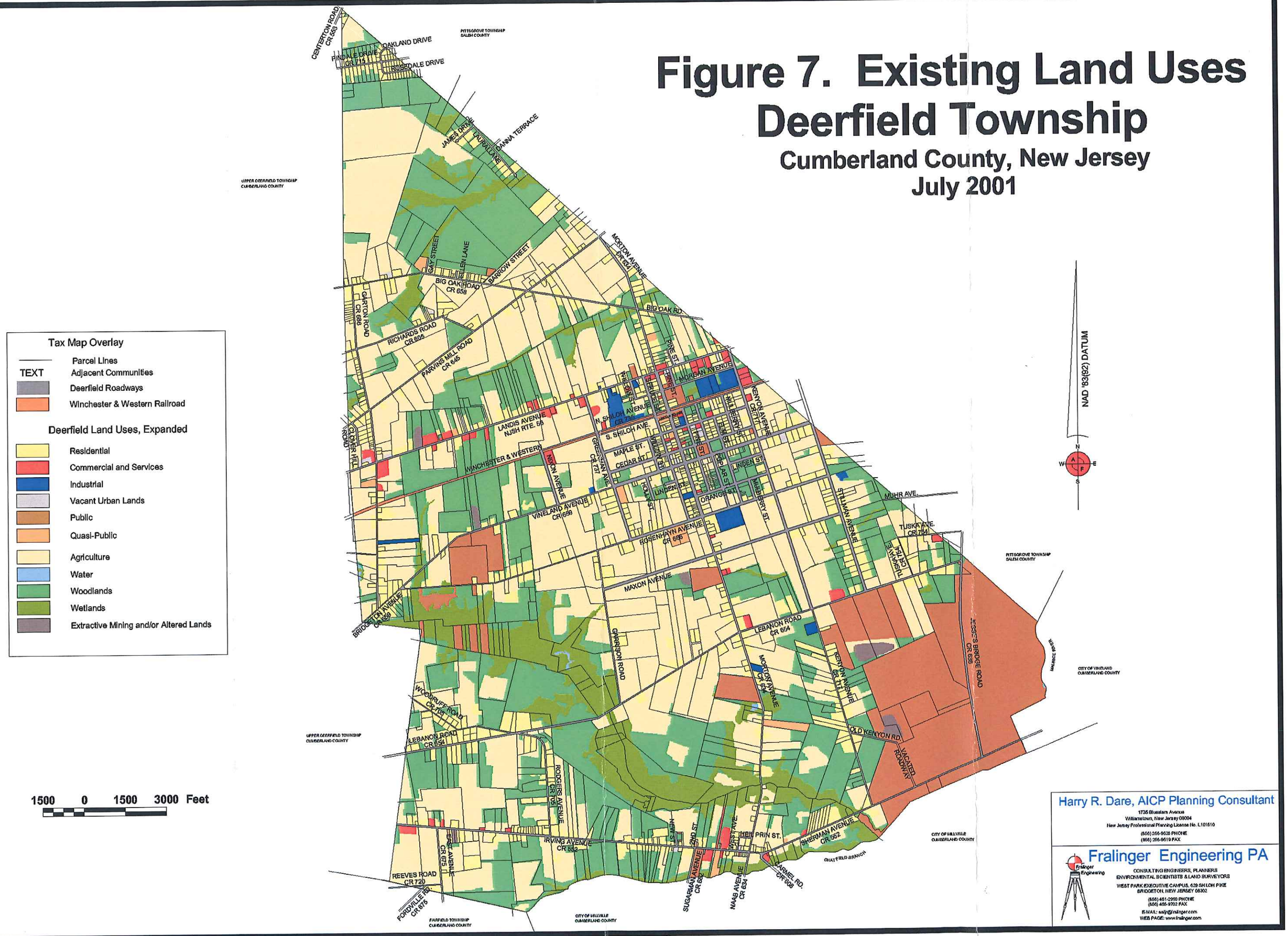
In earlier master planning processes the Planning Board's consultants undertook land use surveys (Herbert H. Smith Associates, 1966 and RESOLVE, Inc., 1977). During the Fall and Winter of 1999/2000, a land use survey of the Township was again undertaken using a variety of techniques including tax map information, available GIS datum and a windshield survey. In analyzing the results of this effort, an attempt was made to compare the figures with the earlier studies for the obvious reason of discerning change, patterns and trends. This is not entirely possible since the methodologies and technologies were different. **Figure 7 Existing Land Use Map** provides a temporary portrait of the Township's development to date.

To compile the data observed from this map and following past Township land use survey approaches, the land use categories were divided into developed and undeveloped land. Each of these two categories was then further divided into separate land uses. Those categories were defined as follows:

Developed Land:

Residential - All residentially utilized lands including homes on farms, i.e., within

Figure 7. Existing Land Uses
Deerfield Township
Cumberland County, New Jersey
July 2001



agriculturally used land areas. No distinction was made for type of residential use and there was an attempt to determine how much of a given a property was used for the residential use and how much land was used for something else (or available for future use). Within the settlements of Rosenhayn and Carmel, the area of any lot of one-half acre or less used for residential purposes was entirely designated a residential use of the land. Outside these two settlements, the area of any lot of one acre or less was used for residential purposes was entirely designated a residential use of the land. Whenever the area of the lot involved exceeded these minimum sizes (one-half acre within the settlements or one acre outside them) nonresidential use(s) were computed. This category includes all residential uses: single-family, detached, two-family, multi-family, farm houses, apartments and other dwelling units.

Commercial and services.- This category includes all commercial activity including retail and wholesale operations, offices, warehouses and special for profit businesses.

Extractive Mining and/or Altered Lands - Land mining or resource extraction sites within the Township are included in this land use category. Altered lands refer to lands determined by N.J. Department of Environmental Protection criteria has having been somehow adversely affected by human activity, e.g. former landfills, junkyards or so-called "brownfields."

Industrial - All industries, processing facilities, any type of assembly or manufacturing uses, truck terminals, and utility structures.

Public - All facilities and/or lands owned by a public agency including the lands of the Cumberland County Improvement Authority, Landis Sewage Authority, N.J. Department of Environmental Protection, the County of Cumberland, Township of Deerfield and the Deerfield Township Board of Education. The land might be vacant or developed for schools, community facilities such municipal buildings, fire halls or emergency management centers, offices, parks, open space and wildlife preserves, recreational lands and any other publicly-owned lands or facilities.

Quasi-Public - Churches and cemeteries and similar non-publicly owned lands or facilities dedicated to religious, charitable or eleemosynary organizations.

Roads - Publicly dedicated and maintained streets and roads.

Railroads - Existing lands and/or rights-of-way for railroads whether used or not.

Agriculture - All types of cultivated agricultural land uses including horticulture, farm buildings, fields, and irrigation ponds. Woodland although possibly given farmland assessment was not included.

Vacant Urban Lands - Undeveloped land within developed areas which are not due to size and/or location farmed.

Woodland - Privately-owned woodlands and forests including wooded areas of wetlands and agriculture. Publicly-owned woodlands are excluded (See Public).

Wetlands - privately owned marsh, meadows, creeks, streams, rivers, but excluding publicly-owned lands. This category is a generalization of wetlands and does not provide detailed identification of wetlands as might be required by wetlands regulatory programs.

Water - This category is primarily ponds.

Table 5 Existing Land Use Survey Analysis and Comparison presents the findings of the three land use surveys in total acreage of land use category and its percentage of the Township's total land area. In reviewing the **Map(Figure 7)** and **Table 5** the picture of community's development comes into focus. Although there is an obvious increase in total area of the Township the figure is not inconsistent with possible earlier errors in the calculation of total land area of the Township. Much of the loss of agricultural land appears to have gone to residential and/or public lands. Notable land use patterns discernable are:

- Much of Township is still largely wooded, especially along the stream corridors.
- A very large percentage of the Township is still involved in active agriculture especially in the north of the Township and in its center around the settlement of Rosenhayn.
- The wetlands and their attendant woodland follow the streams forming a natural barrier to development as noted earlier. They also offer an excellent way to maintain open space as a passive recreational amenity. It is along these streams that much of the recharge of the aquifers occurs as noted earlier.
- Development is largely concentrated within the two settlements and along the major roadways.
- The settlement of Carmel sandwiched between Lebanon Branch and Chatfield Branch is largely defined by these natural barriers to development. Rosenhayn on the other hand, has a historic layout, but is surrounded by agricultural land which as was noted, is perhaps of questionable value as farmland.
- Related to the previous observations, it is obviously a fact that residential development has located along the existing County road system and has greatly intruded on agricultural lands. This had been noted earlier in the concern raised by local farmers in the 1990 Master Plan as a problem when dealing with agricultural spraying of pesticides.
- Strip development along existing roadways also prevents development of interior tracts of land: note Landis Avenue, Morton Avenue, Irving Avenue, parts of Big Oak and Lebanon Roads and Stillman Avenue.
- There is a considerable increase in the amount of public lands within the Township

(10.79% of total land area). The largest concentration is located in the southeast corner of the Township where the Cumberland County Improvement Authority and Landis Sewage Authority have major land holdings. As was noted above, the County of Cumberland and the N.J. Department of Environmental Protection also have considerable land holdings within the Township.

- Commercial development has historically been located along Landis Avenue (Route 56) and is still a major presence outside Rosenhayn between Greenman Avenue west to Garton Road and the Township border.
- The location of the Winchester & Western Railroad line between Bridgeton and Vineland parallel to Route 56 and running through Rosenhayn provides a plus for possible economic development and its right-of-way would serve as an excellent location for the running of utilities' lines.
- The loss of agriculture to development would certainly hold the potential for wall to wall development of the entire center of the Township from border to border east and west and from Big Oak Road south to Lebanon Branch and into Carmel.

GROWTH ISSUE #7 DEERFIELD TOWNSHIP'S EXISTING LAND USE PATTERNS REFLECT A RURAL COMMUNITY WITH TWO UNIDENTIFIABLE CENTERS AND CONSIDERABLE GROWTH ALONG EXISTING TRANSPORTATION ARTERIES.

Not exactly a "new" revelation in a State where these very issues are being fought over and planned for continually. Nonetheless, the picture speaks for itself and clearly reflects patterns of development which will lead to serious problems with the Township's identity of itself and the quality of life for its residents. What the community must ask itself is whether this development pattern is acceptable. Up to this point, the historical land use patterns have been relatively benign due to their minimal impacts on roads or adjoining land uses. But as such commercial land uses become more intense, roads become more congested and land use patterns change, i.e., residential on former farmland, these patterns will become much more problematic. In and of itself, this land use activity within the Township might take years to change the community's physical appearance and character. However, the Township is not an island and it is outside forces which may exacerbate the situation from a planning standpoint.

Of Cumberland County's 14 municipalities, only two, Deerfield and Upper Deerfield are not in some way governed by State legislated special environmental land use regulations. All of the other municipalities have to some degree their development checked by either or both the Coastal Facilities Review Act (CAFRA) or the Pinelands Management Area. These two regulatory measures have in some manner limited and controlled growth in major portions of the

Table 5 Deerfield Township Existing Land Use Survey Analyses and Comparison

	1966		1977		2000	
Land Use	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**
Developed Land						
Residential	413.2	3.8	580.7	5.4	1,192.01	11.07
Commercial and Services	74.5	0.7	84.0	0.8	101.52	0.93
Industrial	14.7	0.1	12.7	0.1	72.90	0.68
Public	37.9	0.4	35.1	0.3	1,124.48	10.42
Quasi-Public	16.0	0.2	16.4	0.2	48.38	0.45
Roads	197.9	1.9	207.1	1.9	457.29	4.24
Railroad	23.6	0.2	23.6	0.2	24.34	0.23
Total	777.8	7.3	959.6	8.9	3,020.92	28.02
Undeveloped Land						
Agriculture	5,122.4	47.9	4,994.4	46.8	4,140.08	38.68
Woodlands	4,759.5	44.5	4,714.9	44.1	2,694.52	25.01
Wetlands	N/A	N/A	N/A	N/A	854.79	7.93
Water	N/A	N/A	N/A	N/A	4.72	0.04
Urban (Vacant)	N/A	N/A	N/A	N/A	21.33	0.20
Extractive Mining and/or altered lands	N/A	N/A	N/A	N/A	40.67	0.38
Total	9,911.2	92.7	9,729.4	91.1	7,756.11	71.98
TOTAL	10,689.0	100.0	10,689.0	100.0	10,777.03	100.0

other municipalities. Not so in Deerfield and Upper Deerfield Townships. Of course, their are State-wide regulatory policies dealing with wetlands, flood plains, highway access and the like. But the decisions for land use regulation with regard to special environmental issues are largely

local ones in these two municipalities. This is why knowledge of the natural environment and how to protect it are so important in making land use decisions. There is no State mandated guaranty that some portion of these municipalities will be preserved or protected because of their special environmental qualities. Even the State's Farmland Preservation Program is voluntary, not mandatory, and the record would seem to indicate that the landowners know the value of their land.

GROWTH ISSUE #8 DEERFIELD TOWNSHIP CANNOT ASSUME THAT ITS OPEN, RURAL CHARACTER AND ITS SPECIAL NATURAL FEATURES WILL BE PROTECTED.

In considering the overall change in development within the Township from 1966 to 2000 as detailed in Table 5, it is noted that development between the eleven year period of 1966 to 1977 showed an almost 23%. Between 1977 and 2000, the percentage of change for developed area was more than doubled which somewhat corresponds to the time period (23 years - slightly more than double the previous eleven year period). Not necessarily runaway growth, but certainly steady and constant growth. More telling is the ability of the community to absorb the new growth between 1966 and 1977 without substantial detriment to agriculture and woodlands. Agriculture diminished in area by 1.1% during this period and only 0.4% for woodlands. The change in 2000 shows woodlands reduction most significantly. Between 1977 and 2000 woodlands lost 2,020 acres or almost 43%. Agriculture lost only 854 acres or about 17%. The figures may be deceiving however.

Besides differences methodologies used to determine land use classifications and/or computation of same, no other categories of undeveloped land were identified in 1966 or 1977. The 2000 figure shows wetlands which may well make up almost 8% of the loss of woodlands as shown in 1977 since most of the wetlands within the Township are also wooded. Another reason for the loss is the considerable loss of woodlands along the Maurice River to make way for the Landis Sewage Authority's spray irrigation fields during this period. Woodlands still seems to have taken the brunt of the development activity during this period. But what does this say for the future?

As previously stated, the Township is located between the two urbanized areas of the County- Vineland-Millville and the greater Bridgeton area. The land use pattern along Route 56, Landis Avenue, within the Township reflects the considerable traffic along this major corridor between these two urban areas. It is logical to expect that open farmland within easy reach of jobs, stores and services and entertainment in the two urban areas, is sufficient to attract new development. A recent survey of Township residents undertaken as part of this master planning process clearly demonstrated that Deerfield Township is already a bedroom community.

Deerfield Township's neighboring townships are actively pursuing the preservation of their farmland to assure the continued open, rural character of their communities. Such preservation of farmland in neighboring communities puts pressure on Deerfield Township by reducing the availability of open land close to the urbanized areas of the County. While this might well be good news for Township landowners, it will not be so good for the community as a whole if it results in urban sprawl, loss of open space, increased congestion, a need for new community services and facilities, the resulting increase in taxes, and the change of the Township's rural, small town character.

The importance of Township's central location within Cumberland County and its population is vividly demonstrated by the number of county-wide facilities located in or adjacent to it. The County Vocational School is located on Bridgeton Avenue and adjacent to it is the County Emergency Management Center, across the street on Vineland Avenue is the County Fire Academy, the County Agricultural Center is located on Morton Avenue, the County Landfill is located off Sherman Avenue on Jesse's Bridge Road, just across the Township line further east off Sherman Avenue and straddling the Vineland Millville border is the Cumberland County College, and near that is to be located the new regional hospital which will largely replace the three current hospitals located within Bridgeton, Millville and Vineland. There can be little doubt of the Township's strategic location within the County.

Further encouraging development is the Township's regional location and proximity to a major limited access highway, Route 55. Two of this major roadway's interchanges are within 5 minutes of either Rosenhayn or Carmel vis a via Landis Avenue, Route 56, and Sherman Avenue, Route 552. Both Vineland and Millville's industrial parks and the Cumberland Mall area are located along this Route 55. Route 55 also connects to Routes 40, 42, 47, 49, and 322. It is the direct route to central Southern New Jersey from the greater Philadelphia-Camden area. This roadway permits easy commuting times to a number of employment, shopping and entertainment centers. As development pressures increase, Deerfield Township's open fields and woods will be more and more seen as ideal development sites. In short, Route 55 has shattered the Township's long isolation from development to the perceived "distant" north.

GROWTH ISSUE #9 THE TOWNSHIP'S LOCATION ADJACENT TO TWO URBANIZED AREAS AND ITS PROXIMITY TO A LIMITED ACCESS STATE HIGHWAY WILL MAKE IT VERY ATTRACTIVE TO FURTHER DEVELOPMENT.

There will be and should be future growth in the Township. It is the quality of that growth that is of concern. Development should be planned, orderly and controlled. This is what the latest planning "buzz" word refers to as "smart growth." The New Jersey State Development and Redevelopment Plan is primarily concerned with these very issues since New Jersey is so highly urbanized and developing. It promotes the preservation of natural resources and assets

through channeling development into "centers" where a sense of community can be maintained. But this type of development is only attainable through commitment to sound planning principles and land use policies, cooperation and assistance of various public agencies at the various levels of government in providing needed infrastructure and a well-thought out and articulated vision of what the community's future should be.

Chapter II A Vision of the Future - Planning Goals and Objectives

In late Summer 1999, the Planning Board conducted two surveys: one a master plan survey of the community mailed to approximately 930 property owners, and the other a business community survey mailed to 63 business property owners. The Township Tax Duplicate was utilized to identify both residents and business properties. The Planning Board worked closely with the Township Committee and Industrial Commission in developing the two survey forms and their content. The survey was intended to inform the public of the Planning Board's start of a reexamination of the current master plan and preparation of a new one, and to gauge the public's opinion on various issues of concern to both residents and those who conduct businesses within the municipality.

Deerfield Township Master Plan Survey of the Community

Fourteen percent (14%) of the survey forms mailed to the community residents were returned and tabulated. The survey showed that residents thought the Township was a good place to live or own property because it:

- Is a good place to raise a family,
- Had a low crime rate,
- Had a small town environment, and
- Had a good location within easy distance to shopping, entertainment and employment centers.

The respondents overwhelmingly thought that the community should develop more:

- Recreation and parks,
- Agriculturally-related businesses,
- Stores and small businesses, and
- business and professional offices.

More residential development was also noted with senior citizen housing and multi-family housing units receiving notable percentages of the returns. The majority of the respondents (58%) wanted to see new development clustered in or around existing developed communities, i.e., Rosenhayn or Carmel.

Suggested planning goals chosen in order of priority:

(1) protecting the Township's environment and preserving open space,

(2) woodland and stream corridors,

(3) maintaining the small town atmosphere of the Township, and

(4) providing more recreational facilities within the Township like parks, playgrounds and ballfields

were cited as the top three choices. Approximately 72% of those responding chose preserving open space and farmland over new development. Half of those responding wanted to see limited new development and preferred it to be commercial or industrial to residential.

The survey of residents clearly indicated that preserving the small town character and rural atmosphere of Deerfield Township were paramount and that the need for new development was specifically related to commercial and industrial development. It also noted that residential development should address the needs of perceived unmet housing needs for seniors and those requiring multi-family dwellings. Preserving the farmland, woodlands and stream corridors are considered very important for maintaining the desired small town, rural atmosphere. The results showed that Deerfield Township is a bedroom community.

The survey also indicated respondents split between those opposed and those wanting and/or those undecided about the construction of sanitary sewers and/or public water supply. Comments seemed to indicate that such public utilities should be provided to areas with special needs and where existing development has occurred or is proposed, Rosenhayn, and at the locations of existing commercial or proposed industrial development.

The Business Community Survey

Thirty survey forms or 48% of the business surveys mailed were returned. It should be noted that it was difficult identifying active business property owners when using the tax duplicate as a source. This group also identified the Township as:

- Being a good place to raise a family,

- Having good proximity to markets,
- Having a good school system,
- Having a small town environment, and
- Having a low crime rate

all of which making Deerfield Township a good place to operate a business or own property. The business survey recommended that the Township encourage the development of:

- Small stores and businesses (63%),
- Business and professional offices (50%),
- light industry (47%) and
- recreational facilities and parks (40%).

Such development was recommended to be located in or around existing developed centers (Rosenhayn and Carmel).

When asked to choose from several items which they felt were important to the future of Deerfield Township, they chose:

- Preserving the farming community (67%),
- Maintaining the small town atmosphere and encouraging new development and construction (63% each),
- create more jobs and economic opportunities and protecting the Township's environment and preserving open space, woodland and stream corridors (50% each) and
- Providing more recreational facilities within the Township like parks, playgrounds and ballfields and developing a sanitary sewer system (43% each).

Fifty-seven percent (57%) wanted to see limited new development and of those they chose: residential development (53%), commercial (83%) and industrial (41%), A majority of the respondents thought the Township needed to bring more jobs, businesses and industries to the Township while trying to reduce the bad effects like more traffic, less open space and other problems of new development.

In short, the consensus of both communities, residents and businesses, was surprisingly consistent. The Township could and should encourage new development, but not at the expense of the quality of life which is articulated as a small, rural town atmosphere with plenty of open space and farmland. New development should be channeled into the two existing centers and/or adjacent areas thereto with as little harm to or loss of open space and farmland as possible.

Identified Growth Issues

Chapter I identified ten growth issues which should be addressed by the Township's planners. Those issues facing the Township were:

1. Close proximity to major urbanized areas and easy access to the region's major roadways make the Township attractive from a development viewpoint.

2. The numerous streams found within the Township create natural barriers to development and represent environmentally sensitive lands deserving protection and subject to wetlands.

3. Township water supplies appear sufficient at present although the basin is projected to have a substantial deficit over the next 40 years and both surface and ground water supplies are especially vulnerable to contamination if not carefully protected.

4. The concentration of new development, planned expansion of economic activities and the protection of water supplies will require careful planning and public systems of water supply and sewage disposal.

5. The loss of prime agricultural soils for whatever reason will drastically alter the character of the community and its consequences' irreversible.

6. Like the loss of agricultural soils, preservation of the natural environment with its diversity and beauty of life will help prevent a loss of natural diversity and beauty in the community.

7. Deerfield Township's existing land use patterns reflect a rural community with two identifiable centers and considerable growth along existing transportation arteries.

8. Deerfield Township cannot assume that its open, rural character and its special natural features will be protected.

9. The Township's location adjacent to two urbanized areas and its proximity to a limited access State highway will make it very attractive to further development.

Current Zoning Analyzed

In order to postulate where the Township appeared to be headed based on the above noted growth issues made evident from an analysis of the existing conditions, a build out analysis was done on the Township's current zoning **(See Figure 6 Township Zoning)**. While not an exact exercise, the procedure used would give a glimpse of what might happen should the Township reach its full development potential as allowed under current zoning regulations. The analysis performed only looked at potential new residential development given that residential zoning provides a minimum lot size for each zone wherein residential development is a permitted use.

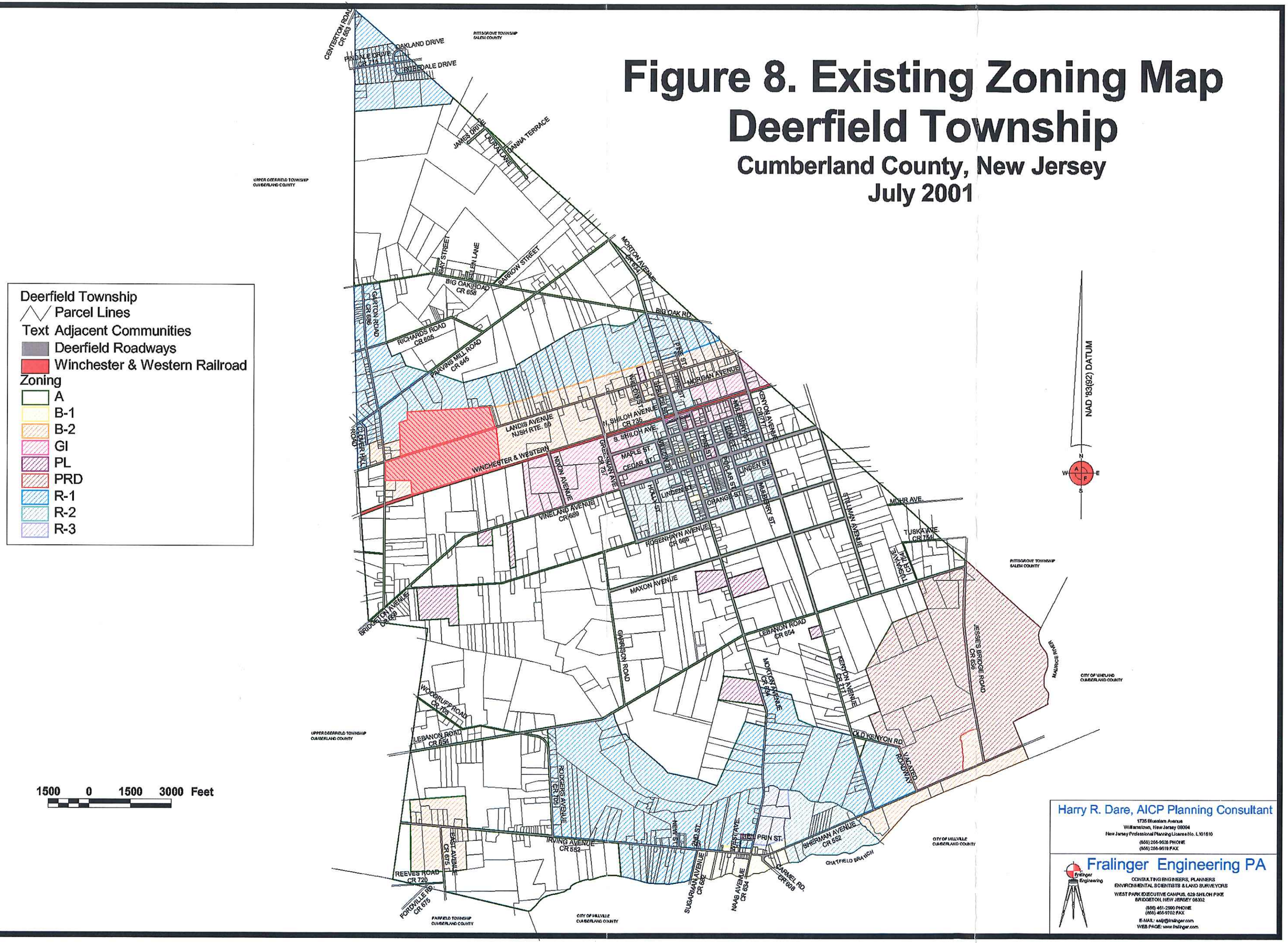
The premise was that all lands currently used, all lands that were unusable, e.g., wetlands, flood plains, and all land not zoned for residential development were to be identified and then subtracted from their respective zoning districts. In the case of that lots with existing land uses, any unused land was calculated and if the unused land was large enough to allow a new lot to be created (without regard to road frontages), then that acreage was considered developable land. If it was smaller than the minimum residential lot size, it was excluded. The unused land was then tabulated by zoning district that permitted residential lots as a permitted use. Within each zone, the unused land figure had 20% of its area subtracted to provide for roads and other improvements necessary to permit development and the remainder was then simply divided by the given zoning district's minimum lot size. Obviously, these were very raw figures subject to debate, but they did provide some indication of potential build out. **Figure 6. Existing Township Zoning Map** shows the location of the current zoning districts.

Table 6. Build out Analysis of Existing Residential Zoning

Zone District	Vacant Land	Less 20%	Min. Lot Size	Total Units
A Agriculture	4,477 acres	3,582 acres	2 acres	1,791
R-1 Residential	1,151 acres	921 acres	1 acre	921
R-2 Residential	232 acres	186 acres	22,000 sq. ft.	372
R-3 Residential	28 acres	22 acres	15,000 sq. ft.	64
PRD	76 acres	61 acres	20,000 sq. ft.	133

Given the parameters of the analysis, a full build out of the community as presently zoned for residential development would permit a total of 3,281 new units. Using a conservative figure of 3.0 persons per household, such a build out would mean a 9,843 population increase. This would be approximately three times the 1999 population of 3,286 (SJTPO estimates).

Figure 8. Existing Zoning Map
Deerfield Township
Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning Licenses No. L101610
(856) 256-9538 PHONE
(856) 256-9519 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2900 PHONE
(856) 455-9702 FAX
E-MAIL: sally@fralinger.com
WEB PAGE: www.fralinger.com

A look at commercial and industrial zoning shows that there are 195 acres of land available in the GI General Industry zoning district and a total of 550 acres available in the B-1 and B-2 Business districts. The Zoning Ordinance permits a maximum building coverage of 40% within either the B-1 or B-2 districts. This would translate into approximately 9,583,200 square feet of building square footage. The General Industry district permits an average maximum building coverage of 35% representing a minimum additional square footage of building space of 2,972,970[1]. This totals 12,556,170 square feet of commercial and industrial building area.

If one looks at these figures, it is clear that if a "build out" were to occur in the Township, the results would not reflect the "rural, small town character" so appreciated by the residents as reflected in the survey results. The location of said development would not be controlled and timing would or could have serious consequences for various areas of the Township which the community also expressed in the survey a concern for maintaining, like woodlands, farmlands, wetlands and other areas of environmental sensitivity. But how likely is it that such a build out will occur? After all, there was also expressed when the survey results were tabulated, a concern for a certain amount of development to occur so provide jobs, services and opportunities.

Over the last 22 years, there have been three studies undertaken to determine the impact of Route 55 on the County: **Route 55 Impact Study - Cumberland County**, 1988, **Route 55 Impact Study, 1992 Follow-up Analysis**, and the South Jersey Transpiration Planning Organization's **Shore Connection Committee Report - Route 55/47 Corridor Transportation Study**. The first study prepared by the Cumberland County Planning Board projected a total of 4,545 new dwelling units resulting from Route 55. Four years later, the Cumberland County Department of Planning and Development's 1992 follow-up analysis showed that the highway had a major impact on increased traffic and development particularly in Vineland and Millville. The final study done in 1998, the **Shore Connection Committee Report**, confined itself to the need and anticipated impact of completing Route 55 to Cape May. It looked at major routes to be affected and in most cases found increased traffic which had developed on these roadways and which was likely to increase even more substantially if the highway were to be completed.

In essence, no one has a crystal ball for predicting where and when the market will be, but our planning horizon is 20 years. That is a long time and as the existing land use patterns show when compared to past similar analyses, major impacts on the Township's land natural features and roadways. The especially strong economy during the 90's has been particularly good for new housing starts. Except for some environmental restraints, much of the Township is good for development and is located on major traffic arteries connected to Route 55. Certainly the "signs"

---

[1] Township Zoning Ordinance does not define building coverage so assumption is made it that it refers only to actual building space and does not include other impervious coverage such as parking areas which generally account for 50% of a commercial or industrial site's impervious cover.

point to the community's reasonable potential to receive considerable new development over the next 20 years. From a planning standpoint, it therefore, makes good sense to take control of the municipality's future now and direct that development toward those ends that the community has expressed as desirable and realistic.

Unbridled growth will result not only, and most devastatingly in terms of loss of farmland and danger to environmentally sensitive lands, but to increased taxes to provide the infrastructure, loss of community identity, and the quality of life so often invoked by residents as making Deerfield Township a nice place to live. New growth and development are desirable and necessary. Like living organisms, a community must grow and adapt or dwindle and perish. The trick is to define how and where that growth will occur and then make a plan to direct and within limits, control such growth. Before defining, guiding and controlling growth, there need to be goals and objectives established to give us a vision of what the community is to be.

Deerfield Township Planning Goals and Objectives

Goal #1 **To protect the open, rural landscape and those aspects of the community's natural environment which contribute to it and are important to its well being.**

Objectives:

A. **Undertake the preservation and protection of farmland, steam corridors, woodlands and other sensitive areas to assure quality of life considerations like water supply, open space and the Township's natural beauty.**

B. **Make new growth participate in this preservation and protection through better planning and design which recognizes these lands intrinsic value to the natural order.**

Goal #2 **To accommodate new growth by controlling where development occurs to maintain to the greatest extent possible, the community's character, as a rural small town.**

Objectives:

A. **Center growth into the existing centers of Rosenhayn and Carmel or specifically planned areas meant to prevent an indiscriminate sprawl.**

B. **Recognize existing development patterns and develop strategies to enhance them and enforce more comprehensive planning of new development thereby ending wasteful land use practices.**

C. **Provide for a variety of land use activities and uses including mixed development similar to the patterns already found in the centers.**

Goal #3 **To provide decent, safe, affordable housing for residents of the Township of all income levels.**

Objectives:

A. **Undertake capital projects aimed at permitting the development of housing at densities which is affordable and which does not result in an urban sprawl.**

B. **Permit various types of housing and mixed and/or planned housing developments compatible with community's conditions.**

Goal #4 **Protect the efficiency and traffic carrying capacity of the existing road network.**

Objectives:

A. **Reduce dependence on the automobile by encouraging other means of transportation like pedestrian, bicycle and mass or special transit.**

B. **Prevent the stripping of development along major roadways and the land locking.**

C. **Encourage innovative approaches to site design and actively participate in planning transportation enhancements through development regulations and unilateral or joint projects.**

Goal #5 **Promote economic development suitable to the Township's resources and within the context of its location.**

Objectives:

A. **Encourage and allow the development of businesses within the centers which are of a scale and nature to coexist with the higher densities and historic pattern of centers' development.**

B. **Avoid conflicts with adjacent areas by focusing on business and industrial uses suited to the character of the community and which provide support and service for existing economic activities regardless of location.**

C. **Plan and fully develop existing locations for commerce or industry with infrastructure including public sewer and water.**

D. **Utilize location to highways and railroad in siting new areas to locate business and industrial uses and areas suitable to non-residential development like the areas near the County landfill or existing intensive industrial or commercial uses.**

Goal #6 **Protect the character and integrity of the community's existing land use patterns and development.**

Objective: **Provide enhancements to centers which reflect their existing styles and scales and provide planning for their continued development within these parameters.**

Goal #7 **Provide a balanced mix of active and passive recreation based on need and character of development including the use of farmland for providing open space opportunities.**

Objective: **Undertake projects to provide various recreational opportunities throughout the entire the community like parks, playgrounds, as well as the purchase of lands for open space including farmland preservation, and to regulate growth to assist in providing recreational and open space amenities and awareness.**

Goal #8 **Develop closer and broader intergovernmental and private cooperation and coordination in achieving the community's planning goals.**

Objectives:

A. **Explore joint projects with adjoining municipalities and between various levels of government in all issues related to community development but in particular in terms housing, transportation, economic development, recreation and conservation.**

B. **Encourage and seek private sector involvement in the community's planning goals and objectives from intra community groups like neighborhood or community organization and intercommunity groups and agencies like special interest groups or nonprofit organizations dedicated to specific causes.**

C. **Through both objectives above seek dialogue and understanding to avoid conflicts and encourage a compatibility of purpose and effect with regard to the municipality's future development as affected or impacted by adjoining political subdivisions and the activities of various levels of public and private organizations or governments.**

The task is to provide the specifics of how to achieve these ends and by what means. The following chapters of this master plan will attempt to articulate a path or way to proceed in guiding the community's development as understood and defined at this time by these goals and objectives. It is important to remember that conditions and perceptions change and even more important, that this plan is not written in stone. It will require constant review, fine tuning and

even partial or complete rewriting the future development of the Township unfolds. With this in mind, we begin with Deerfield Township's master plan.

Chapter III Open Space and Conservation Plan

The recommendations for preserving open space and the conservation of sensitive environmental lands reiterate those that have been made in past master plans. Like those plans, the preservation of the Township's stream corridors is key to not only protecting this vital water supply and quality resources, but also to the utilization of these areas as natural buffers. The Plan differs from earlier plans in the emphasis it places on the efforts to protect and maintain farmland which has traditionally given the community its open, rural character. Deerfield Township's green fields and orchards historically have provided open space which is now fast disappearing. The majority of the growth issues noted in both Chapters I and II were concerned with preserving open space and the conservation of the Township's natural environment and rural character. The success of this effort will determine the community's expressed future vision of its desired small town, rural identity. As development pressures increase and farming becomes more difficult within the Township, the need to protect the green fields, woodlands and wetlands becomes paramount goals.

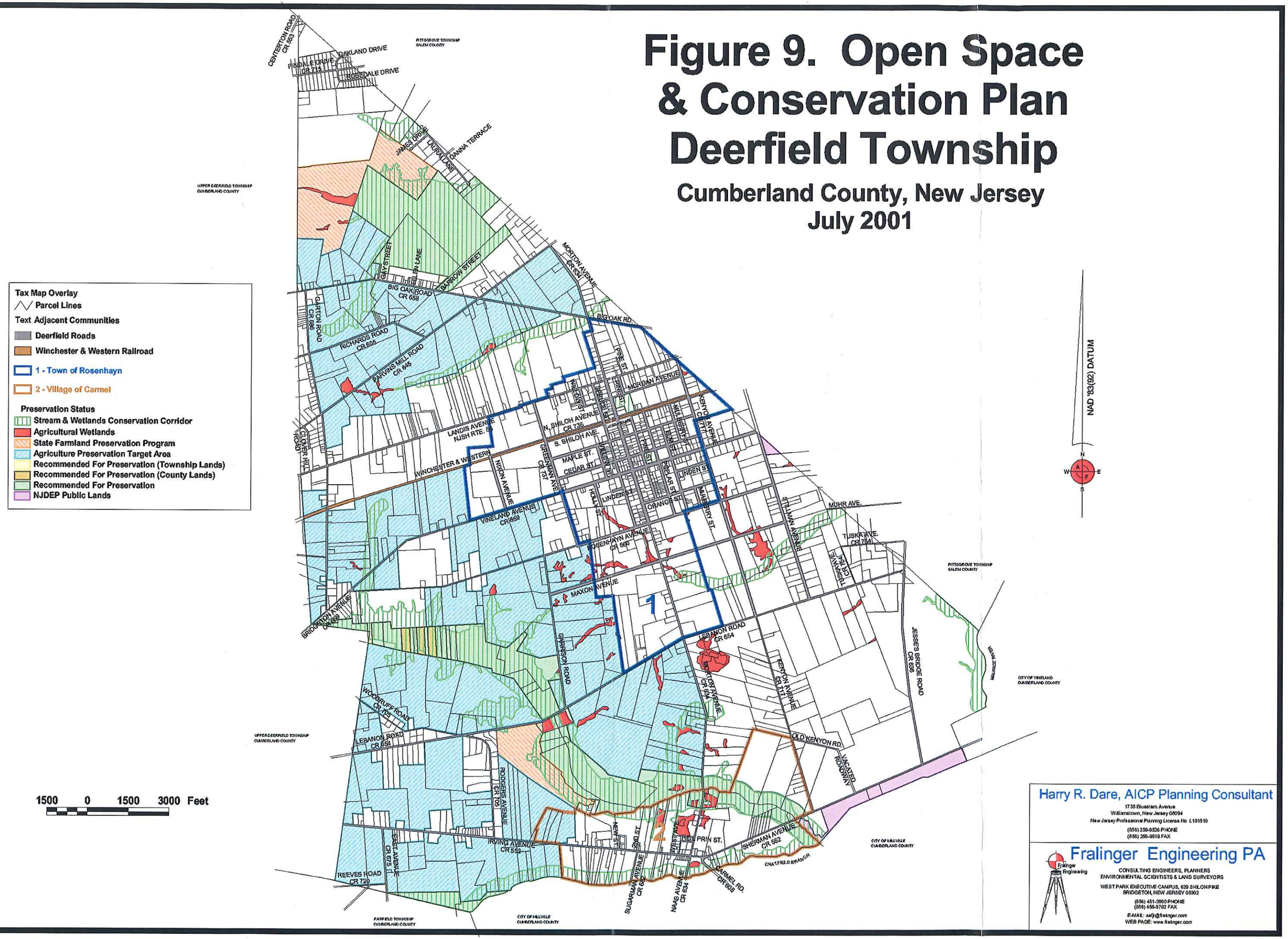
Figure 9. Open Space and Conservation Plan depicts the areas of the Township specifically identified for preservation due to their special environmental sensitivity or contribution to the community's open space areas. This Plan proposes a mixture of both outright purchase of various lands and regulatory measures designed to protect and enhance the continued viability of these lands and those which are not recommended for public ownership. Specifically, the Plan proposes the following:

Agricultural Lands

The State farmland preservation program has been very active throughout the southern New Jersey area and is being overseen by the County Agricultural Development Boards which have targeted those lands deemed to be prime agricultural soils and expected to be preserved from the encroachment of development, i.e., that existing development or proposed infrastructure expansion or construction will not impinge or diminish the continued farming of such lands. A considerable amount of Deerfield Township is designated as eligible for the Farmland Preservation Program by the Cumberland County Agricultural Development Board. The target area almost encircles the village of Rosenhayn. As noted in Chapter I, only two parcels of land have been submitted for the program with only one accepted. That one is located along the Township's border with Upper Deerfield Township north of Big Oak Road and west of Laurel Lane. This particular tract has had its development rights purchased guarantying its preservation. The other

Figure 9. Open Space & Conservation Plan Deerfield Township

Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L101510
(856) 256-9526 PHONE
(856) 256-9519 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2000 PHONE
(856) 455-9702 FAX
E-MAIL: aafjr@fralinger.com
WEB PAGE: www.fralinger.com

parcel, which has applied for purchase of the development rights, is shown on Figure 9 south of Lebanon Road just east of Rogers Avenue. Unfortunately no other farmland has been submitted for preservation and there does not appear to be interest among area farmers to preserve the lands for the various reasons discussed in Chapter I.

The Open Space and Conservation Plan has identified a significant amount of farmland which is identified on the Plan as the **Agricultural Preservation Target Area**. It largely mirrors the same lands as identified by the County Board, but is not as extensive especially in the areas south of Rosenhayn and east of Morton Avenue. The Plan's Target Area was determined based on existing or proposed development patterns which impact or will impact farming. While the Plan strongly encourages farmland preservation within the identified target area, it endorses and encourages preservation of farmland throughout the community as part of its effort to maintain a traditional industry and to protect the open space fields. As will be seen, the Plan recommends that whether in or out of the Target Area or the preservation program, active farming is recommended to be protected from the negative impacts of development.

There is concern that farming will not be viable in the future and certainly current development activity being permitted within the prime agricultural areas has not helped this situation. But these lands should be preserved since they have historically been productive farms providing vegetable, fruit and grain crops. Once lost, they are usually unrecoverable. Maintaining them serves multiple purposes as noted here. The community should give thought to permitting new and varied farming practices to encourage agriculture. Additionally, Township planners need to understand that farm is the original industry as Benjamin Franklin called it and permit it or industries related directly to it to be undertaken. This would help to support and maintain a viable agricultural base to the community's economy.

The Plan also encourages the protection of active farming areas from the intrusion of development which has been identified by area farmers as a reason for the demise of agriculture in the Township. Lot sizes in agricultural areas of the Township should be increased considerably in size to reduce density and the attractiveness of farmland for small lot development (one or two acres). Minimum lot sizes should be three (3) acres or more. Provisions should be made to allow farmland owners to subdivide limited numbers of lots over specific periods of time, which are for family members, farm employees or dispose of land that is not particularly suited to farming.

Additionally, recognizing that not all farmland will be able to be preserved for whatever reasons, development within farm areas of the Township should be limited to cluster-type projects to maintain both open space and the overall density plan. It is recommended that such cluster developments which permit the subdividing of lots on smaller lot sizes than allowed through conventional development within a zoning district, provided that a specific percentage of the parcel of land involved in the development is set aside as permanent open space. To meet this open space requirement, it is recommended that the open space be either entirely or partially

farmland. To assure that such farmland remains viable, it should be large enough in area to allow farming and to meet the requirement for farmland assessment. Land saved by the cluster development should be preserved permanently as open space or farmland.

To further protect existing farmland from encroachment from development, all nonagricultural activity should be required to maintain agricultural buffers of at least 100 feet between active farmland as determined by farmland assessments and areas to be used for nonagricultural activities or land uses such as residential areas including any accessory uses where people could be expected to congregate like a swimming pool or tennis court. Right to Farm regulations should be reviewed regularly to insure their relevance to current farming practices. Zoning regulations should also provide farms with the ability to utilize their properties and their improvements to the greatest extent possible to maintain viable economic activity without impairing the agricultural use of the land or negative impacts on surrounding properties or the overall land use plan for the community. This might involve permitting "farm businesses" that utilize farming structures or equipment outside the growing season for other economic gain or to recognize compatible farming pursuits and practices which do and will evolve over time.

In short, the Plan recommends the preservation of farming to the greatest extent possible as a means to preserve soils deemed suitable to agriculture and the open space contribution such lands afford. Farmland provides open green fields, requires no drain on municipal resources and has traditionally given the community its identity and economic vitality. Although the farming picture has changed, large portions of the community are still well suited to farming activities and should be maintained and protected for the asset they represent and the amenity of open space they provide.

Preservation and Protection of Stream Corridors

The Open Space and Conservation Plan recommends that all streams located within the Township be protected from development since these areas serve as drainage, watershed recharge, forest and wetlands areas, wildlife habitats and natural boundaries to the landscape. Again as for agricultural lands, the Plan recommends a two-pronged approach involving public ownership and development regulatory controls designed to protect and preserve these environmentally sensitive areas.

There are a number of organizations, both public and private, which would no doubt be interested in purchasing and/or contributing toward the purchase of these lands for their conservation and preservation. Programs such as the already mentioned Farmland Preservation Program, open space acquisitions programs like those operated by the New Jersey Department of Environmental Protection, and Green Acres should be explored. Additionally, nonprofit environmental or conservation organizations like the Nature Conservancy, Sierra Club and various land trusts might also be contacted for assistance or to ascertain their interest in purchasing such lands through their existing programs.

There are three specific areas recommended for outright purchase and preservation:

Thundergust Branch Area - This area in the northern section of the Township represents the upper reaches of the Thundergust Branch and is largely wetlands and/or wooded areas unsuited to development. It is situated north of Big Oak Road and Barrow Street, south of Laurel Lane and Danna Terrace and James Drive. The Township currently owns a small parcel of land (1.05 ± acres) in the southeast corner of this proposed preservation area. The total area encompasses approximately 317 acres. It is possible that some portions of this area might be developed for recreational use, but the majority is recommended for preservation due to its environmental sensitivity and could only accommodate limited passive recreation, i.e., nature trails or observation sites.

Lebanon Branch Area - Lebanon Branch is the largest of the Township's streams running from Upper Deerfield in the west in a southeasterly direction toward Union Lake in Millville and creating a natural barrier to further development north of the village of Carmel. Both the County of Cumberland and the Township own parcels along this Branch in the vicinity of the County Vocational Technical School, south of Bridgeton Avenue (See **Figure 9**). It is recommended that the entire stream corridor be purchased and preserved as passive, conservation open space area. The approximate size of this area is 300± acres. As noted, the Township owns a 2.06 acre parcel at the Township border with Upper Deerfield and the County owns three parcels comprising 16.57 acres. In some instances, entire tracts are recommended for purchase based on their geography and environment and in other areas the corridor is defined as 400 feet along both sides of the stream, except within the village of Carmel. In Carmel, the line is pulled back to the wetlands' boundary. This exclusion is to allow the village more area to develop and because the corridor extends too far into upland areas.

Portions of this proposed area show as farmland assessed on the tax records of the Township and much of the area is swampy and wooded. The land identified as "applied for the farmland preservation program" abuts this proposed preservation area. Use of this land would be similar to the Thundergust Branch Area, although depending on how purchased, continued farming might also be permitted. The southeastern end of this area as proposed and shown on the Plan would connect to existing lands owned by the New Jersey Department of Environmental Protection along Sherman Avenue and forming a part of the Union Lake Wildlife Management Area.

Chatfield Branch Area - The final stream corridor area recommended for outright purchase and preservation abuts the Chatfield Branch on the Township's southern boundary with Fairfield Township. This approximately 30-acre area involves four tracts of land essentially landlocked and swampy land.

The three areas noted above are recommended for outright purchased and preservation. The plan however, further recommends that remaining portions of stream corridors along

Thundergust Branch, , Lummis Branch, Lebanon Branch, Muddy Run and Chatfield Branch all be protected by the imposition of a 200 foot setback on each side. Such buffer areas could be used in determining lot area requirements, but would be excluded from land use activities other than passive recreation or agricultural activities. This would ensure that these areas were not disturbed and could continue to serve as flood plain and recharge areas with reduced threat of pollution or other contamination. Easements covering such areas should be required to be dedicated to the Township or County at the time development is proposed so as to insure the area's protection. In many instances, wetlands buffer requirements already in place would be required.

Wetlands Protection

The final areas slated for preservation and protection as shown on **Figure 9, Open Space and Conservation Plan,** are isolated wetlands areas as currently revealed from existing maps or soils information. In some instances, these are actually farmland wetlands. All lands proposed for development are required to identify any wetlands found on-site and to provide required buffers accordingly. The Plan proposes land use regulations require that a minimum of a 200 foot setback be established adjacent to any wetlands areas. Furthermore, the Plan recommends that any wetlands areas and their required buffers not be included in computing minimum lot area for purposes of zoning regulations. Again the buffer area would be restricted to passive recreation so as to prevent problems with land use activities encroaching on these environmentally sensitive lands.

Identification of Environmentally Significant or Sensitive Lands

Chapter I attempted to identify from existing information those lands which were environmentally sensitive or significant like prime agricultural soils. The Township does not have a municipality environmental assessment which would identify all lands worthy of protection and/or preservation. Identification of threatened or endangered species of plants or wildlife within the community is one example of areas that would justify special protection and preservation. The Planning Board should consider the preparation of such an assessment and development regulations need to require that major development projects or any project adjacent to known or suspected environmental sensitive lands should be required to perform environmental assessments to identify those areas deemed important for protection.

The Open Space and Conservation Plan for Deerfield Township attempts to recognize lands that are important to protecting the environment and which serve as natural resources to be preserved. Prime agricultural soils, recharge areas for the watersheds, flood plains and wetlands which help absorb surface water runoff and recapture water for recharge into the groundwater supplies, and the aesthetic value of such lands require that they be protected and preserved for these reasons. The Township and its residents, existing and to come, will need to rely on these natural assets for the quality of their lives. The past two Township master plans have recommended that these lands be protected and preserved and this Plan not only reiterates this

recommendation, it notes that the potential for their loss is greater than ever before. This is a critical period for the community's future and the actions that are taken in support of these efforts at providing open space and conserving the natural assets of Deerfield Township will determine the character of the community for many years to come. A strong, vigorous and pro-active stance on these issues by the Township's planners and governing body will ensure that the Township retains its rural character and the quality of life, its residents have indicated they so much want.

Recommendations for Action:

1. Township land development regulations should be revised to require agricultural and conservation buffers and/or setbacks, address density and provide special development land uses within farming areas, and provide for the viability of continued farming within the Township. All planned developments should be required to prepare detailed environmental impact statements.

2. The Township should actively begin dialogue with State and County agencies, environmental and/or conservation organizations and foundations, and land trusts to acquire or contribute toward purchase of specific areas noted in the plan for preservation and protection.

3. The Township should work with the County and State Agricultural Boards to encourage local farmers to enter into the Farmland Preservation Program. This will be become especially important if Item #2 above is implemented.

4. The Planning Board or other appropriate agency should be authorized and funded to undertake a complete environmental assessment of the community to assist the municipality's planning efforts and the review of proposed developments. Site specific environmental impact statements should be required as part of the review process for major developments or projects in areas of known environmental sensitivity in order to protect said lands from disturbance or negative impacts of development.

5. It recommended that any County-wide strategic planning efforts include identification of Critical Environmental Sensitive (CES) areas and that they be mapped for use in evaluating major development activity, public or private.

6. The Township should consider appropriation of monies in its annual budget or capital budget for open space and farmland acquisition.

7. The Township's planners are encouraged to play an active role in the upcoming Cumberland and Salem Counties watershed management plan to be sure that its water supply is fully understood and protected.

Possible Sources of Support:

CCADB	Cumberland County Agricultural Development Board
CCDPD	Cumberland County Department of Planning and Development
NJDCA	New Jersey Department of Community Affairs
NJDEP	New Jersey Department of Environmental Protection
OSP	Office of State Planning (NJDCA)
	Bureau of Parks and Forestry (NJDEP)
	Conservation and Environmental Organizations and Foundations
	Land Trusts

Chapter IV Recreation Plan

Introduction

Riding through Deerfield Township passing green farm fields, woods and suburban homes on large lots, the need for recreation does not seem to be pressing. That has been true of most rural communities since there is plenty of room to walk, have impromptu games, ride a bike or just relax in one's yard. Once you enter the town of Rosenhayn or the village of Carmel however, you encounter a different vision - lots are smaller and population densities are higher and there are parks. Although there were plenty of open spaces in and around the centers, more people living in a smaller area created a need for places to play or congregate. Development intensifies the need for recreational facilities, places designed and equipped for the conduct of sports and leisure-time activities.

Besides intensifying the need for recreation, development also sets up conflicts among land use activities thereby reducing the recreational value that the uses might have served or provided. For instance, the green farm fields or orchards and housing do not mix well at all. Modern agriculture is an industry and creates concerns and conflict with neighboring homeowners over crop spraying, odors, noise, and farming practices, i.e., intensive animal husbandry or plastic greenhouses. Likewise, farmers complain over trespassing, crop damage and theft, the limitations on the use of their land or the practices they must employ, all because a non-farm-related residential structure or structures locates adjacent to their farms.

The natural environment and the community's infrastructure can also be taxed with regard to development and its need for recreation. Country roads, which in most rural areas are part of a county-wide road system, are with residential development along them required to serve as both local streets and as well as regional collector roadways. This duality of service is not suited to walking, biking or running. Such activities are unsafe on these roadways and their presence reduces the roadway's ability to handle traffic. They are not designed or constructed with recreational use in mind.

In a similar manner, the natural environment can be impaired or adversely impacted by people seeking nature without regard for it. Habitats are trampled or destroyed, streams become littered or polluted, and over use by human intrusion destroys natural beauty. Off-tract vehicles, regardless of the seasons of the year, are a perfect example of the conflicts caused when environmentally sensitive lands or farmlands are subjected to recreational use they cannot handle.

From the planning standpoint, it is imperative that: (1) recreational facilities and amenities are provided in conjunction with development, (2) the degree of that provision increases with the intensity and density of the development, and (3) recreational need must be balanced between the population's character and the ability of the land to support such need. A community must plan for both active and passive recreation to meet the needs of its residents and to avoid the types of conflicts or abuse noted above. Active recreation is defined as leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed places, sites or fields. Passive recreation are activities that involve relatively inactive or less energetic activities, such as walking, sitting, picnicking, card games, chess, checkers, and similar table games. They can also involve nature walks and observations. The key difference between the two types of recreation is their potential for impacts on surrounding land uses.[1]

So how much recreation is needed? There are a number of standards available and they are usually expressed in terms of ratios of facility or acreage per population, such as one softball field for every 5,000 people or one and half acres of playgrounds or playfields per 1,000 people. The standards also usually identify suitable locations as well. Playgrounds or playfields should be either near a school or within half a mile of residential neighborhoods. A community park should be in naturally beautiful or environmentally sensitive areas with some proximity to population; within 10 minutes driving time. Sometimes standards refer to ownership of the facilities again relying on more specific or larger sized recreational facilities, and based on acres or facility to number of people.

All of these standards are merely guides. A careful analysis of a particular community's needs based on its development patterns, population characteristics, and natural environment is still necessary. A city needs more parks due to its density than a country village. A community with an aging population requires different recreational facilities than a suburban community with many school age children. And seashore or lake-side community has a natural recreational amenity as opposed to those towns without such natural recreational resources. The goal of a municipal recreational plan should be to identify both the need for recreation and the ways to meet those needs.

Population estimates for Deerfield Township are most recently given as somewhere between 3,098 (1998, U.S. Census) and 3,286 (1999, SJTPO). This would translate into approximately five acres of playgrounds and play fields using our above noted "standard." But this "rule" does not tell us anything about the community or its recreational needs. The Survey of both the community residents and business responders noted a very strong interest for more recreation and parks in the Township. The survey also revealed a concern with the maintenance

---

[1] **The New Illustrated Book of Development Definitions,** Harvey S. Moskowitz and Carl G. Lindbloom, Center for Urban Policy Research, Rutgers, the State University of New Jersey, New Brunswick, NJ, 1993, pp.217-218.

of existing parks and the preservation of the community's open spaces and farmland which, as noted earlier, traditionally provided the greenery necessary to human existence. So how do the Township's recreational facilities stand at this point in time?

Existing Recreational Facilities

LoBiondo Park (Rosenhayn) - This park is located in the heart of Rosenhayn off Morton Avenue, between Morgan and N. Shiloh Avenues **(See Item 3 on Recreation Plan, Figure 10)**. The Park encompasses approximately 7.93 acres and is the main site of the community's annual Harvest Festival, sponsored by the Deerfield Township Recreation Commission. Its official name is the Frank LoBiondo, Sr. Recreational Area and includes two tennis courts, two basketball courts, a bandstand/"stage", ballfield and open land.

Rosenhayn Park - This park **(See Item 5 on Recreation Plan, Figure 10)** encompasses an entire block with 3.6 acres of land bordered by Cedar, Pine, and Poplar Streets and Vineland Avenue. It is partially wooded and has a ballfield, playground, basketball hoop and picnic area.

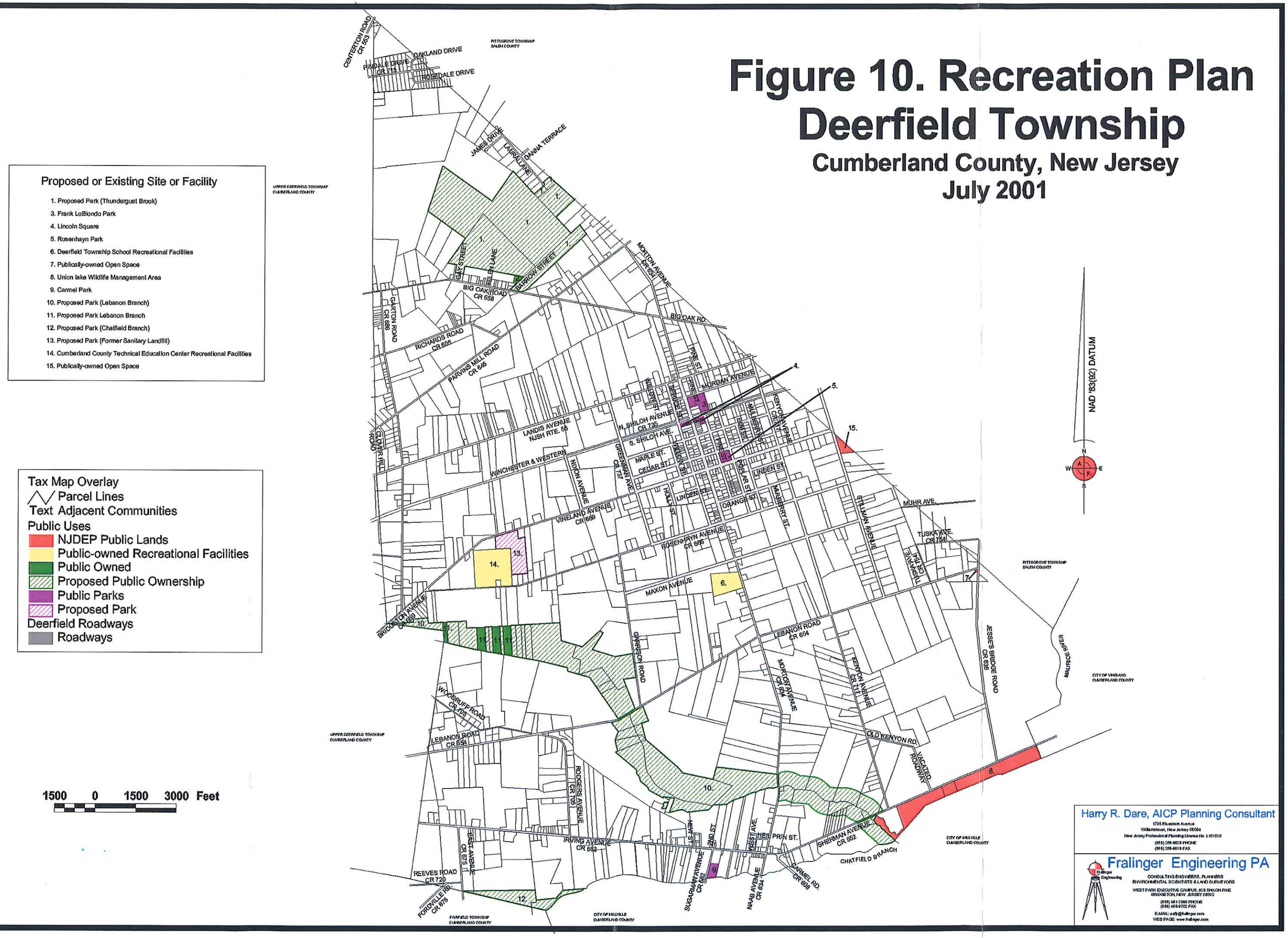
Lincoln Square - This publicly owned land at the intersection of Morton Avenue and the South Shiloh Avenue includes two tracts of land on either side of Morton Avenue **(See Item 4 on Figure 10)**. Both tracts are 1.4 acres of partially wooded and undeveloped land. Use of this land should remain public and there is some question as to whether previous Green Acres Program monies specifically restricted these lands to open space. Since they are vacant, are held by the Township, are centrally centered in the town of Rosenhayn and located at a major intersection adjacent to the Winchester and Western Railroad line, they offer many opportunities. They are also noted in the **Community Facilities Plan** since their use might involve both recreation and some other public purpose compatible with their open space or recreational use.

Deerfield Township School Recreational Facilities - The Township School's grounds on the Westside of Morton Avenue south of Maxon Avenue a total of 17.30 acres of which on a portion is developed for recreational use. The site has playgrounds, basketball courts and a soccer field. It is not restricted to public use. **(See Item 6 on Figure 10)**

Carmel Park - Comprising approximately six acres of land behind the Carmel Fire Company firehouse at the intersection of Irving and Sugarman Avenue and bordering Chatsfield Branch, this municipal park **(See Item 9)** is partially wooded. There is a playground with swings, merry-go-round and seesaws, a basketball court and a picnic grove. Portable restroom facilities are provided. Off street parking space is also available. The County of Cumberland has a 25-foot drainage easement running along the entire property width adjacent to Chatsfield Branch.

Cumberland County Vocational Technical Education Center Recreational Facilities - This recently developed recreational area located between Vineland and Bridgeton Avenues across

Figure 10. Recreation Plan
Deerfield Township
Cumberland County, New Jersey
July 2001



from the school, has one ballfield and is approximately 42.68 acres of land. Township officials have been advised that once developed, this facility might be able to be utilized by local residents through a community education and recreational agreement between the Education Center and the Township. The site is located adjacent to the Township's former sanitary landfill which has been closed and capped and which is recommended for future development as a recreational facility **(See Items 13 & 14).**

Union Lake Wildlife Management Area - This State of New Jersey land, managed by the N.J. Department of Environmental Protection, is largely in the adjacent communities of Millville, Vineland and Pittsgrove Township and include Union Lake in Millville. Two tracts of land within this Management Area are located within Deerfield Township **(See Items 8 & 15 on Figure 10).** The larger of the two is located along Sherman Avenue between Kenyon Avenue and the Township's boundary with the Cities of Vineland and Millville. It includes three separate parcels of land totaling 73.15 acres. Much of this area is environmentally sensitive and is wooded with wetlands. The other parcel is located on the east side of Stillman Avenue just south of its intersection with Vineland Avenue and is 5.06 acres in size. It too is wooded and is bounded by the Township border with Pittsgrove Township, Salem County.

North Cumberland Little League and Cohansey Soccer League - Deerfield Township is a member of both of these two leagues which have their fields at Upper Deerfield Township Park in Seabrook, Upper Deerfield Township, Deerfield Township's adjoining municipality to the west. The Township makes an annual contribution to these two leagues which provide organized Little League baseball and soccer team participation for the Township's young people. Locally businesses are sponsors of some of the teams. Seabrook is approximately five miles from the Township. This participation serves the need of Deerfield Township for organized youth baseball and soccer sport participation.

Parvins State Park - This State park is located in Pittsgrove Township north of Deerfield Township and approximately seven miles north of Rosenhayn. There are ballfields, swimming, nature trails, picnic areas, fishing and canoeing.

The Need?

In all, the Township has in excess of 151.22 acres of recreational lands, not including that portion of the Union Lake Wildlife Management Area adjacent to the community, Parvins State Park, or the organized ballfields in adjoining Upper Deerfield Township. Of course, as noted, not all of these lands are currently available for use by Township residents, but still that represents a good start in meeting recreational need. Of more concern are the future needs that will arise. Estimates of population vary widely. This Plan estimates the 2000 population of the Township to be 3,150. By 2005 the population is estimated to grow to 3,537 and to 4,193 in 2015. If the Township were to be fully developed under current zoning as shown in Chapter 2, the population

would be well more than 9,000.

There will be a need for more recreational facilities based on these projected increases in population. That recreation will have to be both passive and active and will probably have to be met through a variety of means, public and private. It will also cost a great deal of money to purchase land, develop facilities, and maintain them both. Using our play field or playground standard mentioned earlier, a population of 4,193 would increase the need to six or seven acres. Increased population density makes the need for open space area all the more critical. Parks and green areas become more valuable as land in a community is developed. To meet these needs the Township will have to begin now to encourage, require and acquire open space and recreational area opportunities. Most likely the population estimates will be low due to the Township's location. Need will probably be closer to double what is now provided as the population is likely to double by 2020.

The survey of residents and businesses so overwhelmingly endorsed more parks and open space areas simply because they are not there and development has begun to change the character of the Township's landscape. Although open lands exist, they are not available for recreational use. This is where the need is greatest.

Broken down into type of recreational use, the 151.22 acres would represent: 27.53 acres of municipal parks, playgrounds and play fields, 2.8 acres of vacant open space land (Lincoln Square), 42.68 County owned recreational area (Vocational Technical Education Center), and 78.21 acres of wildlife management area open space. Given the population of the Township, the "recreational standard" would appear to be met. But what do town planners do about the community's need, character and natural landscape. They too, need to be addressed?

The sprawl of development along the County road system has begun to turn open fields and woodland into neighborhoods. Farms are not necessarily viewed as just green fields or orchards. There are no pedestrian or bicycle paths. New "neighborhoods," perhaps encompassing four or five houses along a county road, are somewhat removed from actual recreational facilities. Where do kids play ball, tennis or just hang if not near an existing facility? Where do residents take a walk, run or even shoot a few hoops themselves? What do the senior citizens do for recreation within the Township? As farms develop, where are the open space, green fields and the "natural parkland" which originally drew people to a rural, farming community? Several residents in their comments on the survey expressed their fear over the loss of nature with its wildlife and beauty. Houses and businesses being erected in woods or woods being cleared for them represent a loss of the very open space features that had traditionally met the passive-type recreation facility, the "natural park."

So while the Township has an excellent start on providing open space and recreational facilities, more needs to be done to protect the community's character and to keep pace with the development that has occurred over the years. Furthermore, the diversity of the community's

population and environments, town or village, suburban, farmland, woods and wetlands, must be assessed to provide the right recreation facilities for the right location. This will require that additional land be provided for both protection of the environment and natural beauty of the Township, and to meet new recreational demands. It also requires other actions be taken to assure that there are access and recreational opportunity for all residents.

The following proposals will require money, time and careful analyses and planning to meet the ever changing and multiple needs of the community's population. They are recommended as both strengthening existing facilities' use and purposes and providing new facilities which meet multiple needs for open space and recreation. Many of these proposals are directly related to the recommendations made in the **Open Space and Conservation Plan**, which clearly demonstrates their importance on more than one level to the community's future well-being.

Proposed Recreational Facilities

New Township Parks:

Former Landfill Site - Item 13 on the Recreation Plan, Figure 10, denotes the site of the Township's former sanitary landfill which this Plan proposes be developed into a community park. As noted above, such a park could be coordinated to enhance and supplement the County Vocational Technical Education Center's recreational facilities located adjacent to it. When developed it should provide for a broad spectrum of recreational needs. The site's 27.25 acres when added to the Center's 42.68 acres would provide almost a 70-acre recreational facility. Care should also be given to trying to provide bicycle and pedestrian trails to the site from the centers of Rosenhayn and Carmel. Rosenhayn might be connected by sidewalks and/or bike paths along Vineland or Bridgeton Avenues. The proposed **Lebanon Branch Park** might serve as a path from Carmel. In any case, the site is currently in public ownership, abuts an existing recreational facility and is centrally located within the municipality, making an ideal site for a new Township park.

Due to the considerable size of recreational lands this and the adjoining site offer, there should be ample room to provide a variety of recreational opportunities for all segments of the population. Exercise paths, game sites from active to passive outdoor recreational activities, picnic areas, special event sites, play fields, tot lots and even "gardens" or landscaped areas just for enjoying a nice day. The interconnection of these two sites and other areas of the communities as noted above might also permit a variety of paths which might be ultimately even become a system of trails and paths - bridle, snowmobile or off-tract vehicle, bicycle, walking, running or nature.

Lebanon Branch Park - This proposed park running along the entire length of Lebanon Branch from the Millville-Deerfield Township border to the Upper Deerfield-Deerfield Board is already

recommended for preservation on the **Open Space and Conservation Plan** due to the environmental sensitivity of the lands involved. The Recreation Plan recommends that this land be publicly purchased **(See Item 10, Figure 10)**. It is recommended to be used wherever possible as parkland to permit nature trails and perhaps some active recreational activities along the way. If totally obtained as shown, the Park would encompass more than 250 acres of wooded stream corridor and as noted, make a link between proposed former landfill site park and the village of Carmel.

Currently the Township owns one parcel of 2.06 acres and the County three with 16.57 acres of land along this proposed park corridor **(See Item 11, Figure 10)**. This park would make a greenway across the lower portion of the Township and preserve environmentally significant lands as well. It would protect an existing natural buffer which gives definition to the community's development.

Thundergust Branch Park - Thundergust Branch runs in a southeasterly direction from Pittsgrove Township to the north of Deerfield from Thundergust Lake in Parvins Mill Park through northern Deerfield Township to Muddy Run. The site of the proposed park is shown on **Figure 10, Item 1 & 2**, and would encompass approximately 300 acres of woods and wetland. This area is also recommended for preservation on the **Open Space and Conservation Plan.** Again, the Township already owns a small parcel, 1.05± acres adjacent to this proposed park **(Item 2)**. It is believed that as shown, there would be sufficient lands to allow for some active and passive recreational activities to serve the developed areas to the north, south and east of this proposed park. If implemented, care should be taken to purchase enough useable land, i.e., not environmentally sensitive, so that such recreational uses can be provided. Most of this proposed park would protect the stream corridor and preserve the open space now taken for granted. Public ownership is recommended to make the lands available for all to enjoy and to provide another natural green space.

Chatsfield Branch Park - This park is proposed along the Deerfield-Fairfield Townships border along Chatsworth Branch which comprises the Township's southern border. The four parcels proposed for the park would include approximately 30 acres and would be largely a passive recreational facility due to its environmental sensitivity and remoteness. It too is recommended for preservation and conservation on the **Open Space and Conservation Plan** and would preserve the stream corridor and provide a natural greenway along a portion of the Township's southern border. The Township might even coordinate its efforts with Fairfield Township to see if a larger and more significant park might be developed which would assure protection of the stream's two banks and flood plains.

Potential New Parks or Playgrounds - It is recommended that the Township closely watch the proposed development of the town of Rosenhayn which may require additional parks and/or playgrounds to meet new recreational needs. This will be especially important since this Plan's main land use goal is to center new development into the centers and special planned areas. It is

most likely that such a new park or playground would be necessary in the southern end of the village since that is where most of the undeveloped land currently exists.

Another potential park area might be located along Lummis Branch north of Rosenhayn. The **Future Land Use Plan** recommends planned developments on the lands between Lummis Branch and Landis Avenue, Route 56. Development regulations might require protection and preservation of environmentally sensitive lands and provision of open space and/or recreational area. While ostensively such facilities would be intended for the residents or visitors to the site, public monies might be provided to allow public access to such open space area and/or easements for a path providing interconnection between the Rosenhayn and the proposed **Thundergust Branch Park** to the north.

If fully realized, these five new parks would add more than 675 acres to the Township recreational lands and protect four important stream corridors. They would no doubt provide for a significant portion of future recreational need especially when coupled with the other Plan recommendations. At this point in the community's development, a truly interconnected park system that would substantially benefit the Township's character in the face of inevitable development is still a possibility.

Enhancements and Improvements:

Besides the purchase and development of additional lands for recreational purposes, there is a need to reevaluate current needs in light of the population to be served and the conditions of existing facilities. The installation of new improvements or enhancing the attractiveness or accessibility of recreational facilities can bring them in line with the need and provide better recreational opportunities based on the land and its environment, either natural or manmade. A park directly next to residential neighborhoods does not want to encourage activity and noise after dark. Making it easier for children and adults to get to parks and to make their facilities attractive to the various age groups will encourage use of the park and satisfy much of the need for recreational facilities and opportunities.

Accessibility - The Township's existing parks and playground are largely located within the two centers, but are not necessarily accessible to all citizens. It is recommended that several steps be taken to encourage their use and make them more amenable to local residents:

Sidewalks and bikeways - Make the parks easier to get to by installing sidewalks and bikeways which would let village or town residents take a walk, run or bike ride to the local park. Initially, one or two such sidewalks or bikeways could be developed within existing rights-of-way from a couple of areas within each center to the local park(s) or playgrounds. For instance, a pedestrian path (it need not be as formal as a concrete sidewalk) down Morton Avenue from **LoBiondo Park** to the **School** might be developed. It would provide multiple benefits, connect recreational facilities and also serve to bind and give character to the town center. Likewise, a pedestrian path

along south side of Irving Avenue from Morton Avenue to Sugarman Avenue would serve to connect the **Carmel Park** to its village. Such facilities would provide safe recreational activity for a variety of residents of varying ages. Sidewalks or paths around or through a park might also be used by runners or walkers for exercise and provide access to the parks various amenities.

Park or playground parking - Provide clearly delineated, limited parking areas where those wishing to use the park might safely park their cars while enjoying the park's facilities. If night time activities are allowed or encouraged such as lighted tennis courts, then parking facilities should likewise be lighted.

Intergenerational facilities or activities - Parks and playgrounds should have a variety of facilities and activities for all ages. Tables and seating with safe walkways should be located throughout the parks or along its perimeters to encourage people to meet or sit and enjoy the outdoors. Some tables might have chess or checker boards on their surfaces. Tot lots or facilities for younger children should be available close by so parents or grandparents could bring small children to the park perhaps while an older sibling is playing ball.

Park Maintenance - All parks and/or playgrounds will be used more if they are maintained so as to be attractive, inviting and safe. It is surprising what a few inexpensive improvements in a park's or playground's physical appearance can make on an adjoining neighborhood. Some flowers, new trees, benches, painted equipment, a sign and some lighting can transform the area around it and encourage its use thereby making it a safer place to visit and play. An annual assessment of each of the Township's recreational facilities should be made and monies allocated to undertake improvements which would meet each facility's specific users' needs.

Providing New Recreational Needs as Development Occurs

Development regulations should encourage residential developments which provide or contribute to recreational opportunities for their residents. Cluster and planned development should be encouraged since they provide open space and recreational opportunities for the residents they locate. Industry and business can also provide greenery through landscaping and protection of naturally sensitive lands and offer limited recreational facilities like picnic tables, benches and paths for meals or short breaks outdoors. Planned developments involving residential, commercial or industrial uses should all be required to include a recreational component.

There should also be regulations established which require that sensitive environmental lands be protected, that buffers are used to maintain greenery and prevent land use conflicts, and encourage development which does not destroy more vegetation on-site than necessary so as to keep the community's open, green and rural character. It can also require reducing the effect of development by requiring smaller areas of paved or nongreen areas. Requiring the screening of parking areas and liberal landscaping with trees and bushes can do much to soften the effect of

development.

The Township should also begin to anticipate recreational needs as development occurs and require that facilities be provided or in lieu of on-site facilities within a new development, a contribution to the "general fund" to be used to create new facilities or provide upgrades and improvements to existing parks, playgrounds and facilities. Often especially in single-family, detached subdivisions the provision of small playgrounds or a basketball court creates future complaints from residents that they are hangouts and a nuisance. But such developments rarely provide meaningful recreational areas for organized games. They are better provided for in a larger recreational complex. In these cases, the developers of the development might contribute to a municipal recreation fund that would use the monies to provide the recreational facilities that appear to meet the need of that development.

Within planned communities, recreation and open spaces are an integral part of the development with requirements for providing both active and passive recreation. It is therefore, necessary for local development regulations to include requirements for assessing recreational needs of proposed developments and requirements that they be met in some fashion on- or off-site.

Recommendations for Action:

1. Seek funding for purchase of new park lands through the various public and private agencies and organizations dedicated to preserving open space, the conservation of nature or provision of recreational opportunities.

2. Seek funding for improvements to exiting recreational facilities and to provide enhancement so that such facilities will be more accessible and enjoyable to all residents of the community.

3. Begin funding for recreational land acquisition and development of the same through the capital budget process annually.

4. Consider using sidewalks and bikeways to provide recreation and to connect recreational facilities while added a more personal dimension to existing town and village life.

5. Maintain a close watch on development activity to determine when recreational need is not being met and take appropriate action to satisfy said need. This includes requiring the provision of recreational facilities as part of a development proposal or in lieu thereof, providing a contribution to a municipal fund dedicated to providing recreational facilities for the community's residents.

6. Change or modify existing development regulations to encourage and require new

development to assist in providing its residents or employees some recreational opportunities whether passive or active. This should include requirements for assessing need for recreation based on the type of development and mandated types and extents of such recreation based on the development to be provided or a required contribution to a fund that will finance such recreation.

7. Prepare a schedule for meeting proposed recreational facility need and the allocation of municipal funds (the capital budget process) to meet that need.

8. Utilize existing or create new offices or agencies to help, administer and plan for the recreational needs of the community. Be sure that such efforts are in coordination with plans at all levels of government so as not to duplicate or overlook other activities or facilities existing or planned.

9. Provide the necessary degree of coordination so that the Township and other public agencies with recreational facilities like school districts, can permit joint use of such facilities and thereby gain maximum use of public funding.

10. Develop an overall park plan which set out a grand design for all identifiable recreational and open space areas and their interconnection to form a park's system.

11. Include provision of recreational facilities for new major residential developments and require landscaping, screening and buffering to reduce the intensity of urbanization.

Possible Sources of Support:

DTBA	Deerfield Township Board of Education
CCDPD	Cumberland County Department of Planning and Development
CCRC	Cumberland County Recreation Commission
CCVTEC	Cumberland County Vocational Technical Education Center
NJDCA	New Jersey Department of Community Affairs
NJDEP	New Jersey Department of Environmental Protection
OSP	Office of State Planning (NJDCA)
	The Bureau of Parks and Forestry
	Recreation, Conservation and Environmental Organizations and Foundations
	Land Trust
Main Street	Main Street New Jersey (NJDCA)

Chapter V Community Facilities

Community facilities refer to those public buildings or facilities which serve a communal need like firefighting, education and municipal government. In effect community facilities are the public services or amenities required to make the municipality run and are necessary to protect public health, safety and welfare. They are also used in this Plan element to refer to lands held by public agencies although said land currently serves no such public purpose. The inclusion of such lands in the master plan provides a measure to the availability of sites for meeting existing needs and where and how to plan for expansions or construct new ones. Also included within this planning element of a master plan are historic and cultural sites. Not shown are quasi-public facilities which also often provide public service purposes or functions such as churches, halls or nonprofit organizations' buildings or facilities.

The Township's two centers, the village of Carmel and the town of Rosenhayn, are the location for most of the Deerfield's community facilities as might be expected. Due to this fact, the Township's community facilities are located within the population centers and thus logically sited to serve their purposes. The spread of development too far afield of these centers will require that additional community services be provided. This is a strong example and argument from an economic and logistics standpoint, for the centering of future development. Of course, the Township's size is such that many services can be located in either center and still be close to the entire community.

The Township's centralized location within Cumberland County, has made it the site of a number of county-wide community facilities as well. Deerfield Township's location between the County's three major population centers and its major roadways will continue to make the Township a prime location to provide sites for public and private services. The nearby location of Cumberland County College and the proposed siting of a new regional hospital near the College will further enhance the importance of the Township's location.

At present the Township's community facilities appear to satisfactorily meet the municipality's needs with regard to the services provided but may well not be sufficient to meet future needs in the next five to ten years. A change drastic change in growth may occur and depending on its type, the need for various types of services and facilities such growth generates may exponentially expand as well. As noted in the last chapter, population projects are expected to increase to 3,537 in 2005 and to 4,193 in 2015. This would mean a substantial impact upon community services. Most notably of course, would be education. The average cost per student

in the Township school is approximately $8,000.00 a year and each student from the Township sent to the Cumberland Regional High School costs approximately $9,000.00. So in 2005, we would expect there to be approximately 387 additional persons in the Township contributing another 120 students and in 2015, that student enrollment might increase another 220 students. This might translate into another five classrooms in five years and another nine in 15 years. So we have a considerable cost both in annual educational budgets, but also in capital budgeting to provide the new facilities.

Other community facilities would likewise be affected by population growth. If development is not centered, then fire substations will be needed along with new equipment for them. Another area which would be expanded is the Township maintenance facility since expected new development would mean new streets, additional recreational areas and other facilities associated with new residential growth. Centered growth within Rosenhayn and Carmel where the existing community facilities are located, would reduce the need for new facilities, but not eliminate it. The point to be addressed is that uncontrolled growth is costly to the municipality.

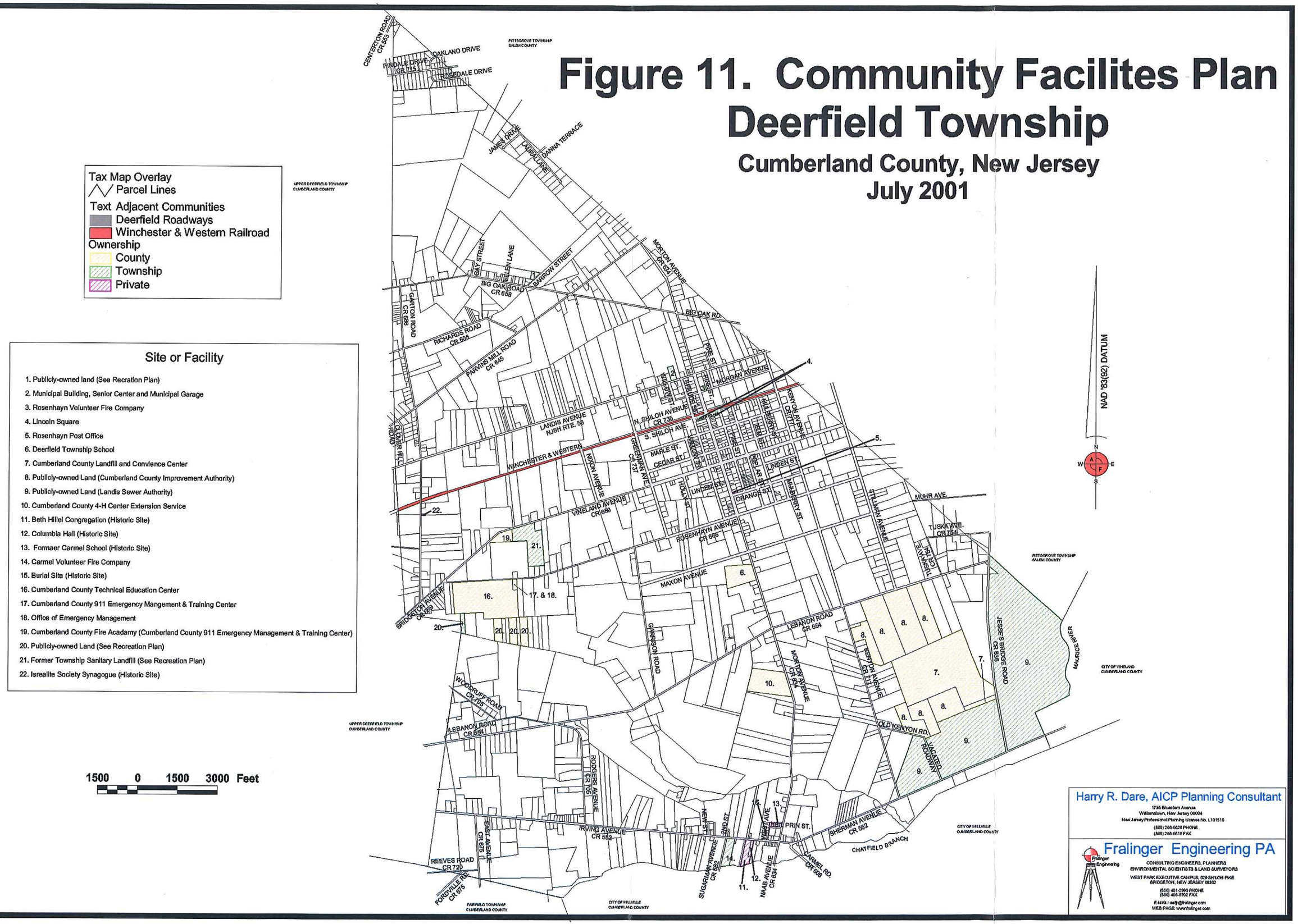
Figure 11, the Community Facility Plan, identifies the location of the various facilities detailed below. The need for additional facilities will be directly proportional to the amount and type of development that the community experiences over the next five to twenty years. If such growth were to be all residential development, which much of the existing development of the Township has been, then the additional costs will have to be borne by homeowners. Balanced growth, allowing and encouraging limited commercial and industrial development and planned growth, could help defray the costs of the new facilities and services needed.

Public Safety

Rosenhayn Volunteer Fire Company - Located on the southeast corner of Morton and Morgan Avenues **(See Item 3)**, this fire hall houses not only the fire company, but also the **Deerfield Township Ambulance and Rescue Association**. The facility occupies a 0.71 acre site centrally located within the village and in close proximity to the community's major industrial and commercial sites along or near Morton and Landis Avenues. Firefighting within the Township is dependent upon water transport as there is no public water supply system. Like most of Cumberland County's townships, firefighters and emergency rescue squad members are volunteers and receive financial support from the municipal government for operating and capital expenses.

Carmel Volunteer Fire Company - Carmel's firefighters are housed at the corner of Irving and Sugarman Avenues on the same 7.8 acre tract of land **(See Item 14)** as **Carmel Park**. This location is centrally located for the lower half of the Township and within one block of Morton Avenue for quick response in Rosenhayn, if needed. Besides being able to support each other, there are mutual aid agreements between the various municipal fire companies. Portions of

Figure 11. Community Facilites Plan
Deerfield Township
Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1736 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. LI01510
(856) 256-5626 PHONE
(856) 256-5619 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2990 PHONE
(856) 455-9702 FAX
E-MAIL: adj@fralinger.com
WEB PAGE: www.fralinger.com

Deerfield Township easily accessible to adjoining community fire companies in Fairfield, Upper Deerfield and Pittsgrove Townships, should the need arise. The three nearby cities also have special firefighting equipment if required, like ladder trucks.

Cumberland County 911 Emergency Management & Training Center - Located next to the Cumberland County Vocational Technical Education Center on Bridgeton Avenue is the Cumberland **County 911 Emergency Management & Training Center (See Items 17 & 18).** All of Cumberland County's 911 Emergency system is located here as is the **County Office of Emergency Management** and related training facilities. The relatively new complex is situated at 637 Bridgeton Avenue on a 1.5 acre lot.

Cumberland County Fire Academy - This school for the County's firemen is located on a 6.19 acre parcel on Vineland Avenue **(See Item 19)** and is adjacent to the Cumberland County Vocational Technical Education Center's recreational facilities and Deerfield Township's former sanitary landfill, both sites which were noted for future recreational facilities on the **Recreation Plan.** The facility is part of **County 911 Emergency Management & Training Center** and can be seen across the open recreational lands noted above. Facilities and equipment used to train and provide drills for firefighters are located on-site.

Police Protection - Deerfield Township does not have its own police force and relies on the New Jersey State Police. The Bridgeton Barracks of the State Police is located at the intersection of Landis Avenue, Route 56, and Route 77 in Carlls Corner, Upper Deerfield Township. It is approximately three miles from this facility to the Township line on Landis Avenue.

Depending on the type and intensity of development which occurs in the Township, there could arise the need for additional police coverage which might not be able to be met by the limited resources of the State Police since their areas of coverage are considerable. This Troop provides police protection to a very large area covering parts of Salem, Gloucester and Cumberland Counties. Periodic debates about municipalities' reliance on the State Police for police protection in Trenton raise a "red flag" about the possibility of losing this important service and its substantial impact on Township revenues to replace it if reduced or lost. There is the additional concern that if it were to remain the same, would this broad-based approach to police protection be sufficient?

Municipal Government - The seat of municipal government is located on Landis Avenue, just west of Morton Avenue in Rosenhayn **(See Item 2).** The 2.47 acre tract is home to the **Township Municipal Building,** an attached **Township Senior Center**, and a **Municipal Maintenance Garage**. The Municipal Building was built in 1969 and houses all local government offices including municipal court. A recent addition to the Building added a **Senior Center** with a large activity room and kitchen where a variety of programs and social gatherings are provided for the Township's senior citizens. The facility has adequate parking and room for

expansion if needed.

To the rear of the **Municipal Building** is the Township's **Maintenance Garage** used to house and maintain public works department equipment and supplies like trucks, tractors, mowers, snowplows and the like. The entire complex of facilities has a central location for residents. Although not now necessary or projected, the Township may want to consider obtaining additional lands adjacent to this site should development activity increase. Adjoining properties adjacent to the complex property are currently in residential use, but land to the rear of the site is vacant.

Education

Deerfield Township School - The Township's only school is located within the town of Rosenhayn on the Westside of Morton Avenue between Maxon Avenue and Lebanon Road. This site is about half way between Carmel and the more developed portion of Rosenhayn. Originally, the Township had two schools one in Carmel and one in Rosenhayn. The two "districts" were united and a new school built to accommodate the Township's students in 1958. According to the commemorative pamphlet entitled: **The History of the Schools in Deerfield Township,** published by the Deerfield Township Teacher's Association in 1995, the new school was located "[t]o satisfy and unite the people of Rosenhayn and Carmel, the **Deerfield Township School** sits on the old schools' boundary line."

The 17.30 acre parcel has 18 classrooms, a cafeteria, gymnasium, art room, science lab, music room, two resource rooms and three basic skills' instruction rooms. Kindergarten through 8th grade education is provided to 375 students (1999-2000 school year enrollment). This population has traditionally remained constant over the past ten years. The Township School administration is preparing a 2000 to 2005 Master Plan for the district. The accelerated b:k cohort survival ratio and cohort survival enrollment projections' methodologies used by the District in preparing this plan shows that the District expects only marginal increases in the school population with the most substantial growth to be pre-kindergarten since that is now being added.

Historic data for the district shows that for the past five-year period (1996-97 through 2000-01 school years) total pre-kindergarten through 12th grade population was: 355, 365, 367, 369 and 352. The next five years are projected at 377, 399, 391, 392 and 404[1]. Obviously this type of analysis cannot take into account major spurts in growth within a municipality and this is where the major impact on municipal finances can most be impacted.

---

[1] ***The cohort survival enrollment projection produced slightly smaller numbers for the period: 356, 372, 372. 369 and 375.***

The school building's capacity was increased in 1995 to now include more than 32,000 square feet for the above noted instructional purposes. According to school district officials all current district needs are being met. The school district is the Township of Deerfield. There is some concern by the Board of Education over meeting the mandate to provide a Pre-School Program in 2001-02. There are no current plans for expansion of the school facilities. It was noted however, that there is a severe need to repair/replace the roof of the original school building built in 1958. The Long Range Facility Plan, prepared by TJD Architects for the Deerfield Township Board of Education in March 2001, deficiencies in the existing Township School that will cost $1,798,895.00 to correct. The report anticipates only a modest increase in the school system's population. This report also notes a number of deficiencies in various room sizes for the uses made of them.

The Township Board of Education is proposing the use of the six temporary classrooms to house the 4th, 5th and 6th grades while major construction is undertaken on an existing wing of the existing school facility. A referendum on this construction will be put to the voters in March 2002. Even with the limited growth anticipated by the District, there are major costs to be incurred.

The Township is part of the Cumberland County Regional School District which provides secondary education at its facility, the Cumberland Regional High School, located south of Seabrook in Upper Deerfield Township. That facility was completed in the late 1970 and has considerable unused capacity.

The centralized location of the school facility is cost saving in that there is only one facility. However, the sprawl of development within the Township as shown on the **Existing Land Use Plan, Figure 7**, has resulted in considerably higher transportation costs for the District. This is another reason to center new development into the existing centers or their immediate environs. Again, the type and intensity of development to be experienced by the Township will determine the extent of school expansion or new construction required. It is known that within the 20-year planning horizon of this Master Plan, that some additional school infrastructure will be required. If growth does reach population projects, which cost will be higher since the current facility does not appear to be adequate to absorb considerably increased student population. It is imperative that community planners pay close attention to development activity and its impact on the local educational plant. School costs are traditionally in New Jersey the largest share of the municipal tax burden.

Cumberland County Vocational Technical Education Center - This educational facility is located on Bridgeton Avenue on a 70.70 acre tract of land **(See Item 16)**. The Center is centrally located within Cumberland County, but much of its extensive lot is unsuited to development due to wetlands. The school offers a variety of courses and training as diverse as homebuilding, aircraft maintenance, beauty culture and of course, the field of computer-related work. It works closely with area businesses to tailor its course offerings to business and industrial needs. The

aircraft maintenance programs are actually located at Millville Airport. Students from the County's four high schools attend classes there as part of their secondary education curriculum. As the Center's needs grow it may have trouble expanding due to its location. The Township should encourage the Center's continued presence in the Township and assist, if ever necessary, to find a new site within the community. Reuse of the site should the Center move will be important. Since the site is located adjacent to the proposed Lebanon Branch greenway and the proposed recreational area to be created by the Township on the former landfill, this site and possibly its structure might be considered for recreational and continued educational use including an interpretative center for the Maurice River and its tributaries.

Cumberland County 4H Center Extension Service - Located on a 53.24 acre tract on the Westside of Morton Avenue just north of Carmel, this facility **(See Item 10)** provides office space and meeting facilities for the County's 4H program and the Agricultural Extension Service of Rutgers, the New Jersey State University. Other County-sponsored programs often make use of this facility due to its central location.

Solid Waste Disposal

Cumberland County Landfill and Convenience Center - The Cumberland County Improvement Authority owns and operates the County's centralized sanitary landfill at a 144.20 acre site on the Westside of Jesse's Bridge Road, north of Sherman Avenue **(See Item 7)**. This landfill serves all of Cumberland County for the disposal of solid waste. As the host community, Deerfield Township residents are allowed to use the Convenience Center located there for disposal of their solid waste and recyclable materials: glass, cans, and newsprint.

This facility serves as the designated solid waste disposal site under the County's Solid Waste Management Plan although recent court rulings have allowed for municipalities to direct waste to other facilities where deemed more economical. The Township is in compliance with its requirements for solid waste management and recycling although it relies on the County Landfill to provide the collection facilities. Residents transport their trash to the Landfill and the planning survey of residents showed a concern and interest in curbside pickup of trash. Given the current spread of residential development around the community and the limited population, costs are currently prohibitive to provide such a service.

Postal Service

Rosenhayn Post Office - The only post office within the Township is located within Rosenhayn along the east side of Morton Avenue just north of its intersection with Orange Street **(See Item 6)**. The zip code for this post office area is 08357 although portions of the Township are within other zip code areas. The U.S. Postal Service rents space in a building at the above location noted.

Township-owned Lands

Barrow Street Lot (See Item 1) - This 1.06 acre tract is located adjacent to the proposed **Thundergust Branch Park (See Recreation Plan, Figure 10)** and is recommended to be retained by the Township for inclusion in such a park should it become a reality.

Lincoln Square (See Item 4) - These two 1.4 acre tracts on either side of Morton Avenue at S. Shiloh Avenue in Rosenhayn were also identified on the **Recreation Plan**. As noted therein, these lands have been reserved for open space and are included in this Plan element since they remain vacant and might be able to serve both a recreational and community service function. It is recommended that they be retained by the Township. The central locations of these two squares within the Town of Rosenhayn make them ideally suited to public and/or social purposes. Their revitalization with perhaps some limited commercial activity, for example, refreshment or news stand, a cafe, various temporary shows for art, crafts or other items in a temporary kiosk, tents or small structures might make a "downtown" attraction for the entire community.

Lebanon Branch Lot (See Item 20) - The Township owns a lot of 2.06 acres along the Lebanon Branch at its intersection with the Township's municipal boundary with Upper Deerfield Township. This lot is recommended to be part of the proposed **Lebanon Branch Park** and was so noted in the **Recreation Plan**. All three of these Township-owned parcels are currently vacant and thus represent public property not currently being utilized for various reasons including lack of road frontage and environmental features.

Cumberland County Lands

Lebanon Branch Lots (See Lots noted as Item 20) - Like the Township-owned lot noted above, these three County-owned lots are located astride Lebanon Branch and total 16.57 acres. They are wetlands and landlocked. Like the Township-owned parcel, they too are recommended for inclusion in the proposed **Lebanon Branch Park** and were so noted in the **Recreation Plan**. Two of these lots adjoin the **Cumberland County Vocational Technical Education Center** property **(See Item 16 on Community Facilities Plan)**.

Cumberland County Improvement Authority-owned Lands

Morton Avenue and Lebanon Avenue Lots (See Items 8) - The Cumberland County Improvement Authority owns a number of lots around its sanitary landfill site in southeast Deerfield Township. The four lots referred to here are all adjoining and total 147.78 acres. Three of the lots have frontages on Lebanon Road and one on Morton Avenue. These lots are also adjacent to the County Landfill, but their location makes them ideally suited to commercial or industrial development.

Old Kenyon Road Lots (See Items 8) - There are also three lots adjacent to the County Landfill, two of which had frontages upon the now vacated Old Kenyon Road. The three lots combined equal 51.59 acres. These lands are also abutting lands of the Landis Sewage Authority (see below) so their use may be limited since they are only accessible from Jesse's Bridge Road across the Cumberland County Improvement Authority's lands.

Landis Sewage Authority Lands

LSA Spray Fields (See Item 9) - The Landis Sewage Authority which provides sanitary sewer service and treatment for the City of Vineland has three large tracts of land in the southeastern portion of Deerfield Township. The largest sits between Jesse's Bridge Road, Sherman Avenue to the south and the Township's municipal boundary with Vineland and Pittsgrove Township. Treated discharge from LSA's treatment plan across Route 55 in southwest Vineland is pumped to this site for spraying on fields. The area serves as the treatment facility's outfall. This lot totals 323 acres. The Authority also owns two lots comprising all the frontages along Sherman Avenue between Kenyon Avenue and Jesse's Bridge Road. These two vacant lots' total area is 172.12 acres.

At the time this spray field was established, there was an attempt to connect the Township to the Landis Sewerage Authority system since the Vineland treatment facility had a capacity of 8.2 MGD and was using only 6.2 MGD. Such connection was never made.

Historic and Cultural Sites[2]

Beth Hillel Congregation (See Item 11) - Located in Carmel is the synagogue of the **Beth Hillel Congregation** at 547 Irving Avenue. The synagogue of red brick was designed by Louis Mounier and served as the place of worship for the Jews of Carmel originally brought to the Township in the early 1880's by the founder of Carmel, Michael Heilprin. The synagogue is still in use. The structure was put on the State and National Registers of Historic Sites and Structures in 1978.

Columbia Hall (See Item 12) - Adjacent to the **Beth Hillel Congregation Synagogue** is **Columbia Hall** at 551 Irving Avenue in Carmel. Also designed by Louis Mounier, the community hall and the synagogue were built by the Carmel Jews in the first decade of the 20th Century. The hall had a Hebrew school and library and provided cultural events and education. Professor Mounier was an artist, musician (cello) with a fine voice and his wife was an accomplished pianist. They presented musical programs and arranged for a number of personalities of the day to also appear for the benefit of the community. The Hall is currently in

---

[2] **The History of the Schools in Deerfield Township**, The Deerfield Township Teachers' Association, February 1995, pp. 3-8.

private ownership and is used as a school facility.

Burial Site (See Item 15) - This 0-.3 acre parcel located just off West Avenue in Carmel and contains several grave sites. It does not appear to have been a former cemetery associated with a particular religious organization.

Former Carmel School (See Item 13) - Originally a one-room school house which by 1889 had more than 100 children attending which required the renting of two rooms in private homes to accommodate the students. In 1895, two more rooms were added. In 1907 there was a fire that destroyed the front part of the building and when rebuilt the school was increased to four rooms. It is located on the north side of Heilprin Street between Morton and West Avenues. The 1.62 acre lot is currently owned by the same private school that owns **Columbia Hall**.

Israelite Society Synagogue (See Item 22) - This quaint, painted white, wooden clapboard synagogue is located on Garton Road south of Landis Avenue and Winchester and Western Railroad line.

Indian Head Multiple Resource District - Determination of eligibility for these numerous sites of the finding of native American life within Deerfield Township and the City of Vineland was made in 1984 by the State Historic Preservation Office.

The Township is also the location of a prehistoric site identified by a State Historic Preservation Office opinion dated 1981. Sites are not located for their preservation.

Both centers contain a number of interesting homes and buildings dating to the late 19th and early 20th Centuries. A number of original farm buildings can also be seen although many have been lost or are quickly disappearing along with agriculture or because of its changes. These structures deserve to be noted and their histories recorded. A historical survey of the Township should be undertaken to preserve what is left of the community's past in architecture.

The major threat to many of these historic structures is that they are in private hands and still being used. The former Carmel school and the structures identified along with the limited number of original houses of both Rosenhayn and Carmel represent the past and give a tangible identity to these localities. The former Carmel school and Columbia Hall are still being used for education, but by a private entity. Should these operations cease, then the fate of these historic links to the past would face the potential of drastic change or even demolition. Many older houses within the two centers have been modified without regard to their original architectural design. New land use activities located near or adjacent to them can and often do greatly detract from their character. Land use regulations need to take into account historic structures and prevent their degradation by insensitive site planning. But first, the sites and structures need to be formally catalogued and identified. The very qualities identified by the Township's residents in the planning survey, like small town atmosphere, may well be lost if the past is forgotten and

allowed to deteriorate to the point of extinction.

The historic structures in the municipality are largely located within its centers and obviously represent a direct link to their founding and current identity. They shaped the community and the localities giving them character and scale. They can continue to serve in that purpose as these centers change, adapt and expand. These structures provide a tool by which to measure the degree of growth deemed appropriate to these centers. It is too often the overwhelming impact of new development that drastically alters historic character of its location. Proportion, balance and compatibility make for a gentler transition to new and expanded development while maintaining the existing presence of the place.

The Cost of Services - Capital Improvement Programming Needed

In 2000, the net total taxable value of land and improvements within the Township was $ 95, 901,733.00. Adding the taxable value of personal property, $ 968,233.00, gives the net valuation taxable, excluding second class railroad property of $ 96,869,733.00. This is the Township's tax base. In 2000 the tax rate was $ 3.084 per $100 valuation. The largest portion of this tax base is made up of residential property ($ 98,943.500.00). Therefore, like most municipalities of its size and character, the homeowner is carrying the heaviest load. Most of the money collected goes to pay County and school taxes. Of the total tax levy, $ 2,984,785.68, only $ 23,921.00 was raised for local municipal purposes.

Over the past five years the tax rate has increased from $2.68 per $100 valuation in 1995 to $2.98 in 1999. This represents an 11% increase over those five years. Meanwhile, the tax ratio has been steadily decreasing. This is the ratio of the assessed value of property and improvements for tax purposes to their current value and serves a barometer of when reevaluation is required. Municipalities are encouraged to reevaluate when the ratio drops below 90% of current value. Deerfield Township will no doubt soon have to consider reevaluation. The actual figures were:

Year	Ratio	Rate
1995	**90.36**	**$2.68**
1996	**90.24**	**$2.81**
1997	**87.67**	**$2.75**
1998	**86.14**	**$2.77**
1999	**85.04**	**$2.98**
2000	**81.54**	**$3.084**

Throughout this period the percentage of tax collection has remained relatively high with 1999 seeing a collection rate of 95.97% and delinquent taxes and tax title liens decreased to 4.52%. The Township's capital debt for 1999 was a net of $ 282,813.84 of which $ 108,485.00 was issued. Total debt held by the Township was $ 4,241,056.41 which was broken down into:

(1) Township's share of Regional School District debt - $ 539,242.57, (2) the Local School District debt - $ 3,419,000.00, and (3) the general (or Township's) debt of $ 282,813.84 as noted above.

Capital expenditures are major long-term expenses for capital projects like schools, municipal buildings, road projects, utilities installation and purchase of land for various purposes. In 2000, the municipality had a capital budget showing a total of $ 130,000.00 and involved a road improvements project and the reconstruction and repaving of Pine Street. Either to permit and to accommodate growth, the capital projects are often required and represent the major cost to taxpayers of growth. Two major capital projects are looming on the Township's financial horizon and will be closely related to the extent and type of growth allowed. The first has already been discussed concerning the known and existing costs associated with the Township schools. The second project concerns the cost of installing a public sanitary sewer to the Town of Rosenhayn. This would entail connecting the Township the Cumberland County Utilities Authority's plant in Bridgeton and provide service to the Town of Rosenhayn.

There are other capital costs that have not been identified but which are assumed to be out there including fire and rescue equipment and facilities, purchase of open space and lands to be preserved including agricultural lands, upgrading of current recreational facilities and construction of new ones. These costs are not now known, but need to be planned for through a comprehensive capital improvement program designed to survey all agencies having the ability to effect the municipality's debt capacity, so as to find what projects they are anticipating, when the same are anticipated and at what cost. This project can probably best be undertaken annually by the Planning Board at the request of the Township Committee as provided by the Municipal Land Use Law. No attempt has been made in this master plan to provide figures for proposed policies since details are not available on which to base estimates.

What is clear however, is that new growth will affect public finances and it will take public finances to affect how much and where growth occurs. As the Township plans its future based on this master plan, then it must begin to give form and definition to its proposals so that cost estimates can be generated and capital budget planning can occur to find the funding for these projects.

Recommendations for Action:

1. There needs to be continued coordination between municipal planning and the Township's Board of Education to identify the impact of development on the school system and its physical plant. As noted, education represents the largest share of the municipal tax burden and therefore, can be greatly impacted by rapid development requiring new school services. Annual consultation on mandated educational programs or facilities, school enrollments and proposed capital projects should be made known to the Planning Board and addressed in the Township's Master Plan and capital improvement program. Local

planning anticipation of increased development appears not to be the same as that anticipated by the Board of Education.

2. Funding should be sought to undertake a historic survey of the community to identify sites and structures significant to the community's past or because of their architectural note. This would make a great project for a summer intern studying historic preservation. Once completed, such structures or sites should be identified on the Master Plan for reference by local development regulators so as to protect the sites and their settings. Development regulations might be employed to assist in this task to the degree felt appropriate by the Township and its residents. At a minimum, historic sites and structures should be identified and protected from intrusion or the diminishing of their settings by controlling adjoining properties' activities, design and construction. Buffering, fencing, landscaping, and proper lighting can reduce a proposed new site's impact on a historic structure. The preservation of the historic sites and structures of the community can help greatly to maintain municipal character and set a tone for future.

3. Once a historic survey is completed, the Township planners may decide to prepare and adopt a historic preservation element for inclusion in the Master Plan to give even more emphasis and strength to this municipal heritage's protection and continued existence.

4. Public safety issues will need to be followed closely as the municipality grows especially in the areas of fire, rescue and police protection. Land use regulations should be drawn with these issues in mind to prevent creating situations which greatly impact them.

5. The current recycling program being undertaken in the Township seems adequate to meet municipal needs. As development increases the character of the community could change thereby require that other materials be removed from the waste stream and handled publicly. Consideration should be given to requiring more recycling so as to meet State recycling plan mandates.

6. The Township should implement a program to identify properties needed to protect, enlarge, or enhance existing community facilities. This Plan already notes a number of properties in public ownership which are recommended for use for public purposes or to advance public goals like economic development. Capital monies should be raised for this purpose and funding sought from various agencies for the purchase of such lands and/or structures. In particular, development regulations should require identification of those adverse or negative impacts caused by proposed development on existing public facilities and/or improvements, or on proposals contained in this Plan. The regulations should further provide measures to deal with such impacts. These include requiring easements, setbacks or other measures appropriate to mitigate or eliminate negative impacts and to further the goals and objectives of all the elements of this Plan.

7. A capital improvement program should be implemented to collect, analyze and tabulate all proposed capital projects affecting the Township debt capacity and the proposed schedule for such projects. It is strongly recommended that Township Committee consider having the Planning Board undertake this project as provided by the Municipal Land Use Law(see N.J.S.A. 40:55D-28) so that the governing body can be kept appraised of projects which can and will have a major impact on municipal resources.

Possible Sources of Support:

CCC	Cumberland County College
CCCHC	Cumberland County Cultural & Heritage Commission
CCDPD	Cumberland County Department of Planning and Development
CCHS	Cumberland County Historical Society
NJDCA	New Jersey Department of Community Affairs
NJDEP	New Jersey Department of Environmental Protection
OSP	Office of State Planning
SHPO	State Historic Preservation Office
	National Trust for Historic Preservation
APA	American Planning Association
	New Jersey League of Municipalities
	Conservation and Historical Organizations and Foundations
	Colleges offering programs in historic preservation

Chapter VI Circulation Plan

In essence, the Circulation Plan is concerned with the efficient movement of people and goods into, about, and through the municipality. It addresses all forms of transportation including air, water, road and rail. It is significant to this planning efforts that there are a number of existing conditions relating to the Deerfield Townships which directly impact traffic and transportation issues:

- The Township is centrally located within Cumberland County and between its two major urban areas: the cities of Vineland and Millville and the greater Bridgeton regional urban area. Being geographically centered has resulted in a number of County-wide facilities being located within the Township such as the County sanitary landfill, the 4H County offices and the Vocational Technical Educational Center. The community's major roadways also serve as links between these major urban areas and provide access to the county-wide facilities.

- Cumberland County's only limited access highway, Route 55, has two exits, each of which is only five minutes from the Township vis-a-vis the Township's two major arterial roadways, Landis Avenue, State Highway 56, and Sherman/Irving Avenue, Intercounty Route 552. Landis Avenue runs through the Town of Rosenhayn and Sherman/Irving Avenue through the village of Carmel thereby providing quick and easy connections for both centers to this major State roadway. Route 55 in turn, provides access both to the Philadelphia metropolitan region and south to the Bayside and seashore communities.

- The urban centers are the location of shopping, employment, entertainment, education, government and health services for the entire county. The Cumberland County College is located just east of Route 55 on Sherman Avenue in Vineland and this same vicinity has been chosen as the site the County's proposed new regional hospital. Within this same vicinity is the County's only regional shopping center and movie theater.

- The community master plan survey showed that 86% of the respondents to the community survey were employed outside the Township. Residents must travel outside the Township for shopping, entertainment, and a variety of other services.

The effect of these conditions has made the Township "the crossroads of County's urbanized area." The Township's proximity to Route 55 and the urban centers, and its geographic central location within the County makes its roadways critical for the movement of

people and goods. In large measure the roadways serve their purpose well although residents do experience problems at key intersections and along major roadways at various times of the day or week. The survey of residents had 12% of the respondents complaining of traffic congestion. This may seem to be overstatement but "traffic congestion" is a relevant concept. Waiting to make a turn or proceed after stopping at an intersection in a rural community like Deerfield Township is traffic congestion to local residents unaccustomed to such delay. Traffic engineers measure the level of service (LOS) of streets and intersections in order to determine how well they are functioning to handle traffic. The measurements run from level "A" when traffic flows freely and uninterrupted to level "F" characterized as forced traffic flow, substantially reduced traffic speeds, i.e., not at speed limit, and little or no freedom of maneuverability.

So to residents of rural areas having to wait even 30 seconds at a stop sign seems like congestion. But as growth continues to occur, as it inevitably will, traffic will increase along with congestion. This will offer a dual challenge to Township planners. First there is the need to assure that the road system can handle the traffic in an efficient manner. Secondly, wherever traffic flows there are created an attraction for business which is so important to the community's economic development. Given the high cost of and constraints on new roadway construction, it is imperative that land use decisions attempt to preserve and protect the carrying capacity of the existing roadway network as new roads are quite unlikely. Land use regulations must also be designed to allow controlled development to locate to benefit from the traffic flow along abutting roadways while attempting to maintain traffic movement on the adjacent roadway.

The Roadway Network

As of 1990, Deerfield Township had 4.8 miles of State highway, 36.4 miles of County roads, and 10.1 miles of local roads for a total of 51.3 miles which equaled 4.2% of all of the estimated road mileage in the County. The Township depends largely on its State and County owned and maintained roadways to handle the bulk of its road network.

The Federal Highway Administration provides functional classifications for roadways and Federal transportation funding for road improvements are limited to functional classifications of rural major collectors and higher. Rural minor collectors may be eligible under certain circumstances. These monies can be very important in terms making needed improvements. Part of the Township located south of Sherman/Irving Avenue, Route 552, and adjacent to the city of Millville are within the Federal Highway Administration's urban area boundaries. In 1976 the County categorized all of its roadways using this and the State guidelines.

As set forth in the County's 1991 ***Traffic and Transportation Plan Update***, prepared by the Cumberland County Department of Planning and Development, general definitions for each category within the functional classification system are as follows:

Freeway or Expressway - a roadway which has limited entrances and exists and which

provides a primary connecting link on a regional basis.

Principal Arterial - roads similar in function to freeways and expressways, but not having limited access.

Urban Minor Arterial/Rural Minor Collector -roads which interconnect with and augment the principal arterial system.

Urban Collector/Rural Minor Collector - roads spaced at intervals consistent with population densities which collect traffic from local roads, which bring all developed areas within a reasonable distance of a minor arterial/major collector road, and which links locally important traffic generators with rural areas.

Local Roads - routes which primarily provide access to individual properties.

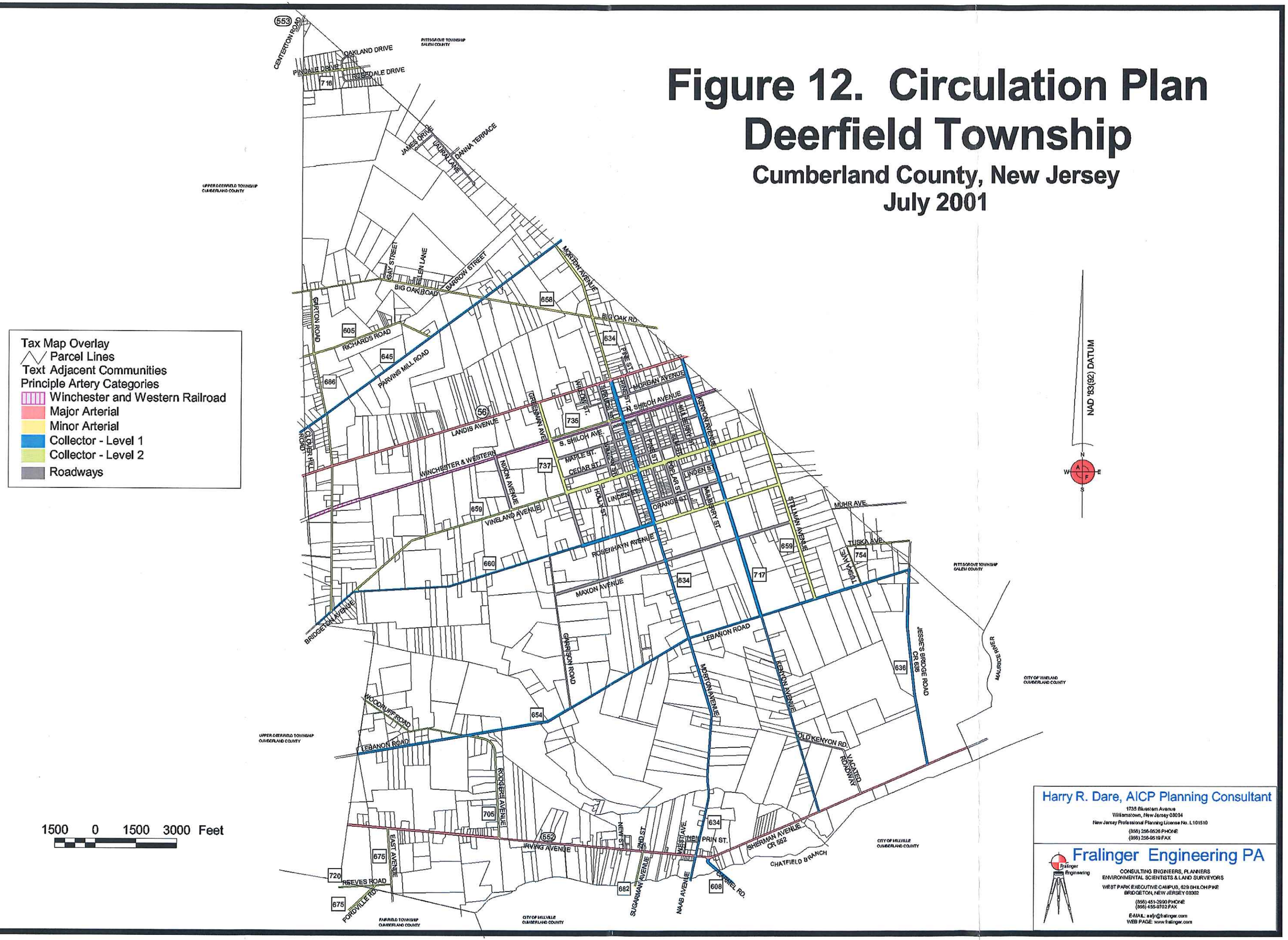
With these general statements in mind and using the **Circulation Plan Map, Figure 12,** the following is a brief description of the major roadways of the Township:

Beaver Dam Road, County Route 608 - Like Miller Avenue, this two-lane roadway has little mileage in Deerfield Township beginning in Carmel where Irving Avenue splits and proceeding southeast to Route 49 in Millville. It also has a Federal functional classification of urban collector and County classification of Collector - Level 1. The combination of Routes 552 and 608 along with Route 49 serves as the two major connections between Bridgeton with Millville.

Big Oak Road, County Road 658 - This is a major cross-County route beginning in Upper Deerfield Township at Route 77, south of Seabrook, and running southeast through Deerfield Township and Pittsgrove Township, Salem County, intercepting State Highway 56, Landis Avenue, just east of Rosenhayn in Pittsgrove Township. This two-lane road is classified as a minor arterial on the County Plan. It is largely bounded by residential and agricultural uses along most of its distance until east of Morton Avenue where residential, commercial and vacant lands are found. The intersection of Morton and Big Oak has been upgraded to a full signalized intersection. The area to the south of this roadway east of Morton Avenue is within the village of Rosenhayn. This roadway has significant east/west traffic including truck traffic between the Seabrook area and Route 77 to Vineland and Route 55. It has a very limited right-of way for most of its distance making its widening both difficult and expensive.

Bridgeton Avenue, County Route 666 - This roadway begins in Bridgeton at Route 77 where it is known as Rosenhayn Avenue and runs eastwardly through Upper Deerfield Township and into Deerfield Township where it becomes Bridgeton Avenue, and proceeds east ending at Kenyon Avenue in Rosenhayn. Within the Township this two-lane road carries a Federal functional classification of a rural minor collector from the Township border to Morton Avenue. That same stretch of road is classified a collector - Level 1 on the County Plan and from Morton Avenue to

Figure 12. Circulation Plan
Deerfield Township
Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L101510
(856) 256-0526 PHONE
(856) 256-0519 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2900 PHONE
(856) 455-9702 FAX
E-MAIL: arfy@fralinger.com
WEB PAGE: www.fralinger.com

Kenyan, Collector - Level 2. The County Vocational Technical Education Center and 911 Emergency Management Center are located on this roadway making it a commuter road. The land use along this roadway is residential with agriculture, public and some industrial uses in the town of Rosenhayn.

East Avenue, County Route 675 - Located in the southwestern corner of the Township, East Avenue is one roadway which makes up County Route 675 running from Route 49 in Fairfield Township north to Route 552. A two-lane roadway classified by the County Plan as collector - Level 2, it is bounded by residential and agricultural land uses.

Fordville Road, County Route 675 - This roadway, the other part of Route 675, has less than a quarter of a mile distance within Deerfield Township and is a two-lane roadway.

Garton Road, County Route 686 - Located entirely within the Township, Garton Road runs parallel to the Township boundary line with Upper Deerfield Township from Big Oak Road south to Bridgeton Avenue. North of Landis Avenue, the west side of the roadway is almost entirely residentially developed while the east side is a mix of residential and agriculture. At the intersection with Landis Avenue, there are several businesses on opposite corners. South of Landis to Bridgeton Avenue, the roadway has a mixture of residential and agricultural uses. The County Plan classifies the roadway as collector - Level 2 primarily because it links three major roadways and provides access to the Vocational Technical Education Center. Like all the roads in the Township it too is two lanes.

Greenman Avenue, County Route 737 - This rather short roadway begins to the north at its intersection with Landis Avenue and runs south through the western side of Rosenhayn to terminate at its intersection with Bridgeton Avenue. The County classification is Collector - Level 2 from Landis Avenue to Vineland Avenue. The roadway distance between Vineland and Bridgeton Avenues is classified as a local roadway and only slightly borders the town of Rosenhayn. There are considerable business, industrial, residential and agricultural lands along the road and a major industrial zone running adjacent to the rail line is located astride the roadway. This roadway is proposed to provide primary vehicular access to any industrial park or major development proposed for western Rosenhayn.

Jesse's Bridge Road, County Route 636 - This County classified Collector - Level 1 runs from Sherman Avenue, Route 552 north to its intersection with Lebanon Road, Route 654. From this intersection north, Jesse's Bridge Road is simply a local road which continues on into Pittsgrove Township. Except for its northern most sections where there is some residential development, this roadway is largely bounded by public lands on either side from Lebanon Road south to Sherman Avenue. The Cumberland County Improvement Authority's sanitary landfill entrance is from this roadway. The Landis Sewerage Authority owns most of the land along this portion of the road frontage and utilizes the lands on the east side for spray irrigation of treated sewage effluent from its sewerage plant in Vineland across the Maurice River.

Kenyon Road, County Route 717 - This is a major roadway connecting Landis Avenue, State Highway 56, with Sherman Avenue, Route 552 and running almost parallel with Morton Avenue. It too connects the centers of Rosenhayn and Carmel. The roadway is classified as Collector - Level 1. The roadway continues on north of Landis Avenue outside the Township in Pittsgrove Township where it ends intersecting with Big Oak Road. Within Rosenhayn the roadway serves commercial, residential and industrial uses. Between Vineland Avenue and Lebanon Road, it is largely residential with agricultural uses and a major industrial site. South of Lebanon Road, the road is largely residential with some wooded and agricultural lands. Due to its proximity to Sherman Avenue, this roadway is ideally suited to the location of planned business/industrial land uses. The intersection of Kenyon and Sherman Avenues is the end of the village of Carmel and the village's major business/industrial area is along its Westside. Like Morton Avenue, its major traffic use is to tie together the two arterial highways and connect the two centers, both of which make it suitable to such land use.

Landis Avenue, Route 56 - This two-lane highway runs from Carlls Corner where it intersects with State Highway 77 in Upper Deerfield Township, east through Deerfield Township, Pittsgrove Township, Salem County, and into the City of Vineland where it intersects Routes 55 and 47. The roadway bisects the Township so that approximately one-third is north of it. The highway has a Federal Highway Administration functional classification of a minor arterial and a major arterial on the ***1991 Cumberland County Traffic and Transportation Plan Update.*** It is the major route between Bridgeton and Vineland and the County Plan noted it had greater than 5,000 trips per day in 1991. From the border with Upper Deerfield Township for approximately two miles it has been historically the location of a significant number of highway businesses in Rosenhayn on into Pittsgrove Township and Vineland. The intersection of Morton and Landis Avenue is signalized with a three-way light. The high volume of traffic makes lands located along this route attractive to development. In order to maintain the carrying capacity of the roadway, it is recommended that only planned development be allowed to occur outside the town of Rosenhayn along this major traffic artery.

The roadway has a right-of-way of approximately 66 feet and there has been studied by transportation planning agencies on possible ways of improving the roadway possibly by widening it to four-lanes. It is conceivable that in the not too distant future expansion might be justified and cost effective although how many lanes would be created is debatable. Route 47 in Vineland was changed to provide three lanes with a center one for turns. This State highway offers the best, quickest and fastest way to obtain a higher volume route to Route 55 for western Cumberland County.

In June 1999, the ***Final Report for the NJ Route 56 Corridor Study***, prepared by McCormick, Taylor & Associates, Inc., showed that annual average daily traffic (AADT) volumes along NJ 56 ranged from 8,900 vehicles per day (vpd) in Upper Deerfield to 13,300 vpd in Pittsgrove Township approaching the NJ 55 Interchange. The study looked at the corridor to

propose growth scenarios. Deerfield Township was shown under a low growth scenario to have the potential of an AADT volume of 12,700 by 2017 and a high growth scenario of 17,600 along Landis Avenue. Big Oak Road was shown to have AADT volumes of from 3,200 to 6,800 in 2017 and Parvins Mill Road 2,400 to 2,600. A series of improvements ranges from short, medium to long term were recommended to deal with the increased traffic predicted and the inadequacies of this road to handle such traffic.

Lebanon Road, County Route 654 - This County classified Collector - Level 1, a two-lane roadway begins at Jesse's Bridge Road in the eastern portion of the Township and runs east through the Township into the southern Upper Deerfield Township where it connects with Irving Avenue, Route 552. From the Township boundary with Upper Deerfield to Rogers Avenue, there is considerable residential land use. Beyond Rogers Avenue heading east, the road is bounded by agricultural and some residential development to Kenyon Road. From Kenyon Road to Jesse's Bridge Road, There is industrial and residential development with vacant land on the south side of the road which is owned by the Cumberland County Improvement Authority and which is adjacent to the landfill site. This vacant land is suited to industrial/business use. This roadway serves as the southern boundary of the town of Rosenhayn and intersects with Morton, Kenyon and Stillman Avenues and Jesse's Bridge Road.

Miller Avenue, County Route 634 - Miller Avenue begins in Millville at Route 49 and runs north to its intersection with County Route 552 in Carmel. This intersection has full three-way signal. North of Route 552, 634 becomes Morton Avenue. It is a two-lane roadway with little mileage in Deerfield Township. It is classified as an urban collector like Route 552 and as a collector - Level 1 on the County Plan. To the south, the road leads to Route 49 in Millville.

Morton Avenue, County Route 634 - Morton Avenue can easily be considered "Main Street Deerfield Township" as it connects the two arterial roadways, Landis and Sherman/Irving Avenues and the Township's two centers. It begins at the intersection of Route 552 and Miller Avenue, also Route 634, and runs north through Rosenhayn into Pittsgrove Township and terminating at its intersection with Centerton Road, County Route 553. Although basically a two-lane road for its entire distance from Landis Avenue south to Bridgeton Avenue in Rosenhayn, the road right-of-way is 132 feet wide, having been laid out that way at the town's conception. Through the centers of Carmel and Rosenhayn the roadway is abutted by public, business, and residential uses. Outside the centers, abutting land use is wooded, agricultural or residential. The Township school is located on Morton Avenue in Rosenhayn and the County 4H Center is located on it between Rosenhayn and Carmel. Its Federal functional classification is a rural major collector between Landis Avenue and Route 552 while the County Plan classifies it as a Collector - Level 1. North of Landis Avenue the road is classified as a Collector - Level 2.

Parvins Mill Road, County Route 645 - This roadway begins in the Woodruff area of lower Upper Deerfield Township at its intersection Landis Avenue and runs diagonally in a northeastern direction across the Township into Pittsgrove Township where it intersects with County Route

540 and proceeds on to Willow Grove near Route 55. The roadway is classified as a County Collector - Level 1 since it moves traffic across the Township toward north Vineland. The roadway is primarily residential and agricultural. It intersects Garton and Big Oak Roads and Morton Avenue.

Pindale Drive, County Road 715 - This primarily residential street runs from Centerton Road, Route 553, in Upper Deerfield Township, east through Deerfield Township into Pittsgrove Township. It is classified as Collector - Level 2.

Reeves Road, County Road 720 - This County Collector - Level 2 connects East Avenue and Fordville Road. The road runs between East Avenue and Burlington Road, County Road 553 in Bridgeton. Its short distance within Deerfield Township is largely agricultural in land use.

Rogers Avenue and Woodruff Road, County Route 705 - These two roads comprise a County Collector - Level 2 which connects Route 552 with Route 553 in Upper Deerfield Township. Rogers Avenue begins at Route 552 east of Carmel and runs north and northwest to its intersection with Lebanon Road. The roadway is bounded almost entirely by residential land use. At the Lebanon Road intersection the roadway becomes Woodruff Road north into Upper Deerfield. Land use along this portion of Route 705 are residential, wooded and agricultural.

Sherman/Irving Avenue, County Route 552 - This is a two-lane County roadway beginning in Bridgeton as Irving Avenue and running east through Upper Deerfield Township then Deerfield Township through the village of Carmel where it intersects with Morton Avenue and Miller Avenue. Slightly beyond that intersection the roadway forks with Route 552 becoming Sherman Avenue east into and through Vineland where it too intersects with State Routes 55 and 47. The roadway was improved considerably in the early 1990's for its entire length from Bridgeton through South Vineland on into Mays Landing, Atlantic County, to serve as a commuter route between the areas. The southern fork of the roadway becomes Beaver Dam Road and leads into Route 49 in Millville. It is the main street of Carmel. It has a Federal functional classification of a rural major collector until it reaches the boundary of the aforementioned urban area boundary where it is classified as an urban collector. The County Plan shows it as a major arterial. Land use along the roadway is a mixture of residential and agriculture west of Carmel, residential and commercial in Carmel, and public lands east of Carmel. Recent traffic counts have shown this roadway to be one of the heaviest traveled roadways in the Township (See **Table 7**).
It serves as the east/west axis of the village of Carmel.

Shiloh Avenue, County Route 735 - This road is actually two roads which run along both sides of the rail line within the town of Rosenhayn and is locally known as North Shiloh and South Shiloh Avenues. Those portions of these roads running between Greenman and Morton Avenues are classified as a County Collector - Level 2. That portion east of Morton Avenue running into Pittsgrove Township is classified as a local street. The varied and mixed land uses of the town are located along this route from industrial, business and residential to public lands.

Stillman Avenue, County Route 659 - Within the Township, this roadway runs from Lebanon Road north to Vineland Avenue, also part of County Route 659, and is classified as a County Collector - Level 2 for this entire distance. The roadway does continue on north into Pittsgrove Township. Land use activities are a largely residential and agriculture along its entire route. It lies to the east and just outside the town of Rosenhayn.

Sugarman Avenue, County Route 682 - Sugarman Avenue begins in Carmel at Irving Avenue, Route 552, and runs south into Millville and ends at its intersection with State Route 49. It is classified as a County Collector - Level 2 and runs parallel with Miller Avenue which also connects the same two roadways. The land use is public and residential within Deerfield.

Tuska Avenue, County Route 754 - This L-shaped roadway runs from Lebanon Road north making a right turn southeast and continues across the Township border with Pittsgrove Township and intersecting with Jesse's Bridge Road. It is also a County Collector - Level 2 and has mixed land use including residential, agriculture and some industrial activities.

Vineland Avenue, County Route 659 - As noted above, this roadway is the continuation of Route 659, runs west from Stillman Avenue through the Rosenhayn and finally intersecting with Bridgeton Avenue near the western boundary of the Township. The entire length of Route 659 is classified as a County Collector - Level 2. From Stillman Avenue to Greenman Avenue, this roadway has a variety of land use activities to be expected within a town including residential, business, industrial and public. From Greenman Avenue to its intersection with Bridgeton Avenue it is largely agricultural and wooded with some residential and public lands including the County Fire Academy. It runs parallel to Bridgeton, Shiloh and Landis Avenue providing a major east-west corridor for traffic, especially that running from Rosenhayn to Bridgeton.

Table 7 gives Cumberland County's most recent traffic counts data relevant to the Township for a number of locations along the major roadways cited above. There do not appear to be any major transportation or traffic problems within the Township at this time although traffic safety at intersections and along collector roads which have been allowed to developed with housing raises concerns as traffic volumes increase. Special land use planning techniques need to be implemented to stop strip development of major roadways and reduce the access points along them. Additionally, the current trend of developing only the roadway frontage of deep properties should be prevented by requiring that prospective developments along such roadways provide detailed site planning to show access to the rear of properties and prevent the preclusion of further development or under use of land. Shared access through dedicated streets and reservation of future rights-of-way should be encouraged.

Local Streets - All other roadways in the Township are classified as local streets. Most of them are to be found in around the centers of Rosenhayn and Carmel. Rosenhayn was laid out by its founder in a classic gridiron pattern. This gives a specific character to the town especially with its 132-foot main street, Morton Avenue, running through the middle of it. The flat landscape would

encourage that the gridiron street layout be continued as the town grows. This historic street pattern has defined the character of Rosenhayn and even some major streets like Maxon Avenue is a paper street for a portion of its distance but continues the gridiron pattern. In specific small developments, curvilinear streets designed to serve the limited needs of the structures located on it such as a residential cul-de-sac can offer diversity to this pattern and should be allowed. The entire design of this existing town is set by its longstanding street pattern. It is a classic colonial layout which can be seen in Philadelphia, Savannah, GA, New York as well as any number of southern New Jersey communities.

It is with the local streets within the centers that local planning policies can have major impact on defining and preserving the character of the center. The New Jersey State Development and Redevelopment Plan[1] notes a number of recommendations regarding the design of streets and blocks including:

- Maximizing connectivity - that is provide connections wherever possible to make movement easy into and around the center.
- Establish a comfortable pedestrian environment - sidewalks, shade trees, curbing to define pedestrian areas, street furniture and buildings oriented to pedestrian perspective.
- Let streets and blocks function as high quality public spaces as well as means of transportation - make them fit into the center, and is not separate from it.
- Serve the needs of everyday users (cars, pedestrians), rather than occasional users (fire trucks, snow plows).
- Minimize cartway width and impervious coverage, while maximizing energy-efficient building sites;
- Reflect adjacent land use conditions as well as the volume of traffic which the street is expected to carry.

---

[1] **New Jersey State Development and Redevelopment Plan, October 25, 2000,** pp. 151-152 and 159-160.

Table 7. Cumberland County Road Traffic Counts Within or Near Deerfield Township, 1998

County Road Name	No.	Municipality	Nearest Location	Date	SB/WB	NB/EB	Time	SB/WB	NB/EB	Time
Big Oak Road	658	Deerfield	West of Morton Avenue	9/15/98	96	76	7:35 A.M.	92	136	2:45 P.M.
Big Oak Road	658	Deerfield	East of Morton Avenue	9/15/98	98	81	6:45 A.M.	84	122	3:35 P.M.
Bridgeton Avenue	659	Deerfield	W. of Greenman Avenue	9/03/98	40	36	7:15 A.M.	113	103	3:15 P.M.
East Avenue	675	Deerfield	0.3 mi. S. of Rt. 552	9/08/98	59	107	7:30 A.M.	109	96	3:30 P.M.
Fordville Road	675	Fairfield	0.6 mi. N. of Rt. 49	9/15/98	69	70	7:15 A.M.	8	102	3:30 P.M.
Greenman Avenue	737	Deerfield	0 .2 mi. N. of Cedar St	9/03/98	8	8	10:30 A.M.	16	11	1:30 P.M.
Irving Avenue	552	Bridgeton	W. of Sherman Ave.(Rt.552)	9/08/98	257	277	7:30 A.M.	375	310	4:14 P.M.
Sherman Avenue	552	Bridgeton	W. of East Avenue(675	9/08/98	234	309	7:45 A.M.	317	304	4:15 P.M.
Sherman Avenue	552	Deerfield	W. of Kenyon Avenue	9/17/98	488	355	7:30 A.M.	513	577	4:15 P.M.
Sherman Avenue	552	Deerfield	E. of Jesse's Bridge Rd.	9/17/98	487	386	7:30 A.M.	551	587	4:15 P.M.
Richards Road	605	Deerfield	E. of Woodruff Road	9/03/98	12	13	10:45 A.M.	18	14	6:30 P.M.
Nabb Avenue	634	Deerfield	So. of Sherman Avenue	9/15/98	54	36	7:30 A.M.	46	39	3:15 P.M.
Morton Avenue	634	Deerfield	So. of Landis Avenue	9/08/98	130	104	7:15 A.M.	113	148	4:15 P.M.
Morton Avenue	634	Deerfield	N. of Big Oak Road	9/15/98	78	107	7:00 A.M.	120	98	4:15 P.M.
Parvins Mill Road	645	Deerfield	So. of Morton Avenue	9/15/98	81	61	7:15 A.M.	91	82	4:00 P.M.
Lebanon Road	654	Deerfield	W. of Jesse's Bridge Road	9/15/98	102	67	7:15 A.M.	83	101	4:15 P.M.
Rogers Avenue	705	Deerfield	0.1 mi. E. of Lebanon Road	9/03/98	49	84	7:15 A.M.	88	74	4:30 P.M.
Kenyon Avenue	717	Deerfield	0.2 mi. N. of Sherman Ave.	9/17/98	46	57	7:15 A.M.	74	71	3:45 P.M.
Kenyon Avenue	717	Deerfield	0.1 mi. S. of Landis Ave.	10/20/98	102	88	7:15 A.M.	115	96	4:00 P.M.
W Rosenhayn/ Vineland	659	Bridgeton	0.6 mi. W. of Burlington Rd..	9/03/98	167	155	7:45 A.M.	198	236	3:45 P.M.
"	659	Deerfield	0.1 mi. W. of Bridgeton Ave.	9/03/98	98	63	7:15 A.M.	113	103	3:15 P.M.
"	659	Deerfield	W. of Morton Ave.	9/03/98	69	47	7:45 A.M.	80	72	3:15 P.M.
Sugarman Avenue	682	Millville	0.4 mi. N. of Route 49	9/15/98	36	34	7:30 A.M.	33	35	3:15 P.M.
Jesse's Bridge Road	636	Deerfield	S. of Lebanon Road	9/15/98	56	64	8:15 A. M.	62	69	5:00 P.M.

Source: Cumberland County Department of Planning and Development

Within Carmel, there are only several short local streets. Most development is located along Route 552 with there also being deep lots on both sides. The village is bounded by the Lebanon and Chatsworth Branches which preclude much additional growth. There appears sufficient area to allow some growth behind the development along 552. Care should be taken to assure that new streets can interconnect or are limited in both length and number of lots able to be developed to assure public safety with regard to access.

There are no bicycle paths or bike ways within the Township and sidewalks or pedestrian paths are not provided within the two centers. Sidewalks or pedestrian walkways of some type, e.g., asphalt, wood chips, cement, or other material would do much to reduce traffic within the village and provide a means of movement within the centers. The survey of residents noted the lack of sidewalks and the dangers of riding bikes or walking in many of the municipality's roads. Given that most of the major roads in the Township are designed to serve as arterial or collector roadways, no sidewalks or marked bikeways, would be dangerous for cycling or walking. The **Recreation Plan** recommended that the pedestrian paths and/or bikeways be developed to connect recreational and conservation/open space areas with the centers.

Rail Line

The Township is very fortunate to have the Winchester and Western rail line running entirely through it as it connects Bridgeton and Seabrook to the west with Vineland and the mainline of Conrail. The rail line runs parallel with Landis Avenue running through the middle of Rosenhayn. One major industry has already located along this line and as noted above, the Township has a major industrial zone located along the line in the western portion of Rosenhayn. The rail right-of-way is 100 feet wide as it enters the Township from Upper Deerfield, but approximately 750 feet east of Garton Road the right-of-way narrows to 66 feet for the remainder of its run through the Township. It has one track which is maintained by the short line, Winchester and Western Railroad, which operates most of the Conrail abandoned active rail lines in the County. The line is very important to local industry including agriculture since food processing plants in Bridgeton and Seabrook depend on it for transport of supplies and product.

Public Transportation

Almost eighty-six percent of the Township's workforce according to the 1990 Census uses private vehicles to travel to work. Only 3.4% indicated they used public transportation. There is no form of public transportation serving the Township although the Cumberland County Office on Aging operates senior citizen mass transit vehicles throughout the County. Car pools were used by 14.4% of the workforce according to the 1990 Census. Major employers within the County and the casino industry in Atlantic City probably account for most of these commuters.

Air

There are no airports within the Township. There is a small local airstrip located in the Woodruff area of Upper Deerfield Township on Parvins Mill Road near its intersection with Landis Avenue. The Millville Municipal Airport is the only facility with paved runways and located southeast of Carmel.

Traffic and Growth Issue

To date Deerfield Township has not experienced serious traffic congestions although its major roadways are experiencing higher traffic volumes. Major intersection improvements have been carried out by the County as set forth in its traffic Plan. Discussions with the Township officials have not identified any specific problems in need of immediate attention. Rather the traffic situation seems to be more concerned with the impact of land use decisions on the area's roadways and addressing them. This requires careful drafting of zoning regulations and land use decision that take into account the effect development will have on the community's roadways and address them. The following issues related to traffic and growth are important to note for monitoring and consideration as this Plan is implemented:

Route 55 Impact - Since the late 1980's there has been a major concern over the impact the construction of Route 55 would have on Cumberland County. Three major studies have been undertaken to assess this issue and determine how to finish the highway's final connection to the Jersey shore. The first study, ***Route 55 Impact Study Cumberland County 1988*** was prepared by the Cumberland County Department of Planning and Development. Its findings concerning the impact at the two interchanges that would most directly affect Deerfield Township, Landis Avenue and Sherman Avenue found minimal impact primarily due to the lack of amenities for large scale development within the Township as opposed to Upper Deerfield or Vineland in the case of the Landis Avenue exit and environmental restrictions and the little amount of land available in the western part of the intersection of Sherman Avenue and Route 55 preclude growth from spreading west from this exit into Deerfield Township and Millville. Although the report found major impact on the County and especially Vineland, Deerfield Township did not seem to be in harm's way.

The next report, ***Route 55 Impact Study, 1992 Follow-up Analysis***, also prepared by the Department, again found that most of the significant impact of the highway had been within a two-mile corridor of the highway and largely confined to the Vineland/Millville area. Deerfield was seemingly untouched although a 24-hour traffic count on route 552, Sherman Avenue, west of Route 55 showed 9,144.

In November 1998, consultants were hired by the South Jersey Transportation Planning Organization to prepare ***Shore Connection Committee Report, Route 55/47 Corridor Transportation Study***. This report's main aim was to look at the problems in the corridor and come to agreement on a solution or range of solutions that could advance in the project development process. The improvement program developed focused "on two main areas:

operational improvements proposed to increase the efficiency and maximize the capacity of the existing system, and capital improvements proposed to supplement or enhance the system and add capacity." In essence, the report identified how to improve existing roadways and make maximum use of them to handle shore traffic, and then offered a number of capital improvements to the existing system including the Route 55 freeway.

In large measure, Deerfield Township has not been significantly impacted by Route 55 with the exception of increased traffic along Route 56 and Sherman/Irving Avenue. In the 12 years since the first study was completed, no major development activity has occurred west of the Maurice River which can be identified as stemming from Route 55's existence. Is the Township safe or is it only a matter of time before sprawl's incessant and slow creep will make an impact? Gloucester County to the north has certainly seen impacts and the Vineland/Millville area have substantial impacts within the 2-mile corridor of Route 55. So is a jump over the Maurice River into the Township imminent or possible? And if so, when might it occur?

The answers to these two questions are respectively, yes probably and within the next five to ten years. The Township's open farmland is less desirable than it once was for agriculture, and area farmers are being approached potential buyers of their land for eventual development. Even without "major outside developers" the exiting land use pattern clearly shows the spread of residential development into the traditionally farming areas of the Township. The impact of several large scale developments occurring within these areas could and would significantly alter the face of the community. This is why prudent planning is called for to direct new development into the centers and special planning areas appropriately deemed to be historically or geographically suited to receive such growth without unduly burdening the Township's overall character or natural and manmade resources.

Centers'Traffic Safety - Both Rosenhayn and Carmel as noted above have major traffic arteries passing through them and these same major roadways serve as the main streets of the two centers. As the centers grow and developed, as encouraged by this Plan through centering new growth into these centers, more conflicts will arise with regard traffic. Commuter or pass through traffic will be slowed by local traffic. Concern over this was expressed in the study of the Route 56 corridor. New growth along Landis, Sherman/Irving and Morton Avenues, will require that traffic and safety improvements be put in place especially at intersections. Lane channelization at intersections, traffic signals, signs, driveway improvements, limited access and pedestrian crosswalks and walkways will be required to address these issues.

Truck Traffic - The Township is home to several major trucking companies which increases the truck traffic within the Township. Their impact is felt especially on the major routes of the Township leading to and from Route 55 and along the major collector roadways serving Township industry especially Morton, Bridgeton, and Kenyon Avenues. They are important parts of the community's economics and must be considered when determining how to best handle the traffic generated on local roadways. As residential development increases and the centers grow to

absorb new development, traffic conflicts will begin to arise between truck and passenger vehicles.

The Cumberland County Improvement Authority did a study concerning the movement of trucks to and from its landfill on Jesse's Bridge Road after complaints by residents of increased truck traffic and litter resulting from these vehicles. Designated routes were identified throughout the County for use as hauling routes to the County landfill as part of that study to reduce noise and ease congestion on Township roadways. The Cumberland County Solid Waste Management Plan was amended in 1986 to require that all commercial solid waste hauling vehicles must utilize these transportation routes when utilizing the Cumberland County Solid Waste Complex. Within the Township designated routes were Kenyon and Sherman/Irving Avenues and Jesse's Bridge Road.

Anticipated industrial growth along with the overall increase in traffic as projected may require that the Township to consider designated truck routes as well to avoid traffic congestion and protect the centers and rural areas from unnecessary truck traffic. To date existing major trucking operations within the community are located on major traffic arteries and have not caused any traffic problems.

Preservation of the Rail Line - The Township must remain vigilant to assure that the rail line remains and operable as it serves as a very valuable asset in terms of economic development. Local officials and planners are encouraged to become active in transportation planning activities and maintain ongoing contact and dialogue with the rail operators. The fact that the rail line was almost lost when Conrail abandoned it, serves as notice as to how fragile the continued existence of this mode of transportation has become and yet how important it still is.

Strip Development - The **Existing Land Use Map, (Figure 7)** clearly demonstrates the pattern of development, especially residential development, along the major County roadways which are as noted above the very roads designed as collectors and arterial roadways intended to efficiently move traffic through and around the Township. Every new driveway represents another "intersection" being created along these roadways. As this type of development is allowed to continue then these collector roads become "residential streets." This results in calls for lower speed limits, more obstacles for moving traffic to be concerned with, and the loss of the roadways efficiency and capacity. Controlling this phenomenon is difficult since it requires stricter land use regulation and makes development more costly. But then the alternative, new roads, are expensive either. Reverse frontage, marginal access streets, limited access, larger lot frontages along major roadways, and construction of new local streets should be required to minimize the impact new development has on roadways.

Recommendations:

1. Township planners need to be actively involved in monitoring transportation issues within

placement and overall development design criteria.

5. Development within the centers of Rosenhayn and Carmel should require that an appropriate scale of development be maintained which is consistent with the community and its land use. Site design requirements should be implemented which make sure the new development will blend into the center and be "user friendly" to its residents with regard to traffic. Provision of pedestrian and bicycle traffic should be promoted. Again, lot coverage, landscaping, development scale and buffering will be critical issues in need of tight regulation.

6. Commercial and industrial development throughout the Township should be regulated to assure appropriate scale and/or assuring that such land use activities fit into their surroundings whether that be a center or rural lands outside designated for such uses. Again, planned-typed developments such as industrial, business or office parks, planned commercial centers, or interrelated land use activities adjacently located are recommended.

7. New roadways' construction within the centers should maintain existing patterns of road layouts with particular attention to the town of Rosenhayn with its gridiron design.

8. Provision for pedestrian and bicycle traffic should be required within and between the centers and open space and/or recreational areas of the community.

9. Periodic, professional review of traffic conditions should be carried out to monitor the community's growth and regional traffic's impact upon Township roadways, intersections and overall traffic safety. Such reports should identify specific problems, propose improvements and identify responsible agencies and funding sources.

10. In developing regulations for the Township's two centers utilize the policies of the State Development and Redevelopment Plan to assure that circulation is maintained for types of traffic and is cognizant of its surroundings, i.e., the centers. Good circulation planning can greatly enhance the quality of life within a village, town, neighborhood, and community. Ease of access, a feeling of safety and belonging, and the recognition of place by the traveler, regardless of transportation mode, defines a community with a sense of place, not just a blur along the road.

Possible Sources of Support:

CCDPD	Cumberland County Department of Planning and Development
CCDE	Cumberland County Department of Engineering
NJDOT	New Jersey Department of Transportation
OSP	Office of State Planning

Chapter VII Utility Services Plan

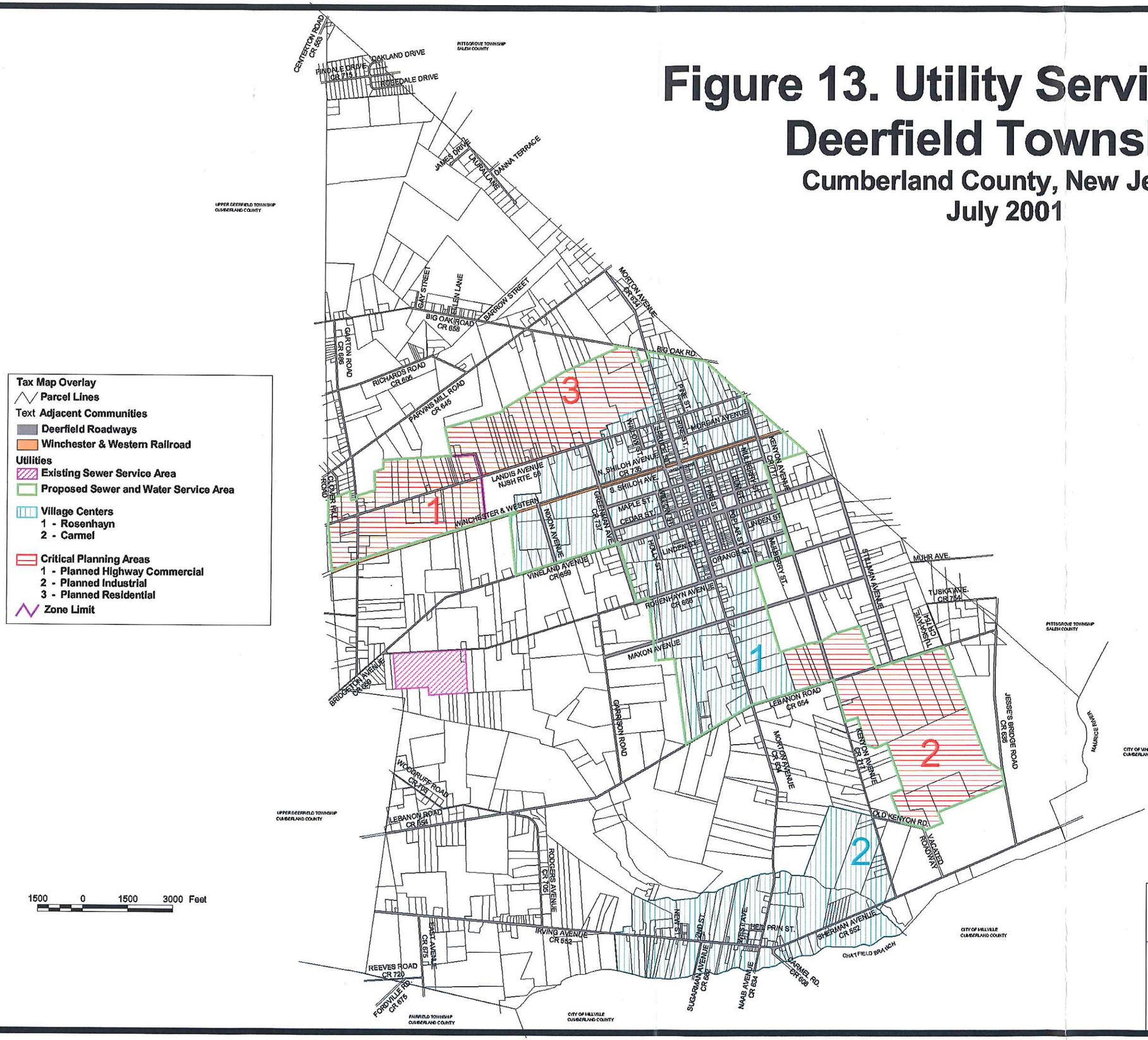
As defined in the Municipal Land Use Law, the utility services plan of a master plan analyzes the need for and shows the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provisions for other related utilities, and including any storm water management plan required by N.J.S.A. 40:55D-93 *et seq.* This element of the master plan is, as noted, "general" in terms of locations and needs. It is intended to identify the need for specific utility facilities in coordination with land use activities existing or proposed.

The communities of Rosenhayn and Carmel are identified as centers on the State Plan and as such, have traditionally had denser development than surrounding rural areas. Under the State Plan, such centers are recommended to receive higher density development in an effort to curb urban sprawl and protect rural (including agricultural lands) and environmentally sensitive lands. Without public potable water supply or sanitary sewers such higher density is not easily accomplished. The ability to receive and support development becomes key to the planning objective of centering development. For this reason the **Utility Services Plan Map, Figure 13,** identifies the town of Rosenhayn and the village of Carmel as within the public sewer and water service areas. The Plan also identifies three critical planning areas for both sewer and water service areas due to special circumstances. These areas with their existing natural conditions and land use patterns, proposed channeling of planned development, and expected growth, require that either or both public sanitary sewer and potable water supply be provided.

With the exception of that area identified as part of the area along Kenyon Road, the village of Carmel bounded as it is by two major streams would be difficult and expensive to provide with sanitary sewer lines. In the absence thereof, the village should be considered for the provision of an independent water supply system. The provision of a public sanitary sewer system line to Carmel would probably be quite expensive due to environmental constraints. The village is partially encircled by the Lebanon and Chatfield Branches and their wetlands. A public potable water supply system sized for a village would be feasible since it would not have to deal with these constraints. Such a system would allow this center to receive limited development by permitting higher residential densities like small scale developments of multi-unit housing like duplexes. Such densities are necessary to provide a variety of housing options and price ranges.

Provision of a public water supply system would also permit the village to have limited commercial and/or industrial activity commensurate with its size and environmental constraints.

Figure 13. Utility Services Plan
Deerfield Township
Cumberland County, New Jersey
July 2001



Harry R. Dare, AICP Planning Consultant
1735 Bluestem Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L101610
(856) 256-9635 PHONE
(856) 256-8619 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 629 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2990 PHONE
(856) 455-9702 FAX
E-MAIL: salyj@fralinger.com
WEB PAGE: www.fralinger.com

Food and lodging establishments, professional office complexes, and personal service facilities demand higher volumes of safe water supplies and would ideally be located within the village to serve both it and it environs as well as the traveling public.

Provision of a public water supply system would eliminate the concern over location of on-site septic systems and wells, provide a land use-sized specific water supply, and return 75% of the water withdrawn to the aquifer. Planning for such a system would make the village a true center and could be sized appropriately to address the town's natural limitations for development.

Within the town of Rosenhayn and the three identified critical planning areas existing land use and proposed centering of expected and/or proposed new growth require that public sanitary sewer and/or potable water supply systems be installed. Rosenhayn already has a variety of land use activities located on lots too small to meet current regulations regarding on-site septic and well placement. The 1990 Census tract for the town showed a total of 358 housing units, with 320 being single-family, detached units, three one-unit attached, 31 two to four units, and four mobile homes, trailers or other. The town is also the site of considerable commercial development, public and quasi-public buildings, and industrial activities.

Since all sanitary waste is disposed of through on-site septic systems and regulations require they not be closer than 50 feet to any other septic system, the potential for problems is considerable. Antidotal information would indicate that within Rosenhayn many systems do not meet that standard. Further restricting the centered development approach is the distance requirement for the placement of potable water wells from septic systems. The existing quarter acre lots or less in some cases, of Rosenhayn cannot meet these health standards.

Where these systems' close proximity occurs, problems do exist and repairs are required to the septic system, perhaps more often than recognized. The health regulations permit them so long as the situation is not made worse than it was. Repairs may be necessary because the system has in some fashion failed, or because the property owner wishes to enlarge the structure requiring an improved or enlarged system. County Health officials note that most repairs to septic systems in this development pattern represent a "failing system." Although the goals of centered development are worthy, the techniques used to attain them are not always possible. The higher densities to accommodate new growth on less land, allowance for a variety of housing options to encourage affordable costs, and the prevention of sprawl into the rural and rural/environmentally sensitive areas of the community, do not work without public utilities.

Until the community can obtain either public sewer and/or water for its centers, the Plan's call for centered development will be difficult to achieve given the various other planning goals to be achieved. Provision of affordable housing is very difficult to achieve without allowing a variety of housing types from apartments and multi-family dwellings to mobile home parks. The need for ratables encourages more businesses to share in the cost of municipal services. Protection of the environment and preservation of open space, sensitive lands and farmland requires

accommodating other land uses in less of the municipality's area. The Utility Plan proposes areas deemed suitable for provision of the public sewer and/or water and recommends that higher density and intensity development be channeled into these areas. But the utilities must come first as the regulations and environmental conditions do not permit such densities or intensities of use. Future land use planning must recognize the need for attaining some of the above-mentioned goals, but may not be able to deliver them. Permitting a mobile home development in the regulatory process does not mean it can be built.

With these difficulties understood, the Plan also identifies three areas outside the two centers for proposed for provision of either sanitary sewer and/or portable water supply systems. Their inclusion for future provision of utilities is based on existing conditions including existing land use patterns or activities, and/or proximity to the centers and major highways. For these reasons they are referred to as "critical areas."

Critical Planning Area No. 1 is the existing and historic highway business district along Landis Avenue, Route 56, between the Township boundary with Upper Deerfield and running east approximately three-quarters of a mile. Existing in this stretch of Route 56 are a variety of businesses including nursery and landscaping supply operations, bars, a bowling alley, car sales and repair and a well drilling company headquarters. The **Future Land Plan** proposes allowing most this area of the highway business to continue although through regulations and incentives requiring and encouraging better use of the land to limit its impact on the highway and prevent further spread of such activity to other roadways. This will require that more planned typed development be encouraged including small strip malls and better use of the rear areas of existing commercially utilized properties. Such activity would also encourage higher density and possibly require public sanitary sewer and/or portable water supply in the future to keep such commercial use from spreading along the full highway or onto other roads of high traffic volumes.

Critical Planning Area No. 2 involves the existing business activities and the County sanitary landfill in the Kenyon and Lebanon Road area of the Township southeast of Rosenhayn. The County landfill already is permitted to truck its leachate to the Cumberland County Utilities Authority treatment facility in Bridgeton. A major vegetable processor is also located in this area and similarly produces considerable effluent from its operation. This area is proposed for sanitary sewer and/or portable water supply to address the existing needs and sewer service activity (by CCUA). Additionally, the Future Land Use Plan has identified land adjacent to the County landfill as ideally suited to agricultural commercial and industrial activity. The presence of an existing plant and proposals for other agriculturally-related business uses may require the provision of a sanitary sewer.

Critical Planning Area No. 3 is located between the town of Rosenhayn and Critical Planning Area No. 1 largely along the north side of Landis Avenue, Route 56 and a small section of the south side as well. The area is currently zoned for commercial and industrial use which is feared will result in strip business activities along the entire highway frontage. To the north Area

No. 3 is bounded by Lummis Branch which makes it unsuitable to intense commercial or industrial development. It is therefore, identified as a critical planning area and proposed on the **Future Land Use Plan, Figure 14**, for planned residential development. The objective is to encourage residential development of a planned variety which might allow for some commercial activity sized to serve the needs of development. Cluster, planned unit residential development (PURD), some mixed use development, or perhaps a planned mobile home developments are considered suitable land use activities. To accomplish this type of development would require that public sanitary sewer and/or portable water supply be provided. This area appears to be under threat of development and it's a logical area for future town expansion.

It should be noted that a very probable way of providing sanitary sewer service to Deerfield Township is offered by the Cumberland County Utilities Authority by a connection running along the rail line. The **Plan** proposes that Deerfield Township be added to the Cumberland County Utilities Authority service area and that the County's planning for Deerfield Township be amended to so authorize the same. Should this come to pass and a line is built, these areas would be in close proximity to it and give the Township and other regulatory agencies considerable control of when, how and what type of development proposal is eventually allowed to connect. This **Plan** is proposed to look out 20 years and to offer a guide and vision of how the community might develop in that time frame. Without such planning, there will be no way of controlling what happens.

Unless and until public sanitary sewer and/or potable water is provided to these specific areas, land use activities will be limited in terms of density and intensity of use. Minimum lot size within the Township will have to be one acre to comply with the need for on-site sewer disposal and water supply. Development regulations should identify anticipated land use activities within these areas when and if, a sanitary sewer is provided. Until that time land use activities will have to be "low-intensity" which under current N.J. Department of Environmental Protection regulations refers to developments of less than six residential units or less than 2,000 gallons per day of discharge to ground water. Any development exceeding this limits would require a consistency review.

Water Supply

As noted, the Township currently depends upon individual on-site wells for potable water supplies. These wells are drilled to depths of 75 to 150 into the Cohansey-Kirkwood aquifer which supplies most of the Township's water needs. The ***New Jersey Statewide Water Supply Plan, August 1996*** notes that the Maurice River Watershed, identified as Watershed 21, encompasses the Maurice and Cohansey River watersheds and includes an area of 605 square miles that takes in portions of Cumberland, Gloucester, Salem and Atlantic Counties. It receives nearly all of its average 63 MGD withdrawal from ground water supplies. In 1990, that supply represented a 9-MGD deficit in the calculated net estimated water supply, 54 MGD. The State Plan warns "[t]he challenges facing planning area 21 should be to determine if ground water

optimization schemes can resolve potential water supply problems . . . Ground water is available in the planning areas; however, it must be developed strategically. Depletive water use and stipulated withdrawals could also continue to challenge planning area 21."

The Maurice River Watershed is currently considered to be in a deficit because as the State Plan notes there are no surface water storage (and therefore no safe yield) and because ground water use exceeds the estimated total available ground water supply of 54 MGD. Part of the Watershed deficit stems from the diversion of some its supplies to both Camden and Gloucester Counties and for considerable agricultural use. State Plan projections show the deficit growing with demand to - 18 MGD in 2010 when demand is 72 MGD and to - 23 MGD when demand is projected to reach 77 MGD in 2040. This raises a serious problem for the communities within the watershed since the N.J. Department of Environmental Protection is anticipating promulgation of procedure which would allocate water supplies among the various major users.

Tentative proposals for managing water supply by the Department involve identifying through geologic and surface flow data the water needed to maintain the basin's ecosystems, farming, and in the case of the Maurice River, oyster farming. Once this is determined and allowed for, the remainder, whether deficit or surplus, will then have to be allocated between users in the watershed. Where, as in the case of the Maurice River Watershed, a deficit exists, then cut backs in usage will be mandated or left until alternative water supply methods can be decided upon in a collaborative effort, i.e., the municipalities involved negotiating the allocation. Obviously water conservation efforts will be a main strategy in resolving this problem.

Table 8 shows the depletive water use projections for Deerfield Township. Two items are notable in the figures shown. The first shows that the Township has no projections for industrial demand. This could be because the projections were made in or before 1994 and figures were not available for the vegetable processing plants operating in the Township. The second item concerns the amount of water used by agriculture which is projected to be almost twice that shown for residential use. How water is allocated to farms may well have an impact on agriculture within the watershed. Conversely, the decrease in farming or increase in more water-conserving farming might reduce demand.

Table 8. Depletive Water Use Projections for Regional Water Resource Planning Areas of New Jersey Deerfield Township, Cumberland County

Year	Pop.	Residential Demand 75 gal./ cap.	Residential Peak Demand	Industrial Demand	Agricultural Demand	Peak Agricultural Demand	Total Average Demand	Total Peak Demand
1995	2,980	0.224 mgd.	0.336 mgd.	0	0.494 mgd.	1,1976 mgd.	0.718 mgd.	2.312 mgd.
2000	3,115	0.234	0.351	0	0.539	2,156	0.773	2.507
2005	3,251	0.244	0.366	0	0.511	2.264	0.810	2.63
2010	3,386	0.254	0.381	0	0.593	2.372	0.847	2.753
2020	3,476	0.261	0.391	0	0.593	2.372	0.854	2.763
2030	3,586	0.269	0.403	0	0.593	2.372	0.862	2.775
2040	3,679	0.276	0.414	0	0.593	2.372	0.869	2.786

Source: NJ Statewide Water Supply Master Plan, Water Supply Data Base, August, 1994

Since the Township is entirely dependent upon on-site wells for its water supply, any Statewide attempt to allocate water withdrawal will have serious implications for future growth and development. If available water supply allocation may have to be negotiated, then the Township will have to be prepared to assure its planning needs are addressed to the greatest extent possible. Efforts at sound land use decision-making, efforts to conserve water usage, and protections of recharge areas would demonstrate the community's commitment to sound water supply planning in such negotiations. The Township must be prepared to retain existing supplies of water to the greatest extent possible.

In any water budget, the dependence upon on-site wells so common in rural areas like Deerfield Township translates into at least 75% of the domestic well water being returned to the aquifer, while 25% is lost. Continued reliance in onsite wells will depend on the quality of water available since the Township currently also relies on individual septic systems as well. A very large portion of the Township is not proposed to receive either public sanitary sewer or portable water although they will support a considerable portion of the future population because of its size. Regulations requiring specific distances between wells and septic systems, dictate larger lots, including within centers. The larger minimum lot sizes are more expensive and prohibit higher density type developments like multi-family dwellings which are more affordable.

At present no plans have been formulated for the provision of public water supply systems within the Township. Fear of ground water contamination and the need to allow higher density development within Rosenhayn, Carmel, and the cited critical planning areas may make development of such public supply systems a necessity and feasible. Rosenhayn is the location of the Township's centralized school, much of its shopping facilities, industry and considerable residential development.

To insure that safe, adequate supplies of potable water are available, especially in the event that water allocation is implemented due to the water supply deficit, the Township needs to begin planning for provision of public water. To maintain existing development and to implement the objective of centering new growth into the village or town, public sewer or water will be necessary. Without it, continued development of the centers will be severely limited. Again, the threat of water allocation in the future, requires that the Township planners and leaders pay close heed to protecting their current supplies to assure its planning objectives are consistent with them and not stalled or prohibit due to them.

Sanitary Sewer Planning

Deerfield Township is currently identified as a rural planning area in Cumberland County's wastewater management plan. All residential wastewater management is presently handled on individual subsurface septic systems. Two sites within the Township are however, listed in the service area plan of the Cumberland County Utilities Authority which has a treatment facility located on the Cohansey River in Bridgeton. A dedicated sewer main runs from the

Cumberland County Vocational Technical Education Center on Bridgeton Avenue in the Township along Bridgeton Avenue west into Bridgeton and the CCUA's treatment facility. The line is sized and limited to the need and use of the Vocational Technical Education Center. The other site is the Cumberland County Improvement Authority's sanitary landfill off Jesse's Bridge Road which trucks its leachate to the CCUA Bridgeton facility.

As noted earlier in this Plan, the Landis Sewerage Authority (LSA) owns four large parcels of land along Jesse's Bridge Road and Sherman Avenue. The largest of these tracts at the northeast corner of these two roads is used for spray irrigation of treated effluent produced by the LSA's treatment plant in southwestern Vineland on the east side of Route 55. At the time of its proposal to buy and utilize these lands for this purpose there was considerable concern within the Township over this use of land. A lawsuit ensued, which culminated in an order that for a period of ten years from the date of the court order, the Township had the right to request sewage treatment service from the Landis Sewerage Authority and the Authority was bound to provide the same. The Authority primarily serves the treatment needs of the City of Vineland. The Township never exercised its right under that order which has now expired. At present, the LSA treatment facility does not have a lot of additional capacity.

Development has increased and the problems have begun to arise with both residential and commercial and industrial on-site septic disposal systems. Currently residential wastewater treatment facilities with planning flows of less than 2,000 gpd discharge to ground water are not regulated by the DEP. Nondomestic wastewater treatment facilities with planning flows of less than 20,000 gpd discharging to ground water were issued permits. The N.J. Department of Environmental Protection has issued four (4) NJPDES discharge permits within the Township. The permits included:

1. F & S Produce which processes farm produce and discharges its wastewater via spray irrigation. It has a maximum daily flow of 10,000 gpd and is located at just east of the intersection of Morton and Bridgeton Avenues.

2. Sunnyside Foods Company (Purity Group) which also processed farm produce and discharged its wastewater via spray irrigation with a subsurface disposal system for use during freezing weather. It was located at 730 Lebanon Road near Rosenhayn and had a design capacity of 100,000 gpd although in 1996 its present permitted flow was 72,000 gpd. At that time it employed 120 regular and 13 seasonal employees. It has ceased operations within the last year.

3. Deerfield Township Board of Education has a permit to discharge a permitted flow of 8,400 gpd in connection with the Deerfield Township School located on Morton Avenue in Rosenhayn. This institutional flow is based on 15 gallons per day per user. In 1996, this discharge equaled 5,850 gpd generated by 359 students and 31 staff.

4. The Cumberland County Improvement Authority which as noted earlier trucks its leachate to the Cumberland County Utilities Authority treatment facility in Bridgeton. All of the flows generated at the landfill site are discharged to ground water.

Existing development especially within the Rosenhayn area is experiencing difficulties with on-site septic disposal. **Figure 5. Septic Capabilities** shows the extensive moderate septic limitations within both Rosenhayn and Carmel. A local treatment facility does not appear to be possible due to the lack of place to discharge the treated effluent. Several studies have been undertaken to find another suitable location (besides the Landis Sewerage Authority site on Jesse's Bridge Road) for a spray irrigation of treated sewage effluent within the Township to no avail. Both Pittsgrove Township, Salem County, which has significant problems adjacent to Rosenhayn with commercial on-site septic systems and Deerfield Township have looked into the problem without success. There is no land available suitable for filtration of the effluent and the one study even considered pumping the effluent to north of Elmer in Upper Pittsgrove Township (a site now not suitable due to environmental constraints). None of the surrounding streams are able to receive treated discharge (**See Table 1, Chapter 1).**

A review of the records of sewage haulers loads delivered to the CCUA treatment plant in Bridgeton from Deerfield Township over the last three years shows the volumes of wastewater being pumped from septic systems in the Township.

Year	Waste Type	Sub-Total Gallons	Total Gallons
1997	Residential septic	68,500	
	Commercial & greases	43,535	112,035
1998	Residential septic	156,750	
	Commercial & greases	30,350	
	NJ permitted waste	1,000	228,100
1999*	Residential Septic	77,550	
	Commercial & greases	26,700	104,250

*January 1 through July 1, 1999

A closer scrutiny of these figures reveals that many of the commercial activities are located within Rosenhayn, Carmel or Critical Planning Areas 1 or 2. Provision of a public sanitary sewer system for Rosenhayn and the critical planning areas would solve existing, on-site disposal problems, permit higher density development to be centered there, and in the absence of public water supply system, reduce threats of wells' contamination from on-site septic disposal. It is existing land use activities which require the provision of public sanitary sewer service although these areas are

designated as the areas to receive new "centered" development and reduce urban sprawl. This is in keeping with the policies of the **State Plan** as it applies to Deerfield Township.

The need for a public sanitary sewer system is necessary given these existing conditions and the need to control growth and protect public health. The Township must look to one of two existing treatment systems, the City of Vineland's Landis Sewerage Authority or the Cumberland County Utilities Authority (CCUA) treatment plant in Bridgeton, if such a system is to be installed. The LSA system has limited capacity although the service agreement between the Township and the LSA for the spray fields siting did provide that the Township could petition LSA for sewer treatment service and the LSA was required to provide the same. Additionally, the distance of running a line from the Township to the LSA plant in southeastern Vineland and is about equal distance to the plant in CCUA plant in Bridgeton.

The CCUA is already providing treatment service to two sites within the Township as noted earlier, and its facility has the capacity to handle anticipated flows from the Township. A sewer line could be run from the Bridgeton plant to Rosenhayn using the Winchester & Western Railroad line right-of-way from the Rosenhayn through Upper Deerfield Township and into Bridgeton. At one time, Deerfield Township was considered to be part of the CCUA's service area and Township officials are seriously seeking both a revision of the sewer service plans of the County and the Authority to allow such service to be provided to the Township.

Cost will be a major factor in determining whether or not the system can be built. Typical costs associated with such a system for the property owner would include the following: (1) closing the on-site tank and running a new sewer line to the curb - $1,000 to $1,500; payment of the CCUA connection fee - $650./dcu (domestic consumer unit which represent 204 gallons/day/home based on 75 gallons/person/day with an average household having 2.7 persons); and the annual fee which includes treatment charge (currently the CCUA's is $270/dcu) plus the debt service on the capital cost of the system. Annual sewer rates in CCUA service areas are: Hopewell Township - $450, Upper Deerfield Township - $360 and the City of Bridgeton - $300.

It is recommended that if costs permit, Rosenhayn and the three critical planning areas should be provided sanitary sewers for a variety of reasons. First and foremost, is the need to address inadequate septic on-site disposal and to protect public health. Secondly, the environmental sensitivity of major portions of the Township dictate that developments be curtailed in many areas as they are unable or unsuitable to it. Problems are already occurring where new housing has infringed upon farming areas or wetlands. The soils in and around Rosenhayn and Carmel are not well suited to on-site septic disposal. Third, the key to preserving the rural character of the community dictates that new growth be centered.

The Township is actively pursuing the design, funding and permitting of an initial public sanitary sewer system for construction to serve existing areas of need within Rosenhayn and beyond where existing public sewer service is authorized, although it is currently achieved by

transport as opposed to a direct line (CCIA landfill property). This system would follow the rail line out of Bridgeton through Upper Deerfield Township to Rosenhayn. This system would enable the Township to better control development by changing land use regulations to encourage growth where it can best be handled and accommodated.

Stormwater Management

Flood water control and environmental quality of water are both key issues to the provisions of stormwater management. Provision of drainage structures and other measures to accommodate and safely disperse stormwater is vitally necessary. In addition, it is also important that since most stormwater is runoff, that efforts are made to control the level of pollutants carried by this runoff water before they enter ground or surface waters. Development regulations must contain standards of performance to assure both of these two facets of stormwater management are addressed.

The Residential Site Improvement Standards regulation promulgated by the N.J. Department of Community Affairs does set stormwater management standards to be met for residential developments. These standards are the Statewide requirements to be followed and supersede municipal ordinances. In connection with residential developments, especially those that are not planned developments, is that maintenance of these stormwater management facilities is either too costly to be borne by the homeowners or over time neglected leading to system failures. In planned developments which normally have common facilities like open space and recreational facilities as well the stormwater management facilities, homeowners' associations are well founded and active and these common facilities are properly maintained and managed. The same is true of most commercial and industrial developments which must maintain a variety of common facilities.

In regular subdivisions however, such homeowners' associations do not fair as well since the only common facility is usually for stormwater management. Standard homeowners' associations agreements provide for the municipality to step in and carry out the responsibilities of the association and assess the residents accordingly. This becomes a difficult situation for both the municipality and the residents. As an alternative, many municipalities are opting to have stormwater management facilities for conventional residential development dedicated to the municipality.

From the water quality standpoint, the Township should consider regulations which would protect streams which serve as recharge areas for water supplying aquifers. Development regulations should include standards for the provision of facilities which help trap pollutants and land use techniques that minimize the runoff of pollutants to these important water sources. Fertilizers, pesticides, motor vehicle-related fluids, and other major sources of water pollution should be addressed to protect streams and their attendant wetlands. A watershed management plan is to be prepared for Cumberland and Salem Counties and will be the main planning tool to

assure protection of both ground and surface waters. The Township should actively participate in this process given the fact that the Maurice River Basin is in a deficit position. This planning exercise should determine the reality and extent, if any, of this water supply deficit. The implications are considerable for future development within the area.

Solid Waste Disposal

The Township is included in the Cumberland County Solid Waste Management Plan which provides for the disposal of solid waste within the entire County. As noted herein this Plan, the County sanitary landfill is located within the Township on Jesse's Bridge Road. Township residents utilize the convenience center at the County landfill provided since the Township is the host community. There is no trash collection within the Township as cost estimates proved too high when last sought.

Annually residents are issued identification stickers for their vehicles and are then charged $2.00 per car and $10.00 per pickup truck each time they make use of the center. Only residents are issued stickers, not commercial or industrial operations which must provide for their trash removal. The Township Municipal complex is given free access to the landfill convenience center.

Issues related to solid waste disposal were noted in a lot of the individual comments received as part of the master plan community survey. Litter and trash disposal were cited by 27% of those responding to a question as if the resident had ever had any problems with a list of issues. Individual comments noted the need for municipal trash pickup, or provision of a dumpster to eliminate the need for residents to have to take their trash to the County landfill convenience center, litter from cars, lack of leaf collection, trash burning by neighbors and having to pay a fee for use of the County's convenience center when the Township is the host to the facility.

Any effort to change the current method of solid waste collection in the Township will increase municipal taxes. The provisions of a municipal convenience center which might handle both trash collection and recycling materials would incur considerable capital costs and handling fees for hauling and disposal of recyclables. Curbside pickup should be considered on periodic basis to determine need and cost since there seems to be a limited municipal concern about this issue.

Recommendations:

1. Undertake a preliminary engineering study to determine the feasibility and cost estimates of providing a public potable water supply system to the town of Rosenhayn and in particular the village of Carmel, as well to the critical planning areas identified on the **Utility Services Plan**.

2. Until and unless, public water supply or sanitary sewage collection is provided within Rosenhayn and Carmel, minimum lot sizes of one acre should be implemented to assure that new development can meet current health regulations regarding on-site provision of these two vital services. Additionally, development regulations should identify those land uses which will only be allowed subject to the provision of public sanitary sewer service.

3. Develop land use regulations which direct new development into those areas scheduled to receive public sewer and/or water supply and discourage development outside these areas. In those areas, lot sizes should be large enough to support on-site septic disposal and water supply.

4. Municipal officials should become more actively involved in water supply planning efforts as anticipated by the State's watershed planning initiatives and plans. It is imperative that the Township defends and protects its water supply. Given the water supply deficit identified by State planning the Township needs to be vigilant and participate fully in the process to prevent unfavorable allocations of this vital resource and make sure that proposed policies to protect the watershed are consistent with the Township's planning objectives. Failure to do so could unduly and adversely impact the municipality's future growth and development.

5. Protection of the Township's streams and wetlands areas should be vigorously pursued to protect these recharge areas and guaranty their continued viability for this purpose. These environmentally sensitive areas should have more stringent setback requirements and regulations should require minimum disturbance and preservation of existing vegetation along and within these areas.

6. The Township should actively work to install public sanitary sewers within the sewer service area shown on the **Utility Services Plan** to addresses existing problems with on-site treatment, protect public health and the environment and to permit the use of these areas to control and center new growth and thereby preserve the rural and environmentally sensitive areas of the municipality.

7. Provide requirements for the installation of on-site septic systems in new developments in such a way that it will facilitate connection to a public system when and if, such a system becomes available.

8. Require protection of ground and surface water quality through stormwater management regulations. This would include adopting N.J. Department of Environmental Protection regulations relating to water quality.

9. Make sure that stormwater management facilities will be properly maintained as part of the overall development's responsibilities including requiring dedication of such facilities

to the Township where such maintenance appears might become a problem in the future.

10. Obtain quotes for municipal trash pickup and provide open public debate about the value and cost of the same with the public so that a cost/benefit analysis can be publicly considered. Additionally, the Township should consider expanding its recycling program in an attempt to meet the State recycling plan goals.

Possible Sources of Support:

CCUA	Cumberland County Utilities Authority
LSA	Landis Sewerage Authority
CCIA	Cumberland County Improvement Authority
CCDPD	Cumberland County Department of Planning and Development
CCDH	Cumberland County Department of Health
NJDCA	New Jersey Department of Community Affairs
NJDEP	New Jersey Department of Environmental Protection
OSP	Office of State Planning
USFHA	Farmers Home Administration
	New Jersey League of Municipalities

Chapter VIII Housing Plan

Introduction

The Municipal Land Use Law requires that the housing plan element of a municipal master plan be designed to achieve the goal of access to affordable housing to meet present and prospective housing needs, with particular attention to low and moderate income housing. It goes on to specify the analysis of current municipal conditions related to housing and the population to be undertaken. These requirements stem from the creation of the N.J. Council on Affordable Housing (COAH) by the New Jersey Legislature's enactment of the Fair Housing Act of 1985. This law gave COAH responsibility for determining each municipality's allocation of low and moderate income housing, to establish guidelines for implementing the Fair Housing Act and evaluating proposed municipal compliance strategies. The law itself was a response to several New Jersey Supreme Court decisions requiring municipalities to provide equal housing opportunities.

The Fair Housing Act also provided that a municipality could not be deemed to have a valid zoning ordinance unless it had adopted a housing plan element as a component of its master plan. The Municipal Land Use Law was subsequently amended to require that before a municipality could zone it was required to have a master plan containing at a minimum: (1) a goals and objectives statement, (2) a land use element and (3) a housing element. The intent was to require municipalities to address the issue of housing and assure that its planning goals and objectives include the goal of affordable housing and that the future land use plan provide an opportunity for it to be achieved.

Once a housing element is completed, the municipality may submit its municipal housing element with a fair share plan to COAH for review and upon acceptance by the Council, receive substantial certification of its plan. Substantial certification is a determination by the Council approving a municipality's housing element and fair share plan as in accordance with the provisions of the Act and the rules and criteria as set forth in COAH'S regulations. A grant of substantial certification is valid for a period of six years. Although the filing of the housing element with COAH is not a requirement of the Act, in so doing and by receiving substantial certification, the municipality enjoys the presumption of validity against allegations of exclusionary zoning, i.e., developers' lawsuits. Municipalities with certification have priority access to the State's Balanced Housing Funds and other sources of housing subsidies to help implement their certified housing plan elements. They benefit from being able to enter into

regional contribution agreements (RCA) and developer agreement guidelines, mediation as opposed to litigation for purposes of resolving objections. They also retain local control over land use.

To determine each municipality's fair share allocation of low and moderate income housing, the Council divided the State into six housing regions and promulgated rules setting forth the formula by which each municipality is allocated its "fair share" of its region's need for affordable housing. The Counties of Atlantic, Cape May, Cumberland and Salem constitute the South-Southeast Region and which Deerfield Township is located. The last allocation was made in 1994. The first round of allocations had been made in 1987 and the 1994 allocations represent a cumulative housing obligation for the twelve-year period from mid-1987 to mid-1999. Deerfield Township's fair share allocation is 61 units.

The actual formula breakdown for the computation of Deerfield Township's allocation is as follows:

Actual deteriorated units	31 meaning
Indigenous need	22 plus
Reallocated present need[1]	2 which makes
Present need 1993	24 to which is added
Prospective need 1993-1999	12 making a
Total need 1993-1999	36 to which is added
Prior cycle Prospective need	28 plus
Demolitions	2 minus
Filtering[2]	2 minus
Residential Conversion	1 minus
Spontaneous rehabilitation	1 equaling
Pre-credited Need	61

A more detailed explanation defining terms and explaining the complex process of determining a municipality's fair share housing need is provided below:

DETERIORATED UNITS - THESE ARE UNITS DETERMINED BY WAY OF INDICATORS WHICH INDICATE

---

[1] Reallocate present need means that portion of a housing region's present need that is redistributed throughout the housing region.

[2] Filtering is a term used to describe a reduction in municipal need (total and prior-cycle prospective) based on the recognition that the housing needs of low and moderate income households are partially met by sound housing units formerly occupied by the higher income sector of the housing market.

that a house is substandard such as missing two or more than one of its major systems like plumbing, heating, sewer, water or kitchen facilities, overcrowding, i.e., persons per room, age of structure. COAH relies largely on Census data to make these determination however, a municipality can do its own survey to determine this number. Deerfield Township was found to have 31 deteriorated units at the time of the last allocation.

Indigenous Need - This figure, 22 in Deerfield Township's case, is the total number of deficient units signaled by surrogates culled from the U.S. Census data and identifies the number of substandard units inhabited by low and moderate income households.

Reallocated Present Need - As noted, COAH has divided the State into six housing regions. Reallocated present need is the share of excess deterioration in the community's region, South-Southwest for Deerfield Township, transferred to all communities of the region with the exception of selected Urban Aid Cities. So when a municipality has more indigenous need units than the region's average, the amount above the average is placed in the regional tally for distribution to other municipalities within the region. Deerfield Township had 2 reallocated units.

Present Need 1993 - this figure is simply the addition of indigenous need and reallocated need. Deerfield Township's Present Need (1993) is 24 units.

Prospective Need 1993-1999 - This category refers to the time period for COAH's allocation and seeks to distribute the anticipated number of future low and moderate income households which will need affordable housing not anticipated being met by the housing market. This figure is allocated among municipalities in the region in a similar fashion to Present Need 1993. Deerfield Township was allocated 12 units of prospective need 1993-1999.

Total Need 1993-1999 - The sum of Present Need 1993 and Prospective Need 1993-1999, or 36 units in Deerfield Township's case.

Prior Cycle Prospective Need - This figure represents the Township's share of the Region's affordable housing allocation made in 1987 and not met. Deerfield Township had a total of 28 units from the first round which then gave it a total of 64 units.

This total is then is adjusted by a number of processes that effect the availability of affordable housing within the housing market. These processes include:

Demolitions - Since demolitions are a source of housing demand, as they eliminate housing opportunities for low and moderate income households, the formula attempts to estimate the number of demolitions that will occur within the allocation time period, 1993-1999. That figure is then added to the need for affordable housing. Deerfield Township was expected to have 4 demolitions.

FILTERING - COAH DEFINES FILTERING AS DESCRIBING A REDUCTION IN MUNICIPAL NEED (THE TOTAL AND PRIOR-CYCLE PROSPECTIVE) BASED ON THE RECOGNITION THAT THE HOUSING NEEDS OF LOW AND MODERATE INCOME HOUSEHOLDS ARE PARTIALLY MET BY SOUND HOUSING UNITS FORMERLY OCCUPIED BY THE HIGHER INCOME SECTOR OF THE HOUSING MARKET. THIS IS A SORT OF "FILTERING" DOWN IN TERMS OF AFFORDABILITY OF PERFECTLY GOOD HOUSING OVER TIME. DEERFIELD WAS EXPECTED TO HAVE TWO(2) SUCH UNITS BECOME AVAILABLE.

RESIDENTIAL CONVERSION - RESIDENTIAL CONVERSION IS THE CREATION OF DWELLING UNITS FROM ALREADY EXISTING RESIDENTIAL STRUCTURES. IT IS A SIGNIFICANT SOURCE OF HOUSING SUPPLY TO LOW AND MODERATE INCOME HOUSEHOLDS AND IT CAUSES A REDUCTION TO MUNICIPAL NEED. DEERFIELD TOWNSHIP WAS PROJECTED TO HAVE ONE(1) RESIDENTIAL CONVERSION. IT WOULD REPRESENT ONE UNIT LESS NEED TO BE PROVIDED ULTIMATELY.

SPONTANEOUS REHABILITATION - SPONTANEOUS REHABILITATION MEASURES THE PRIVATE MARKET'S ABILITY TO REHABILITATE DEFICIENT LOW- AND MODERATE INCOME HOUSING UNITS UP TO APPLICABLE STATE AND LOCAL CODE STANDARDS; AND CAUSES IN COAH'S FORMULA, A REDUCTION TO MUNICIPAL HOUSING NEED. IN DEERFIELD TOWNSHIP, ONE(1) UNIT WAS THOUGHT TO BE SPONTANEOUSLY REHABILITATED.

PRE-CREDITED NEED - THE FINAL FIGURE FOR TOTAL AFFORDABLE HOUSING UNITS ALLOCATED TO A MUNICIPALITY BASED ON THE ABOVE FORMULA. THE MATH IN DEERFIELD TOWNSHIP'S CASE COMES OUT TO 61 UNITS. THE DISCREPANCY OF ONE (1) UNIT IS ATTRIBUTABLE TO THE ROUNDING OF FIGURES USED BY COAH. THIS FIGURE INCLUDES BOTH THE REHABILITATION AND NEW CONSTRUCTION COMPONENTS. COAH ALLOWS THE HOUSING NEEDS TO BE MET BY BOTH REHABILITATION AND THE CONSTRUCTION OF NEW HOUSING UNITS. TO DETERMINE THESE TWO COMPONENTS REHABILITATED UNITS ARE DETERMINED BY SUBTRACTING SPONTANEOUS REHABILITATION FROM INDIGENOUS NEED 1993 (INDIGENOUS NEED OF 22 MINUS 1 SPONTANEOUS REHABILITATION= 21 UNITS). SUBTRACTING THE 21 UNITS ALLOWED TO BE REHABILITATED LEAVES A REMAINDER OF 30 UNITS WHICH MUST BE NEW CONSTRUCTION.

These 61 units once created, must be made available to all persons who are considered to be either low or moderate income. Low income is considered households earning 50% or less of their region's median income. Moderate income households are those earning 50 to 80% of the region's median income. Every two years, COAH publishes regional income limits, the last of which was adopted May 2, 2001. **Table 9** shows the housing costs limits for low and moderate income based on the Council on Affordable Housing 2001 Regional Income Limits for Region 6 which includes Atlantic, Cape May, Cumberland and Salem Counties. Affordable housing is defined as not more than 30% of the monthly household income for rental units and not more than 28% of monthly household income for sale housing.

The Council on Affordable Housing has published a number of ways a community can provide for such housing besides the builder's remedy (allowing the building of affordable units by a builder on a particular piece of land within the community usually against the zoning requirements for the area involved) or inclusionary zoning which requires new residential development to provide a proportional share of their units low and moderate income households with a density bonus provided therefor. These

other options include: (1) municipality-sponsored construction (all units being affordable, no market units), (2) gut rehabilitation (counts as new construction), (3) conversions (old schools, factories, farm buildings), (4) group homes for mentally and physically disabled (credited by the bedroom and may qualify for two-for-one credits), (5) transitional facilities for the homeless and victims of domestic abused

Table 9. Affordability Limits for Low and Moderate Income Households Based on COAH Regional Income Guidelines - Region 6 as of May 2, 2001

Household Size	Median Income	Moderate Income	Max. Monthly Hsg. Payment	Max. Monthly Rent	Low Income	Max. Monthly Hsg. Payment	Max. Monthly Rent
1 person	$ 35,541	$ 28,433	$ 663	$ 711	$ 17,770	$ 415	$ 444
1.5 persons	$ 38,079	$ 30,463	$ 711	$ 762	$ 19,040	$ 444	$ 476
2 persons	$ 40,618	$ 32,494	$ 758	$ 812	$ 20,309	$ 474	$ 508
3 persons	$ 45,695	$ 36,556	$ 852	$ 914	$ 22,848	$ 533	$ 571
4 persons	$ 50,772	$ 40,618	$ 948	$ 1,016	$ 25,386	$ 602	$ 635
4.5 persons	$ 52,803	$ 42,243	$ 986	$ 1,056	$ 26,402	$ 616	$ 660
5 persons	$ 54,834	$ 43,867	$ 1,024	$ 1,097	$ 27,417	$ 640	$ 685
6 persons	$ 58,896	$ 47,117	$ 1,099	$ 1,178	$ 29,448	$ 687	$ 736
7 persons	$ 62,958	$ 50,366	$ 1,175	$ 1,259	$ 31,479	$ 735	$ 787
8 persons	$ 67,020	$ 53,616	$ 1,251	$ 1,340	$ 33,510	$ 782	$ 838

Note: Because incomes may have increased COAH sets maximum increases allowed. For rental units the maximum increase is 3.6% and for sales units the figure is 2.95% . Therefor the maximum monthly figures cited above may be less than shown depending upon cost prior to May 2, 1001.

(also may qualify for two-for-one credits), (6) accessory apartments, (7) purchase of vacant housing units and/or ones that have never been occupied, (8) write-down/buy down the cost of previously owned market rate units, (9) senior citizen housing (age-restricted rental units receive 1.33 credits), (10) family rental housing (nonage restricted rental units receive two-for-one credits, (11) Regional Contribution Agreements (RCAs) (transfer money for up to one half of an obligation to an older community, usually urban), (12) rehabilitation of deficient units (bringing units up to code) (13) ECHO (Elder Cottage Housing Opportunities) used to address a rehabilitation obligation, and (14) donate land to a nonprofit organization to construct affordable housing units. The Council encourages municipalities to propose new methodologies suitable to meeting the goals of affordable housing under the guidelines of its regulations.

The purpose of this housing element is to take a look at the conditions affecting housing within Deerfield Township and then offer a plan on meeting the housing need shown to exist through one or a number of ways as described above or some other approaches. It is recommended that upon adoption of the master plan with this element, it be filed with the Council.

Deerfield Township Housing and Population Characteristics

Most of the information contained in this report relies on the 1990 U.S. Census since new census figures will not yet available. Additionally, COAH has indicated that it does not expect to issue new allocations until the new Census data is available and has been analyzed. The 1993 Census showed the Township had 1,029 housing units, 358 of which were located within the Rosenhayn area. The Township's population was 2,933 people. Since 1990, there has been a total of 127 permits issued for new units and 13 demolitions (based on municipal data). This would give an estimated figure of current total housing units of 1,143.

The Census 1998 population estimate for the Township was 3,098. The South Jersey Transportation Planning Organization (SJTPO) has estimated the Township's 1999 population at 3,286 with projections that it will reach 3,537 in 2005 and 4,193 in 2,015. The County's population in 1990 was 138,053. Deerfield Township represented 2.1% of that figure. Persons per square mile for the Township were 174.6 as opposed to the County's 282.1. Rosenhayn had 390 person s per square mile.

A recent study by the Center for Urban Policy Research was undertaken to analyze the impact of the newly adopted State Development and Redevelopment Plan. That analysis showed that under what is referred to as the "trend scenario," meaning based on a conditions "as is" approach, the Township's currrent estimated population in 2000, 3,149 persons, would increase by 36% to 4,280 by the year 2020. Currently estimated households, 1,142, would increase 49% to 1,704, a change of 562 new households. Employment was seen to increase to from the current estimate of 1,011 to 1,289, a 28% increase adding 278 new jobs to the local economy.

The impact of the Plan on these figures was found to provide different results. Current population would only increase by 7% to 3,356 and households were projected to increase only 10% to 1,255 from the current estimate of 1,142. Employment was seen as increasing a moderate 6% to 1,066, 56 new jobs. These figures do not take into account the Township's intent to have both Rosenhayn and Carmel designated as centers and possibility of the provision of public sewers and/or water systems being installed. If successful in these endeavors, the Township could see a much higher figure for all three of these indices. An increase proposed for the population will have an impact on the number of new households and jobs. This will have an impact on the Township's housing market to provide affordable housing.

With the fact that the Township will see such increases due to its location and past trends, it is imperative that the community takes measure of its housing stock, population characteristics and the state of its employment opportunities. These three areas offer an understanding of the housing market, its needs, deficiencies and strengths and weaknesses. They also help to clarify the fair share allocation made to the Township by the Council on Affordable Housing.

Table 10 Housing Units by Occupancy Status, 1990

	Deerfield Township		Cumberland County	
Occupancy Status	**No. of Units**	**Percent of Total**	**No. of Units**	**Percent of Total**
Owner-occupied	844	82.0%	32,299	64.2%
Renter-occupied	148	14.4%	14,819	29.5%
Occupied total	992	96.4%	47,118	93.7%
Vacant	37	3.6%	3,176	6.3%
Total	1,029	100.0%	50,294	100.0%

Source: 1990 U.S. Census

As might be expected from earlier discussions of the Township's character, Deerfield has a larger percentage of owner-occupied units than the County as a whole and almost half as many rental units as the County. The Township is a rural, bedroom community and a majority of the new units built since 1990 were single-family, detached units (records indicate only four(4) multi-family units being built in the eleven-year period since the last census). The actual breakdown of housing units by number of units in the structure as shown in the 1990 Census is given in Table 11. It shows that single-family detached units are the largest share of both owner-occupied and rental units. It is significant to note that there are a considerable number of rental units that are two, three or four unit structures. A number of former farm buildings have been turned into rental housing throughout the community.

Table 11 Housing Units by Number of Units in Structure, 1990

Number of Units	**Owner-occupied**	**Rental**	**Vacant**	**Total**
1, Detached	824	92	27	943
1, Attached	5	7	1	13
2	3	30	7	40
3 or 4	3	14	1	18
10 to 19	0	1	0	1
Mobile home/trailer	8	0	0	8
Other	1	4	1	6
Total	**844**	**148**	**37**	**1,029**

Source: 1990 U.S. Census

Another factor which is useful in evaluating the quality of housing available in the community is the age of the structure. The older the housing stock the more likely the units are in need of some level of rehabilitation. Housing units built prior to 1940 was the largest cohort of total units (28.7%) and of the vacant units (56.8%). If one considers that ten years have passed

since the last Census, then the overall age of the community's housing is proportionately increasing. This fact is further heightened considering that the number of demolitions is not that large since 1990. This may be mitigated however, by private rehabilitation not accounted for here.

Table 12 Housing Units by Age of Structure, 1990

Year Built	Total Units	Percent	Vacant Units	Percent
1980-March, 1990	16	1.5%	0	0.0%
1985 to 1988	58	5.3%	0	0.0%
1980 to 1984	41	3.8%	0	0.0%
1970 to 1979	196	17.0%	9	24.3%
1960 to 1969	192	17.6%	0	0.0%
1950 to 1959	159	14.6%	7	18.9%
1940 to 1949	115	10.6%	0	0.0%
1939 or earlier	313	28.7%	21	56.8%
Total	**1,089***	**100.0%**	**37**	**100.0%**

* Three units of the Township total dwelling units (1,092) were considered seasonal housing.

Source: 1990 U.S. Census

The following table gives the number of units in the Township in 1990 by the number of rooms within those units. The total percent of units with five rooms or less was 41.4%. Almost 30% had six rooms and 29% had seven or more rooms. The usefulness of this information is in terms of determining overcrowding.

Table 13 Housing Units by Number of Rooms, 1990

Rooms	Number of Units	Percentage of Total
1	0	0.0%
2	10	0.9%
3	21	1.9%
4	174	16.0%
5	246	22.6%
6	322	29.6%
7	187	17.2%
8	92	8.4%
9 or more	37	3.4%
Total	**1,089**	**100.0%**

Source: 1990 U.S. Census

The Census data reveals that were 1.3% of all units in the Township, approximately 14 units, that lacked plumbing. A home lacking one or more major systems like roof, water supply, heating, plumbing, kitchen facilities, or sewer deems the house substandard under the COAH formula and identifies the house as a part of the indigenous need of the community.

Another important factor in the consideration of the availability of affordable housing within the community is the cost of housing, both sales and rental housing. It is important to keep in mind that the costs of housing must be within given ranges of a household's income to be affordable. In many communities, the cost of housing is too high for residents or households to afford. Finding affordable housing is a problem for even professional and highly skilled individuals in many areas of the United States including New Jersey. Many cities and employers around the country are now having to provide monetary incentives for their workers to help with housing cost. San Francisco's Board of Education was recently reported to be considering building housing for teachers because of the cost of housing. Housing cost reflect both the type and condition of housing. A rural, bedroom community does not usually offer the variety of housing types and is precluded from doing so due to the lack of infrastructures public sewer and water systems.

The median value of housing in Deerfield Township was $80,100 and approximately 69% of the community's specified owner-occupied housing units were in the $50,000 to $99,999 range. The median value of housing in Cumberland County was $73,900. Approximately 58% of the County's specified owner-occupied housing units were in the $50,000 to $99,000 range. The following table compares the value of housing for the County and Township.

Table 14 Deerfield Township and Cumberland County Owner-occupied Housing Units, 1990

	Deerfield Township		Cumberland County	
Housing Value	**No. of Units**	**Percent of Total**	**No. of Units**	**Percent of Total**
Less than $15,000	0	0.0%	390	1.5%
$15,000 to $19,999	0	0.0%	359	1.4%
$20,000 to $24,999	6	0.8%	457	1.7%
$25,000 to $29,999	0	0.0%	528	2.0%
$30,000 to $34,999	10	1.4%	724	2.8%
$35,000 to $39,999	15	2.1%	733	2.8%
$40,000 to $44,999	40	5.6%	990	3.8%
$45,000 to $49,999	21	3.0%	1,164	4.4%
$50,000 to $59,999	65	9.2%	2,764	10.5%
$60,000 to $74,999	142	19.9%	5,510	21.0%
$75,000 to $99,999	286	40.1%	7,094	27.0%
$100,000 to $124,999	66	9.3%	2,443	9.3%
$125,000 to $149,999	13	1.8%	1,566	6.0%
$150,000 to $174,999	20	2.8%	654	2.5%
$175,000 to $199,999	6	0.8%	336	1.3%
$200,000 to $249,999	7	1.0%	287	1.1%
$$250,000 or more	16	2.2%	238	0.9%
Total	**713**	**100.0%**	**26,237**	**100.0%**

Source: 1990 U.S. Census

Rental housing was very affordable within the Township with median gross rent being $435 as opposed to the medians for the County, $480, the State, $592, and the United States generally, $447. When compared to allowable rental rates in Table 9, the median rent in the Township is affordable for the majority of low and moderate income households identified. Table 15 gives a comparison of rental housing costs for both the Township and Cumberland County.

Table 15 **Deerfield Township and Cumberland County Gross Rent for Rental -occupied Housing Units, 1990**

	Deerfield Township		Cumberland County	
With cash rent:	**No. of Units**	**Percent of Total**	**No. of Units**	**Percent of Total**
Less than $100	0	0.0%	400	2.6%
$100 to $149	0	0.0%	1,072	7.4%
$150 to $199	10	7.7%	744	5.1%
$200 to $249	0	0.0%	558	3.9%
$250 to $299	24	18.5%	337	2.4%
$300 to $349	3	2.3%	582	4.0%
$350 to $399	22	16.9%	874	6.0%
$400 to $449	5	3.8%	1,376	9.5%
$450 to $499	22	16.9%	1,773	12.1%
$500 to $549	26	20.0%	1,937	13.4%
$550 to $599	9	6.9%	1,467	10.1%
$600 to $649	4	3.1%	1,051	7.3%
$650 to $699	0	0.0%	719	5.0%
$700 or more	0	0.0%	1,115	7.7%
No cash rent	5	3.9%	503	3.5%
Total	**130**	**100.0%**	**14,508**	**100.0%**

Source: 1990 U.S. Census

The data presented offers several noteworthy facts concerning Deerfield Township's housing stock. The first concerns the lack of land to develop housing at the densities which would make them affordable. Although the Township's development regulations provide for townhouse developments requiring not less than 4,300 square feet of lot area per unit, garden apartments providing for a minimum of 2,700 square feet of lot area per unit, and planned developments, the lack of public sewer and water supply makes it impossible for them to be developed. Alternative housing options, like mobile home park developments given their density requirements, are not possible either without public sewer and water supply systems.

Secondly, there is land available in both Carmel and Rosenhayn which could accommodate individual single-family, detached houses. If public sewer and/or water were to be provided to either of these two centers, then there would ample opportunity and land available to meet COAH's allocation of new units. Southeastern Rosenhayn has several areas well suited to the provision of low and moderate income housing and which would be in close proximity to the shopping, schools, parks, and employment.

Third, as noted, the age of the Township's housing stock will probably continue to increase the need for rehabilitation. The 13 demolitions have however, probably reduced some of

the substandard housing need. Structurally sound housing should be preserved and conversion of units built before 1974, the date lead-based paint was outlawed, would provide ample opportunity for new needed units at affordable prices. Additionally, historically significant, older residences within these communities could be saved from demolition and preserved so as to continue to give character and history to centers.

Finally, it should be noted that the community master plan survey noted a strong public interest in providing senior citizen housing within the community. Again the town of Rosenhayn does provide a variety of services and facilities suitable to placement of age-restricted housing.

The majority of development approvals have been for minor subdivisions creating lots for single-family, detached housing units. The majority of this activity has been outside the centers although activity has been consistent within Rosenhayn.

Deerfield Township Demographic Characteristics

A considerable amount of information can be gained about the need for housing by reviewing the demographic characteristics of the community. Table 16 reviews the age of the Township's population in comparison to the Cumberland County's

Table 16 Population by Age for Deerfield Township and Cumberland County, 1990

	Deerfield Township		Cumberland County	
Age	**Total**	**Percent of Total**	**Total**	**Percent of Total**
5 years and under	274	9.0%	11,945	8.6%
6 to 14 years	435	14.4%	17,757	13.0%
15 to 24 years	314	10.4%	19,742	14/3%
25 to 44 years	989	32.7%	43,089	31.2%
45 to 59 years	545	18.0%	20,408	14.8%
60 to 69 years	269	8.9%	12,859	9.3%
70 years and over	200	6.6%	12,253	8.8%
Total	**3,026**	**100.0%**	**138,253**	**100.0%**

Source: 1990 U.S. Census

The Township's population breakdown by age as shown above is very similar to that of the County's with percentages close. Approximately 18.5% of the Township was 60 years and over in 1990. At this point in time, that figure has probably not change much given the fact that 45 to 59 years of age cohort was 18.0% ten years ago. This relates to the earlier comments concerning the need for and public interest in the provision of age-restricted housing.

The population in 1990 according to Census data had 2,924 persons in households with all

households totally 992. Households according to the U.S. Census Bureau are defined as those persons who occupy a single room or group of rooms constituting a housing unit; however, these persons may or may not be related. A family is identified as a group of persons including a householder and one or more persons related by blood, marriage or adoption, all living in the same household. Table 17 gives a breakdown of household and family characteristics:

Table 17 Households by Household Type, 1990

	No. of Households	Percent
Family Households		
Married Couples	662	66.7%
Single Male Head	41	4.1%
Single Female Head	122	12.3%
Subtotal:	**825**	
Non-family Households (Living alone)	149	15.1%
Non-family Households (Not living alone)	18	1.8%
Total Households:	**992**	**100.0%**

The census also showed that there were 2.95 persons per household and 3.25 persons per family within the Township. Nine persons were shown to be in group quarters. There are actually four group homes located within the Township and one was bought in 1985 and came into use as a group home in 1988 which may mean that the Township was not credited for this facility in the last allocation by COAH. Group homes can count toward a municipality's fair share if the housing units are restricted to those in need. Each bedroom within the home is considered one(1) unit.

The population of 2,933 was broken down into 1,431 males and 1,502 females. Rosenhayn had a population of 1,053 living on 2.7 square miles at a density of 390 persons/square mile. The racial breakdown was: 2,350 white, 464 black, 56 American Indian, Eskimo or Aleut, 13 Asian or Pacific Islander and 50 of other race. There were 114 persons of Hispanic origin of any race. Income characteristics of the population shown in the 1990 Census were as follows:

	Deerfield Township	Cumberland County
Median Household Income	$ 30,056	$ 29,985
Median Family Income	$ 35,426	$ 34,571
Nonfamily Households Median Income	$ 12,656	$ 13,902
Per Capita Income	$ 12,228	$ 12,560

The median household incomes for both households and families were below that of the State which was in 1990 $40,927 and $47,589 respectively. Table 18 gives a detailed breakdown of income for both households and families within Deerfield Township according to the 1990 U.S. Census data.

Table 18 Household and Family Incomes - Deerfield Township, 1990

	Households	Percent	Families	Percent
Less than $5,000	17	1.6%	11	1.3%
$5,000 to $9,999	63	6.1%	19	2.3%
$10,000 to $12,499	82	8.0%	26	3.2%
$12,500 to $14,999	43	4.2%	40	4.9%
$15,000 to $17,499	51	4.9%	14	1.7%
$17,500 to $19,999	62	6.0%	34	4.6%
$20,000 to $22,499	67	6.5%	67	8.2%
$22,500 to $24,999	25	2.4%	25	3.1%
$25,000 to $27,499	31	3.0%	31	3.8%
$27,500 to $29,999	65	6.3%	65	7.9%
$30,000 to $32,499	58	5.6%	58	7.0%
$32,500 to $34,999	12	1.2%	12	1.5%
$35,000 to $37,499	55	5.3%	44	5.4%
$37,500 to $39,999	63	6.1%	58	7.1%
$40,000 to $42,499	31	3.0%	37	4.5%
$42,500 to $44,999	37	3.6%	31	3.8%
$45,000 to $47,499	27	2.6%	27	3.3%
$47,500 to $49,999	19	1.8%	5	0.6%
$50,000 to $54,999	47	4.6%	47	5.7%
$55,000 to $59,999	41	4.0%	41	5.0%
$60,000 to $74,999	61	5.9%	61	7.4%
$75,000 to $99,999	53	5.1%	53	6.5%
$100,000 to $124,999	9	0.9%	0	0.0%
$125,000 to $149,999	0	0.0%	0	0.0%
$150,000 or more	13	1.3%	13	1.6%
Total	**1,032**	**100.0%**	**819**	**100.0%**
Median Income:	**$30,431**		**$35,326**	

Source: 1990 U.S. Census

With a median County income of $34,571 approximately 23% of the households in the

Township were considered low income (50% of the median income) and approximately 20% were considered to be moderate income as of the 1990 Census count. For families the numbers were approximately 15.7% low income and 20% was moderate income. Cumulatively, 43% of the households and 35.7% of the families were eligible for consideration for affordable housing in terms of their income. In 1990, 49 families or 6% of the total were considered to be below the poverty level and 269 persons or 9% of the population were considered to have incomes below the poverty level. Even though, due to the age of the date available, it is hard to make assessments of current conditions, these figures demonstrate the need for affordable housing within the community.

Employment Characteristics

Another important aspect of affordable housing policy planning is the availability of jobs for residents and the need for persons to be near their place of employment. Being slowly transformed into a bedroom community and seeing its traditional agrarian economy change over the last 15 years has altered the way the community sees it economic base. If a community is a job creator, then there is the assumption that the community should provide housing suitable to the workers of the municipalities' businesses. People want to live within reasonable commuting

Table 19 Deerfield Township Distribution of Employment by Industry, 1990

Sector Jobs	Number	Percent
Agriculture, forestry and fisheries	48	3.4%
Mining	0	0.0%
Construction	87	6.1%
Manufacturing, nondurable goods	78	5.5%
Manufacturing, durable goods	205	14.4%
Transportation	97	6.9%
Communications and public utilities	39	2.7%
Wholesale trade	63	4.4%
Retail trade	224	15.8%
Finance, insurance and real estate	98	6.9%
Business and repair service	74	5.2%
Personal service	20	1.4%
Entertainment and recreation services	20	1.4%
Professional and related services:		
Health services	109	7.7%
Educational services	91	6.4%
Other professional and related services	64	4.5%
Public administration	104	7.3%

Total	**1,421**	**100.0%**

Source: 1990 U.S. Census

distance to their employers. The Census figures give us some idea of what employment was for Township residents, but does not provide information on where those jobs were located. Tables 19 and 20 give the breakdown of employment by industry and occupations for the Township.

Table 20 Deerfield Township Employment by Occupation, 1990

Sector Jobs	Number	Percent
Managerial and professional specialty occupations		
Executive, administrative and managerial	38	2.7%
Professional specialty occupations	130	9.1%
Technical, sales, and administrative support occupations		
Technicians and related support occupations	27	1.9%
Sales occupations	150	10.6%
Administrative support occupations, including clerical	288	20.3%
Service occupations		
Private household occupations	5	0.4%
Protective service occupations	26	1.8%
Service occupations, except protective and household	175	12.3%
Farming, forestry and fishing occupations	35	2.4%
Precision production, craft, and repair occupations	209	14.7%
Operators, fabricators, and laborers		
Machine operators, assemblers, and inspectors	142	10.0%
Transportation and material moving occupations	105	7.4%
Handlers, equipment cleaners, helpers, and laborers	91	6.4%
Total	**1,421**	**100.0%**

Source: 1990 U.S. Census

In reviewing these figures it is obvious that 1,421 jobs are not provided for within the Township as demonstrated by the figures for journeys to work done by the Cumberland County Department of Planning and Development **Traffic and Transportation Plan Update 1991.** According to the analysis of journeys to work, Deerfield Township showed that 78.3% of its population worked within the County with 26.6% working in Bridgeton, 6.6% working in Millville and 23.2% working in Vineland. Working outside the County was 11.2% according to the sample. Currently employment within the Township involves farming, public administration, education, service and retail and some industrial activity. Of a civilian labor force pegged at 1,535 in 1990 by the Census, 7.4% or approximately 114 persons were unemployed. In a rural, agrarian

community, farmer workers would be expected to be unemployed in the early Spring when the census is taken.

The Township does offer considerable employment opportunities in a number of occupations and industries. There are both the Township school and the County Vocational Technical Education Center as well as the County's 4H Center. Besides its considerable retail and service establishments, the Township has a farm produce processor, a number of trucking firms, a refrigerant manufacturer, specialty glass manufacturer and a number of wholesale operations. These businesses or institutions do provide jobs within the community and employees may well wish to live within the Township.

While there have been several closing of businesses, the overall outlook remains strong for job creation within the Township. The number of new businesses having located in the community over the past 10 years has been a clear indication of the community's attractiveness to prospective businesses. Increased employment and commercial and industrial development will largely depend upon the availability of public sewer and/or water within the specific areas of the Township identified as in need of the same mainly the two centers of Rosenhayn and Carmel and the three critical planning areas identified in **Chapter 7 Utility Services Plan**. At present, the Township cannot be considered to be a major site of employment within the County.

Meeting the Township's Fair Share Allocation

Determining how best to meet its fair share allocation of 61 units, will be largely dependent upon a number of factors including the age of current statistical information and whether or not the Township is successful in obtaining public sewer or water. Before discussing these issues in greater detail, it is necessary to analyze the allocation in light of current conditions. As noted, the allocation occurred in 1994 and was supposed to have taken into account the planning area designations made by the State Development and Redevelopment Plan. Since that time however, lands within the Township had been removed from development through outright purchase (NJDEP) and purchase of development rights (farmland preservation). These two issues may have an impact on overall need in the next round of allocation tentatively scheduled for 2001 or 2002.

Furthermore, the adoption of a new State Development and Redevelopment Plan will no doubt further impact development within the community. Already regulatory agencies of the State are following the Plan's proposal in making determinations on placement of new roads, infrastructures and other facilities, as well as where grants and public investments are made. Much of this decision making is directly tied to the community's planning coordination with the State Plan and endorsement of the municipal plan and regulations of land use by the State Planning Commission.

Current Township zoning would permit the construction of dwelling units at densities

which would be sufficient to provide affordable housing as was earlier commented. From a regulatory standpoint, the Township does not preclude the construction of housing units at densities which should make them affordable to low and moderate income households. The problem remains however, that the lack of public sewer or water prevents such development from occurring. Sufficient land does exist as well within Rosenhayn and Carmel to permit the construction of new units. Provision of sanitary sewers within the Rosenhayn area would greatly enhance the likelihood that affordable housing could be accommodated.

If the market is prevented from providing the units needed, the Township must consider other methodologies to provide for this need. These other means of meeting the need should be identified and explored at the same time that the Township pursues the development of a sanitary sewer or water supply system.

The Township is adjacent to the cities of Millville and Vineland and very close to the city of Bridgeton, all of which cities have housing authorities. The Township may want to discuss entering into Regional Contribution Agreements (RCAs) with these municipalities to meet their fair share needs especially if public sewer and water are not forthcoming.

Already the Township has begun to address its rehabilitation need by joint award of a Small Cities grant to Upper Deerfield and Deerfield Townships. The $300,000 grant is to be used for rehabilitating units with Deerfield Township having one-third of the funding available to it. The Township hopes to fund approximately ten "rehabs" with these monies. Additionally, the Township is being included in an application for housing rehabilitation funding being prepared by the Cumberland County Office on Aging.

The 1990 median gross rent of $435 within the Township was affordable and there was a vacancy rate for rental units of 6.3% (10.2% in Rosenhayn) indicated that the community had affordable rental housing. The supply of affordable sale housing units was not as good with a vacancy rate of only .6% within the Township (.7% in Rosenhayn).

The fact that a considerable portion of the community's housing stock is older especially within Rosenhayn and Carmel may make them suitable to allowing accessory apartments to be constructed. House size (actual area measurements) and lot size with regard to provision of on-site septic disposal and water supply would need to be further studied to determine the feasibility of this approach.

To meet the affordable housing goals the Township should consider the following:

A. Continue cooperation with adjoining municipalities in meeting affordable housing need through joint efforts and expand the base of communities to seek solutions.

B. Seek public sewer and/or water as proposed in this master plan to allow for development

densities that permit the construction of affordable housing. Additionally, if successful in obtaining public sewer or water the Township should implement development regulations which would allow for the construction of a variety of housing types at densities which would make them affordable.

C. Consider the establishment of a municipal program to promote the development of affordable housing by the various means available in that regard as suggested by COAH including financial support for construction of accessory apartments, purchase of vacant housing units and/or ones that have never been occupied, write down/buy down the cost of previously owned market rate units, and gut rehabilitations.

Plan recommendations include:

1. Specific lands within of Rosenhayn and Carmel and within the critical planning areas identified in Chapter 7 should be investigated as possible sites for zoning for affordable housing. Southeastern Rosenhayn would be ideal as well as the planned development area north of Landis Avenue and west of Morton Avenue, Critical Area 3. The Township should when infrastructures become available consider these lands for affordable housing. Inclusionary zoning could then be implemented for developments since required density bonuses could be offered and accommodated.

2. Zoning regulations developed to implement this master plan, once adopted, should include areas zoned residential to allow a variety of housing types at appropriate densities to provide affordable housing units. Such regulations would have to be contingent upon the provision of public sewer and/or water.

   Additionally, the zoning regulations should encourage the conversion of older houses into multiple units as affordable housing including the conversion of older structures like the five former farm buildings converted to apartments within the Township. The Township might want to encourage such conversions through provision of funding on a per unit basis and subject to affordability restrictions being placed on the new units so create. Also the Township should consider allowing mobile home park development when infrastructures allows.

3. Implement currently granted and funded rehabilitation programs and continue seeking funding to meet as much of the rehabilitation needs within the Township as possible.

4. Begin dialogue with surrounding municipalities to explore more ways of cooperation and joint approaches to meeting affordable housing needs.

5. The Planning Board should develop and recommend to the Township Committee for adoption of a capital improvement program item which would earmark funding for

affordable housing needs. For example, COAH regulations require that a municipality to provide at least $10,000 per unit to subsidize the creation of accessory apartments, or at least $20,000 for each unit transferred to a receiving municipality under any Regional Contribution Agreement.

6. Because within two to three years new census data will be available and COAH will develop new housing allocations for all the municipalities, the Planning Board should plan to update and further refine its housing plan element within the next three years with the goal of a fair share plan that would be submitted for substantial certification.

7. The Township should encourage infill construction within the centers to help meet affordable housing need.

8. Up to 25% of new affordable housing units required (10 units in the case of Deerfield Township) can be age-restricted units. The Township should begin seeking funding and a means of providing age restricted housing units in light of the public's concern with this issue as expressed in the community master plan survey. To meet this goal the Township could purchase elder cottage housing units or lease them for up to six years.

9. The Township should establish a mechanism to assist low and moderate income households and families find affordable housing including aid in obtaining and/or applying for grants and loans for both rehabilitation and new construction. Federal, State and private or nonprofit funding sources could be utilized in this regard.

10. Once adopted, a copy of this plan should be filed with the Council on Affordable Housing. By filing a housing plan element with COAH a municipality has two years of protection from inclusionary lawsuits. A formal filing allows the municipality in the face of such a lawsuit to immediately request substantial certification of its plan and therefor refer the litigation to COAH's administrative review, a less expensive way of handling the matter than if handled through the courts.

Possible Sources of Support:

	Neighboring municipal housing authorities
CCHA	Cumberland County Housing Authority
CCPDP	Cumberland County Department of Planning and Development
CCOA	Cumberland County Office on Aging
COAH	N.J. Council on Affordable Housing
NJDCA	N.J. Department of Community Affairs
NJHFA	N.J. Housing Finance Agency
OSP	Office of State Planning
HUD	U.S. Department of Housing and Urban Development
FHA	U.S. Department of Agriculture, Farmers Home Administration

Chapter IX Recycling Plan

At present Deerfield Township residents utilize the Cumberland County Improvement Authority (CCIA) convenience center at the County sanitary landfill site off Jesse's Bridge Road. Use of the center is made available to the Township as the host community of the landfill. Like all County residents they are required to separate metal and glass food containers and newsprint for recycling. Facilities for these recyclables are located at the Convenience Center. Additionally, the Center will take tires for a fee. There are also scheduled days for the collection of hazardous waste.

Being a rural community with most homes on lots of one or more acres except within the two centers of Rosenhayn and Carmel, the issue of expanded recycling has not been especially pressing. In the community master plan survey, there were however, comments made about the Township not having leaf pickup. This is an issue which seems to increase in concern with residents of a community that is becoming more suburban. At present, the Township does not provide any form of trash collection or recyclable material collection and residents must haul their trash and recyclables to the CCIA convenience center, but not all recyclables are collected there.

Within **Chapter 7, the Utility Services Plan** it was noted that the Township should periodically survey the community about the need for trash pickup and seek quotes or estimates on the cost of providing this service to its residents. Provisions for municipal collection of specific types of recyclable materials should be added to this periodic review as a need is perceived or brought to public attention. Recommendations contained in this Plan which encourage the centering of development will increase the consolidation of development and thereby reduce the distance to be covered in collecting such material. Anticipated development will also increase the amount of solid waste and recyclables being generated in the community. Higher density development will reduce lot sizes and the with that reduction the ability of the homeowner to handle yard waste and leaves.

Other materials may well become of concern or new markets for said materials may arise which would make it economically feasible to begin recycling of them. For now, there does not appear to be major problems with recycling within the community. It is recommended that the Township consider looking into requiring more recycling and new development should be required to recycle, in particular, multi-family, commercial and industrial developments. Development regulations should require such facilities to provide suitable locations for placement of recyclable materials just as is required for provision of trash collection. Monies are also

available for municipalities which recycle based on the tonnage of materials handled. Municipalities can also get credit for the recycling undertaken by businesses within their communities. The monies obtained must be used to purchase equipment or facilities to provide for recycling. The overall goal of the State Recycling Plan was to have 25% of the solid waste flow recycled.

The CCIA is given responsibility for adopting a county-wide recycling plan. The Township however, is responsible for passing ordinances necessary to require that residents and businesses recycling designated materials.

Recommendations:

1. The Township should make an assessment of the need for the collection of other recyclable materials including leaves, appliances, and materials which residents now must transport themselves to the CCIA convenience center.

2. Development regulations should include provisions which address the need for major developments to provide on-site areas for the collection of recyclable materials.

Possible Sources of Support:

CCIA	Cumberland County Improvement Authority
CCDH	Cumberland County Department of Health
NJDEP	New Jersey Department of Environmental Protection
OSP	Office of State Planning

Chapter X Economic Development Plan

It has unfortunately become a cliche to speak of the conflict set up by New Jersey's dependence upon property tax to support public schools. Yet the struggle for new jobs, businesses, tax ratables still go on between advocates of no growth and the need for new ratables. All municipalities need to provide employment opportunities, maintain a stable tax base and provide for a varied community economy. For years, Deerfield Township's main industry was farming although the Carmel and Rosenhayn historically had a number of small businesses from retailing and personal service shops to small factories and wholesaling business which supplemented the agricultural economy. Most of this business activity was spread along the major roadways: Sherman/Irving Avenues, Morton and Landis Avenues. Fortunately for the Township, the historical tradition remains a viable option today.

The overall theme of this master plan has been to preserve the community's character as a rural, agrarian community while permitting and encouraging limited growth within specific parameters, that is in centers. At present, farming is not as active or assumed to be as lucrative as it has been in the past, a majority of residents are employed outside the Township; a number of businesses have recently closed, and there is a need to provide public sewer and/or water in order to address serious issues with on-site water supply and septic disposal. In a more positive note, farming is still viable especially in speciality-type activities like nursery stock and produce, technology is also beginning to offer new methodologies for agriculture, the Township has a very good roadway system, and its location is central to Cumberland County's urban centers with their industries, businesses and jobs.

This element of the **Plan** proposes that the community focus on a series of strategies for directing its economic development and vitality. While it is not a panacea, it offers an approach which, with perseverance and a dedication to the goals and objectives, Township planners and leaders can use to guide the municipality's economic development within the constraints imposed by the public's wish to see the community retain its traditional way of life. In the changing job market and economic world of today, a community needs to be more open to a faster pace of change and be able to respond with flexibility as opportunities occur or are realized.

There are five strategies proposed in this **Plan** and they are based on the realities of the Township's current conditions as have been laid out in this **Plan**. They are intended to help the community achieve its goals and objectives, implement the future land use plan, provide jobs and vitality to the economic climate, and protect the natural and manmade environments for which

residents have expressed their strong concern.

1. Preserve agriculture with a renewed understanding of its value in terms of providing economic development opportunities, to create jobs in new and varied activities and operations, and *in* preserving open space.

Deerfield Township still has considerable farmland suitable to any number of agricultural activities. There are very active nursery and landscaping businesses, a number of produce farms and other lands which offer opportunities for new style, high tech farming. Although soils offer some difficulties as has been expressed by area farmers over the years, if viewed as an "industry" farming still offers use of the Township farmland to reestablish a thriving farming economy. It would also have the added benefit of achieving a planning goal of open space preservation and new economic development.

Development regulations should allow greater freedom to farmers to conduct farm-related business operations that utilize farm land, structure and equipment at nonfarming times of the year or in conjunction with farming activities. Farmland needs to be protected from nonfarming development activity. Regulations need to encourage support businesses and land use activities which will enhance or promote ease of operation for farming including agribusinesses, markets for its products and the same type of opportunities for promoting and allowing farming to prosper as are allowed for any other industry. This includes allowing activities and structures on the farm that have not always been considered appropriate to rural farm life.

The Township should establish areas where farm-related businesses and industrial activities could be established. This area would allow farming and given specific parameters allow for activities which permit farm produce to be processed, warehoused, distributed and sold, and allow for certain business or industries which support the local farming operations.

2. The Township should make use of its geographic location to encourage economic development.

The Plan has already talked about the fact that the Township is centrally located within the County and its urban centers. Its roadways have been shown to be in good condition and providing excellent connection to a number of traffic generators many of them employment centers. It is the site of a number of County facilities and near the County College and soon to be built regional hospital. All of these factors invite the location of related or the spillover economic activity to be located within the Township.

Promotion of the two centers, Carmel and Rosenhayn, as sites for small office/professional parks, wholesale, distribution and warehousing facilities to serve the County and the region, and retail and service businesses aimed at tapping into the business opportunities offered by the traffic that is passing through the community. In terms of agriculture, Deerfield

Township is ideally suited to farm-related businesses which serve the greater farming region of southern New Jersey. Companies selling or maintaining farm equipment, farm supply operations and processing or marketing facilities for the items grown might find the Township's location convenient and less daunting than more urbanized areas. Already the Township is the site of two farm produce operations. The community has a population which has expertise in providing a great many of the employment skills necessary for such activities.

Targeting these business opportunities needs to be done in a planned way so that land is not wasted, traffic is handled to avoid congestion and facilities are available to handle the land use activities' needs. Eastern Carmel in the vicinity of the County landfill offers opportunities for new businesses that may be related to the new hospital. Landis Avenue's existing highway business district is well suited to offering land for a variety of retail or business activities. Rosenhayn already is a center for the area and has a long history of providing a wide variety of commercial and industrial activities with housing located nearby. In short, the community must market its various areas and land use patterns. The "targets" of this market are partially identified and should be actively pursued.

3. Establish a policy of flexibility based on well-defined planning goals and objectives and implement them through planning techniques and zoning regulations to take advantage of opportunities offered by the Township's geographical assets.

The community master plan survey noted the residents recognized the ideal location the Township occupies. This was mirrored in the responses on the community business survey. There is a large labor pool, close proximity to highways, pleasant and attractive communities and residential areas and lots of green open space. These all offer opportunities for economic development.

Residents also noted their dismay that there is no chain restaurant within the Township and the lack of a number retail or service establishments which would serve local needs. Again targets are identified in terms of meeting local concerns and thus reducing opposition to new commercial activities subject of course, to location.

The business community master survey also noted the need for small scale retail and service businesses, the area's good job market, the overall character of the community as a nice place to do business. These are points to be sold to prospective, specifically targeted businesses and industries that meet the criteria which would identify them as matching the community's idea of itself - where and what it wants to look like in the next 20 years.

Besides Township residents, prospective businesses can draw on the County's concentration of labor. Development regulations should target specific business activities deemed desirable and then detail size and location for them to assure that they fit in with the community's character. The fact that two major roadways run through the Township and connecting it within

five minutes to Route 55 would make a hotel or motel logical as well as restaurants. A large number of businesses, and public institutions are located within easy driving distance of the Township. These facilities draw a large number of people to the County who need lodging, food and retail or service opportunities while in the area. It is important that the economic development aims of the Township be clearly identified and then pursued. In today's world, putting too many eggs in the one business or industry basket is just too risky. Likewise, the Township is not suited, capable or desirous of courting many really large operations which are best left to the large cities next door.

Township planners should consider targeting specific sites for the possible development of such smaller, targeted facilities and then work with County and State economic development agencies to focus attention on these locations. Additionally, the Township needs to maintain its regulations to adapt to the changing nature of today's businesses and their needs. By targeting and selectively choosing what it hopes to attract, the community can determine its future, a sort of economic evolution.

4. Aggressively pursue the development of an industrial park or parks sized and designed for businesses capable meeting the Township's stated planning goals for the community.

The Township has an excellent location for an industrial park in the existing industrial zone located in western Rosenhayn along the rail line. This area is easily accessible to major highways and rail. It has been identified as an area suitable for development.

In permitting such a park, development regulations should be designed to control land use scope and scale and to identify the types of industries and/or businesses best suited to not be detrimental to the environments or community character, and not to be in obvious competition with industrial parks located in the three surrounding cities. Some of the same types of businesses mentioned above would ideally be suited to location in such facilities. Regulations should encourage planned or large lot developments like parks or centers or campus-like settings which would permit a group of businesses or one major concern. Lot coverage should be very limited to make sure that the overall character of the community remains.

5. Encourage the mixed use and appropriately sized commercial/industrial development within Rosenhayn and Carmel to reactivate the vitality and purpose of their founding.

The two centers were originally laid out to be self-contained communities serving the surrounding rural, agrarian lands. When farming failed to provide sufficient income, economic opportunities including employment, or to supplement the economy of the area; the two centers became the sites of new businesses and industries creating jobs and stimulating the local economy. To some degree, they continue to serve that same purpose although the farming

countryside has turned suburban. The traditional village mixing of business and industry with residential land uses worked somewhat freely and harmoniously because it was aimed at specific markets that needed to be where the workers were. There is still a considerable amount of this kind of business activity occurring within the two centers today. Many businesses flourish on the same property where their owner lives.

Township planners need to craft zoning regulations intended to limit scope and scale of nonresidential activities while still making them viable so they can intermingle with residential development. It is a delicate balance and the trick would seem to be to allow just enough at the right intensity to make it profitable yet to keep a neighborhood from changing its character too much so that it becomes a business neighborhood. Taking a cue from the kinds of activities occurring along Morton, Landis, Sherman and Irving Avenues gives some idea of how this might be accomplished, although not everyone would agree that it should or can.

The Statewide attempt to center development challenges planners and community residents to reevaluate their centers. New planning methodologies and policies need to be attempted to see how best to accomplish the prevention of sprawl while maintaining economic vitality and yet not destroy the small town quality of life values. Fortunately the Township's two centers have historically offered this possibility. Today's lifestyles shaped by changing employment and labor practices encourage such attempts. More and more people need or choose to work at home and this one aspect of today's economy is ideally suited to Rosenhayn and Carmel as well as more residentially populated areas of the community.

In attempting this balancing act between business activities and residential land use the concerns need to be size of activity, location, hours of operation, type of business, ability of the site to handle the activity, flexibility in design standards to be sensitive to those improvements required while protecting the village or town/residential nature of the area, and maintaining an overall sense of community. In short, knowing when enough is enough and developing regulations which do just that. It is not easy and although quite common in the past, not practiced or well-regarded since our anti-urban psyches have been cultivated by auto-oriented and activity segregated suburban community living. Community involvement is very important to success of such development regulations and should be undertaken with the encouragement of as wide a public participation as reasonably possible. To be successful, it must be not only well prepared, but well presented to the residents.

In Conclusion

These five goals serve as recommendations of how this Master Plan sees the community's future and attempt to identify the best way to assure a varied and viable economy. Their pursuit would be in keeping with the other goals and objectives of this master plan and if achieved, would enhance the quality of life for local residents.

Possible Sources of Support:

CCDPD	Cumberland County Department of Planning and Development
CCIA	Cumberland County Improvement Authority
SJDC	South Jersey Development Corporation
	Various Chambers of Commerce
NJDA	New Jersey Department of Labor
NJDL	New Jersey Department of Labor
NJDT	New Jersey Department of the Treasury
NJDC	New Jersey Department of Commerce
NJDCA	New Jersey Department of Community Affairs
NJDOT	New Jersey Department of Transportation
OSP	Office of State Planning
HUD	U.S. Department of Housing and Urban Development
	U.S. Departments of Labor and Commerce

Chapter XI Future Land Use Plan

Chapters 1 through 10 of this Master Plan have detailed existing conditions and made recommendations for municipal action with regard to a number of specific issues, policies and goals on a variety of planning topics. This element of the master plan, arguably the most important and decisive in terms of its impact, designates areas for various land use activities and the intensity of those activities recommended. The Future Land Use Plan and Plan Map form the basis for any zoning map and regulations which the municipality proposes to adopt to implement this Master Plan. Failure of the zoning map to follow this Plan element, can result in a court determination that the municipality is not consistent with its stated planning policy thereby possibly negating the zoning ordinance provisions.

To recapitulate the salient issues affecting the development of this future land use plan, the Township is still largely a rural, farming community centrally located in northern Cumberland County. It has two existing centers, the town of Rosenhayn and the village of Carmel. There has been considerable residential development occurring along the Township's major roadways, all part of the County road system. This development has detrimentally intruded into farming areas. This intrusion coupled with the problematic natural soil conditions and the changing markets and face of agriculture has diminished the farming presence and threatens its continued viability.

The Township's roadways handle considerable traffic between the cities of Bridgeton, Millville and Vineland and because the Township's two major arterial roadways connect to State Highway 55, the County's only limited access highway. These connections put each of the two centers within five minutes of these interchanges.

The Township has a number of streams which are tributaries of the Maurice River that is heavily wooded with considerable wetlands' areas along their courses making all of them worthy of protection. If so protected, they would provide natural greenways and form barriers to suburban sprawl while provided considerable passive recreational and open space amenities.

The issue of suburban sprawl looms large in the Township as throughout all of New Jersey with Township residents having voiced their concerns over the threat of the Township losing is small town character and lifestyle. There are several major areas of existing land use activities besides the two centers which need to be recognized and accommodated within future planning. The two centers and these special planning areas naturally figure prominently in the attempt to center development. Thwarting that attempt is the serious issue of continued reliance

on on-site septic disposal. Soil conditions are not good for such disposal within these areas and when coupled with the existing development pattern, they compound the difficulties in attempting to center new development.

The Township has been determined to have a need for 61 units of affordable housing and that is based on 1990 Census data and a 1994 COAH ruling both of which, the data and allocating ruling, will soon be updated. At present though, the Township needs to rehabilitate 21 units and construct 30 new ones to meet this need allocation. Current zoning does permit multi-family dwelling at densities capable of providing low- and moderate-income household affordable units. Lack of infrastructures does however, permit such development to occur. The Township also has a considerable number of existing rental units which meet current cost limits for rents deemed affordable.

Population Outlook

The population of the Township has stayed remarkably stable over the past 200 years as can be seen in Table 21. Twice as the population began to increase, a portion of the municipality was ceded to another municipality. According to the ***New Historical Atlas of Cumberland County New Jersey***, by D.J. Stewart, first published in 1876, Cumberland County was taken from Salem County in January 1748 and the County was divided into six precincts or townships: Greenwich, Hopewell, Stow Creek, Fairfield, Deerfield and Maurice River. The township of Bridgeton was taken from Deerfield sometime after 1840. The township of Bridgeton and the settlement known as "township of Cohansey," named for the only bridge crossing the river of that name, were incorporated into the City of Bridgeton in March 1865. The second loss of territory occurred in 1922 with the creation of Upper Deerfield Township.

Table 21. Deerfield Township Population 1810 to 1990

Year	Pop.	Year	Pop.	Year	Pop.
1810	1,889	1870	1,522	1930	1,513
1820	1,903	1880	1,643	1940	1,483
1830	2,417	1890	2,614	1950	1,758
1840	2,621	1900	3,066	1960	2,053
1850	927	1910	3,311	1970	2,464
1860	1,288	1920	3,153	1980	2,523
				1990	2,933

Note: In the early 1800's, the "township" of Bridgeton was split off of Deerfield Township and 1922 the Township was split into Deerfield and Upper Deerfield Townships.

The last census found that there were 2,933 persons living on 16.8 square miles giving the municipality an overall density ratio of 174.6 persons/square mile. Cumberland County's ratio

was 282.1. This translates into one person for every 3.7 acres of land. Population estimates by the U.S. Census Bureau in 1998 shows an increase of 165 people, or 3,098. This would be 5.6% increase. Given the steady issuance of zoning permits for new residential construction, it is probable that the Township will have a 2000 population of somewhere near 3,150. The South Jersey Transportation Planning Organization has made projections for the Township in 1999 of 3,286 with that increasing to 3,537 in 2005 and 4,193 in 2,015. This would represent a 42.3% increase in 2015.

The Township's location and rural setting make the area attractive for residential developments which in turn will increase its population. The building of homes within the Township has remained consistent over the past ten years. Local residents have however, sensed the increase in development and have raised concerns about the loss of character associated with such growth. Current zoning regulations permit development on one and two-acre lots throughout most of the Township. Densities are higher within Rosenhayn and Carmel however, although on-site septic disposal has meant that development at these levels cannot occur. The buildout analysis in Chapter 2 indicated that current zoning could result in a population of 9,081.

Future Land Use Plan

Figure 14, the **Future Land Use Plan** map, shows development largely centered around the town of Rosenhayn and village of Carmel. Land use categories are presented for within and outside the centers. Three categories of land use shown, namely public, open space/conservation and public conservation, apply throughout the Township. The two centers' historic development patterns have largely shaped their proposed land use planning.

The Centers - Rosenhayn and Carmel

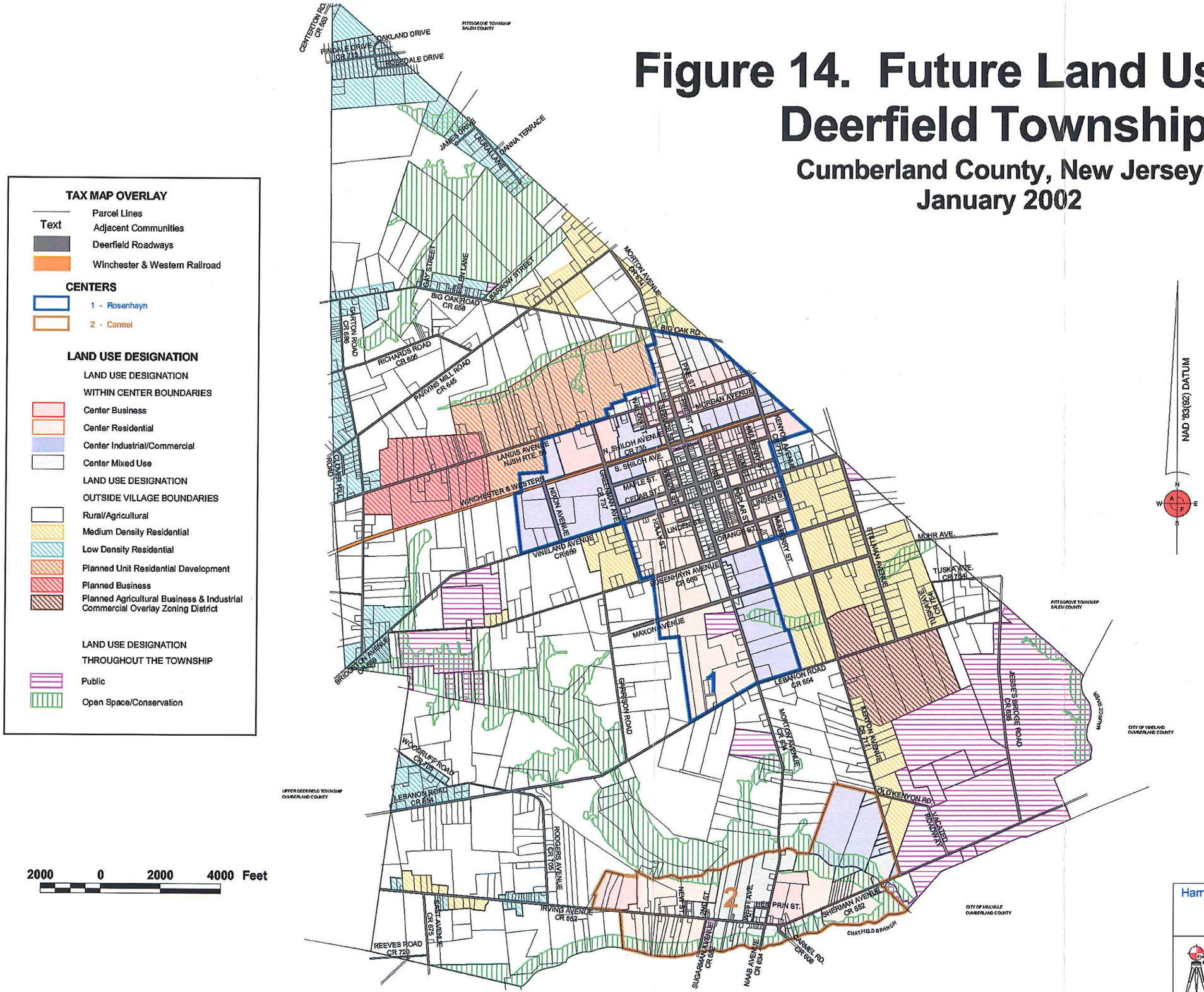
The following brief histories of the two centers are from a small pamphlet published by the Deerfield Township Teachers' Association in 1995 and entitled: ***The History of the Schools in Deerfield Township***.

Both the Rosenhayn and Carmel are historic settlements going back to the late 1800's. Rosenhayn was founded in 1866 by Joseph W. Morton for whom Morton Avenue is named. A brick yard was established sometime after the Civil War although residential settlement seemed rather limited and sparse. Prior to the building of the Central Railroad of New Jersey line in Rosenhayn, there was a fair amount of industrial activity. Besides the brick yard, there was a small iron foundry, a hide and tallow plant, sweater factories, and factories making men's suits and coats.

With the arrival of the railroad local produce became a viable export being shipped from area farms to Philadelphia and New York. There was a considerable influx of emigrants from

Figure 14. Future Land Use Plan
Deerfield Township

Cumberland County, New Jersey
January 2002



Harry R. Dare, AICP Planning Consultant
1726 Bluebirds Avenue
Williamstown, New Jersey 08094
New Jersey Professional Planning License No. L101810
(856) 218-0626 PHONE
(856) 218-0610 FAX

Fralinger Engineering PA
CONSULTING ENGINEERS, PLANNERS
ENVIRONMENTAL SCIENTISTS & LAND SURVEYORS
WEST PARK EXECUTIVE CAMPUS, 620 SHILOH PIKE
BRIDGETON, NEW JERSEY 08302
(856) 451-2000 PHONE
(856) 455-0702 FAX
E-MAIL: sally@fralinger.com
WEB PAGE: www.fralinger.com

Ellis Island around the turn of the last century. These were the Jewish colonists brought to America by the Baron de Hirsch Society to live in small houses and operate small family farms. Many had to work in the small industries within the settlements to supplement the income from their meager crops.

Another source of income began when local residents opened their homes to summer boarders to escape the heat of Philadelphia and New York. This soon became an annual business enterprise for these families' homes. Farming was given a boost with the arrival of Italian and Polish immigrants in the early 1900's who cleared more land for farming.

Carmel's existence began with the settling of its current site by Jonathan Bowen and his wife, Roseanna. They had moved from Bridgeton in the early eighteen hundreds to farm and conduct a ship chandler business. Their house and inn were constructed six miles from Bridgeton and four miles from South Vineland where the Bridgeton to Vineland Road (Irving/Sherman Avenue) crossed the Philadelphia to Cape May Highway. It was well known to weary travelers in its day.

Around 1870, the then owner of the inn brought several Pennsylvania German families to the area to farm near the inn and called it Beaver Dam. The settlement failed and was eventually bought by Michael Heilprin in 1882. ***The History of the Schools in Deerfield Township*** calls Michael Heilprin the founder of Carmel and notes:

> "[He] dedicated his life to help the oppressed. He was a descendant of a very distinguished rabbinical family, a great Jewish scholar and had mastered twelve languages. He set forth a plan for helping the Jewish immigrants to this country, and his plan influenced Baron de Hirsch to set up the Baron de Hirsch Fund (later known as the Jewish Agricultural and Industrial Aid Society) in the United States."

The group of Jewish refugees he brought and their farms gave rise to a new Jewish colony which they named Carmel after Mount Carmel in Palestine. Carmel means "Garden of God." Many of these settlers had fled Czarist Russia after the assassination of Alexander II in 1881. By the mid-1880's the settlement boasted of a synagogue, post office, library and school. With the premature death of Michael Heilprin in 1888, the settlers were on their own and shortly numerous problems arose. Fortunately, the community got help from Rabbi Sabato Morais who was a trustee of the Baron de Hirsch Fund. A grant of $45,000.00 provided the settlers with low-interest mortgages, language and agricultural classes and other services.

Farming was not profitable and so sewing became the settlement's main industry. The first factory was built in 1893. A larger one was built In 1889 which employed about one hundred people. The factory burned down in 1897 and only one other factory was left in the community. Unable to provide enough employment, many families began to leave the area. Carmel began to

grow again around 1908 when there were approximately 1,000 people living in the area. There were seven factories involving sewing, broom, button and cigar making. There were also several grocery and butcher shops and a furniture store. A lack of transportation was blamed for Carmel's factories to close and the population dwindled by the end of World War I. The village saw another boom in early 1920 before declining again following the Great Depression.

Rosenhayn has a population according to the 1990 Census of 1,053 (the boundaries for Census purposes are larger than the village designation described here). **Figure 14,** the **Future Land Use Plan map**, shows the boundaries of the designated villages which include slightly more than two square miles. The 1990 Census actually identifies Rosenhayn with counts and gives a total area of 2.7 square miles. Rosenhayn had approximately 325 housing units. It is currently home to a number of manufacturing/warehousing operations including trucking companies, a refrigerant manufacturing plant, two farm produce processors, a landscaping supply wholesaler, a construction business, a banana distributor, canvas company, farm supply firm; numerous commercial operations including retail sales, a bank, an insurance office, two gasoline service stations, a number of personal service establishments, auto repair garages, a driving school, four churches, a post office and the Township school, municipal complex and firehall. Employment in Rosenhayn is estimated to be more than 200 jobs.

Rosenhayn was originally found in the classic gridiron pattern with Landis, Morton and Kenyon Avenues being the major circulatory routes through and around the town. The railroad as noted, came after the original settlement plan was laid out and bisects the town along an east-west axis.

Carmel's population is estimated to be approximately 350 and there are approximately 80 dwellings. It encompasses just less than one square mile as shown on **Figure 14**. Businesses located within the village include retail stores, a restaurant supply wholesaler, two private school facilities, and several service businesses. Employment exceeds 50 although not all persons work in Carmel although that is where they report for work. Development has occurred in a linear pattern along the major traffic arterial roadway, Irving/Sherman Avenue and to a lesser extent north along both Morton and Kenyon Avenues.

As can be deducted from the above descriptions, land use patterns mimic village/small town development in the intermingling of residential and farm activities with business, industry, public or quasi-public activities. This diversity of land use spread across the two centers adjacent to and separated by housing, most of which is single-family, detached, is typically village and small town-like. This mixing of land use activities has not been without strains and adverse reactions with some residents complaining over living next doors to major business operations and others indifferent to land use since it has always been a part of living in these communities.

The Plan for Future Land Use

The **Future Land Use Plan** and its accompanying map are designed to address broad land use categories which offer suggested densities and conditions to be met by specific land uses within the areas so identified. Individual land use categories may actually require more than one zoning district to address the site specific issues such as affordable housing or the availability of public infrastructures and to meet specific density goals. It is strongly recommended that any development activity meet appropriate conditions to assure its compatibility with and sensitivity to its surrounding land uses and environment.

The **Plan** further makes distinction between land use activities proposed for: within the designated centers; those areas outside the centers including the special planning areas and the remaining environs; and finally, those categories which are based on open space and conservation considerations which are Township-wide. The overall goal is to retain community character by trying to make new development fit in and compliment existing identity, not drastically alter it.

The **Future Land Use Plan** for the two centers is to permit and encourage a continued mixed development pattern and to define zones to a broader extent than that normally practiced in traditional orthodox planning. In an attempt to make this intermingling of land uses more acceptable and compatible it is recommended that the type, scale and placement of such uses be more rigorously controlled. In other words, to make land use "village-sized or small town." The rigorous controls refer to the conditions to be met in the placement, design, and provisions of amenities by high density residential, commercial or industrial land uses. The four land use categories proposed within the centers' boundaries and their descriptions are provided below:

Center Residential - This land use category encompasses the range of residential uses which are recommended within the centers. Since the centers are to receive the lion's share of proposed future development and are proposed for public sewers and water to accommodate such growth, all types of residential densities would be expected to be allowed somewhere within these areas. Single-family, detached units are suggested being located on minimum one (1) acre lots, an increase in density made necessary by concerns over the suitability of soils within many areas of the center to receive and/or handle on-site septic disposal and potable water supply. Densities could be reduced to half to quarter acre lots if public sewer and/or water were made available. Regulations need to be more specific on buffering, landscaping and home placement as density increases.

The Center Residential designation would also include provisions for apartment, townhouse and duplex development at appropriate densities where public sewer or water is provided. Development regulations should limit such high density, multi-family developments to areas of the centers capable of supporting them in terms of traffic or natural conditions, require them to provide recreational and open space amenities, are designed to reflect surrounding structures' scale and placement, and be limited in number within given locations to prevent urbanizing a neighborhood or area within the center. A scattering of such development throughout the center is recommended. Areas of southern Rosenhayn would appear to be ideal

locations for such residential activity next to the Township school.

Because of the centers' small size and the aim of centering development within its boundaries, it is conceivable that this land use category could be split into two or three zoning districts to allow specific location of different types of residential uses to available areas deemed suitable to accommodating such densities. For example, one zone might allow single-family, detached or one attached development (one acre or half acres depending upon the available of public sewers), another the same uses plus or just multi-family development (eight to twelve units per acre with public sewers) and/or as suggested as part of the **Housing Plan** element's recommendation, a district having similar densities to either of the two other districts noted to allow a variety of housing types which might accomplish the goal of providing affordable housing.

The main intent of this land use category is to identify the two centers as the main receiving area within the Township of a variety of housing types at varying densities. Additionally, this land use category could allow housing conversions and limited home occupations. The land use category would remain however, essentially residential in nature, developed largely of one- and two-unit structures with some multi-family developments strategically placed on land suitable such density.

Development regulations should be implemented which address the obvious issues associated with development allowing for higher densities. Increase traffic controls, parking, sidewalks, landscaping, trees, lighting and recreational or open space opportunities all must be required where applicable to assure that the village or town will continue to function with a unified sense of identity.

Center Mixed Use - Taking a cue from existing land uses patterns in the Township, this land use category would attempt to duplicate the commingling of land use activities that has historically occurred. It proposes allowing limited business uses to occur in what is largely intended to be a residential setting similar to land use patterns existing along Morton Avenue in Rosenhayn and Irving Avenue in Carmel.

Business activity would be limited in location by existing conditions like an existing business already present and/or adjacent to the property involved, or the size and nature of a proposed business, adjoining land uses and lot sizes. Primarily commercial activities like small retail and personal service establishments which would be expected to be sized based on its being patronized by the center and its environs with some intermix of other appropriate commercial activities. Regulations governing this land use category might want to limit the number and type of commercial and/or residential land use that can be created along specific distances of a major roadway where it is shown for the purpose of maintaining the village or small town atmosphere, that such mixed uses would be mutually compatible.

Actual highway business type activities would be difficult to accommodate in this type of

environment although some facilities might work well. Food and lodging establishments would be an example. Additional auto repair businesses would not. Development regulations must be crafted to be sensitive to the delicate balance that must be maintained for such a mix to work. Lot sizes for business uses would vary again from one-half acre up to two acres. Lot coverages should be very low or be designed to accommodate existing conditions.

Residential land uses would be varied and the minimum lot size for a single-family, detached dwelling would be one acre without public sewer and half to quarter acres with it. It is conceivable that some form of multi-family residential development would work well in this proposed land use environment. And current zoning standards for such development would be appropriate in the land use category.

This land use category would lend itself to accommodating a hybrid of the home occupation, a home business. A home business is differentiated from a home occupation in the type and scale of activity permitted, i.e., more obviously identifiable from the street as a business than a home occupation. For example, it might allow display of goods in a window or on a front porch or yard. While still limited in its scope and operation, a home business would be a more active commercial use than normally permitted for a home occupation. This would encourage those interested in operating a home business or working at home to locate in such an area and make them more tolerant of their commercial neighbors. If successful, it might also offer an interesting mix of land uses and increase the village's or town's identity as a true community center.

Center Business - This land use category is shown mostly along Landis Avenue and is intended as a transition area between the existing industrial area between Morgan Avenue and the rail line west of Kenyon Avenue. It might involve two business districts, one a highway business abutting Landis Avenue, an arterial roadway, and the other a regular business district. Lot sizes depending on location and business type would range in size from one to five acres, perhaps smaller if public sewer and/or water is available. Residential use might be considered for the regular business district and if allowed, but would be limited to either an accessory to a business or a conditional use for allowing a mixed use with business on the ground floor and apartments above.

Development regulations must be specific as to what type of use can be developed according to location, as an example, the highway business type activities having a given amount of frontage on an arterial roadway. Buffering from nuisances such as traffic noise, glare and trash between commercial and adjoining residential properties must be detailed. Additionally, scale of development should be limited to prevent major conflicts or incompatibility with surrounding land uses. Landscaping and limited lot coverage is recommended to maintain the village, small town character. Regulations should also require more open space be provided where residential use of any type is to be allowed.

Center Industrial/Commercial - This category is intended to provide for traditional industrial

and business activities of a larger scale. The reason it too is a hybrid of normal separated land use categories, is that in today's business world, intermingles of manufacturing, warehousing/distribution and retail or service commercial activity is quite common. It is recommended that an industrial park be established between the rail line and Vineland Avenue in northeast Rosenhayn. Such parks normally allow beside traditional industries or commercial operations, office or professional centers or campuses, as well as retail establishments which provide services and goods for them like banks, lodging facilities, restaurant and small shopping centers intended to serve the main industrial/commercial uses.

Any activity within this land use category again should be sensitive to its location, i.e., within a village or town, and regulations should assure that type of use, design, landscaping, buffering and other necessary improvements or design criteria are in place to assure any uses' or a park's blending with its neighboring uses. Typical lot sizes would be one to five acres with planned development encouraged. Development regulations should pay careful attention to coverage requirements since they will best define village or small town development. Residential activities would be excluded from these areas.

Again, it needs to be emphasized that smaller sized development and the compatibility of use activities must be paramount in allowing and regulating these land use categories. At this point in time, Deerfield Township has indicated a desire to retain a small town character which includes has historically meant a mixed variety of land uses activities at a scale commensurate with the two centers and their surroundings. Heavy industrial activities are better suited to an industrial park in one of the urban areas of the County. Industrial activities involving manufacturing, assembly, distribution, warehousing, and processing of foods, pharmaceuticals, or other none dangerous or noxious products might be allowed. The scale and scope of land use to be permitted would depend on the availability of public sewer or water. Development regulations should identify specific "heavy industrial use activities" which are deemed inappropriate to the village- and town-sized development intended by this Plan.

Future Land Use Outside Center Boundaries

For those areas outside of designated centers which the State Plan refers to as the centers' "environs, " there are two dimensions. Deerfield Township's environs are largely rural with the exception of three areas of the Township which have specific existing land use activities or locations which make them special in terms of their future land use. Although not a part of the two centers' environs, the Future Land Use Plan map identifies these three areas for more dense development than most of the rest of the Township. The descriptions of the six land use categories proposed are as follows:

Rural/Agriculture - This category denotes land that is currently rural in character and marked by the continued presence of farm activity. It encompasses the largest area of proposed land use in the **Future Land Use Plan**. Development is to be limited within these areas and farmland

preservation encouraged. Overall density for these rural/agricultural areas as shown is recommended to be one unit per three acres of land. To address the need for farming families to provide residential lots for family members, employees or to periodically raise money by selling nonproductive lands, it is recommended that as a conditional use landowners be able to create a limited number residential lots within a specific number of years for these same stated reasons. Additionally, all residential development not related to an ongoing farming operation should be required to establish a minimum 150-foot agricultural buffer to reduce the conflicts between the agricultural and residential uses.

A cluster development should be required for all developments of four or more lots. Such clustering should require that the same overall density for this land use category be maintained - one unit/three acres. This would require the permanent preservation as open space or farmland in an amount equal to the three acres less the cluster minimum lot size allowed (Example: a one and half acre minimum lot would require one and half acres of preservation), and there would need to be a minimum number of lots to assure a meaningful tract of preservation. Regulations governing such a conditional use would also have to assure a buffering between any land preserved for farming so that residential uses did not negatively impact the same. Regulations should also require limitations on location of such developments to prevent intrusion of residential development into agricultural or open space/conservation areas. This might require, where practical, that two developments cluster their houses adjacent to each other making a mini-center surrounded by the preserved farmland or open space and/or not more than a given number of clusters within a stated proximity to each other.

This land use category would also encourage farming business activities as a conditional use. These activities would enable a farming operation to supplement its income by using its structures, lands or equipment for nonagricultural related business activities. For example, the use of trucks or tractors for a snow removal business, warehousing in unused barns or sheds, and repair business for farm equipment would all be farm businesses. Such "farming businesses" would be different from farming activities identified as best practices by Rutgers, The State University Agricultural Extension, or as defined by the Right to Farm Act.

Low Density Residential - There are a number of existing residential areas within the Township where residential development has been allowed and exists at two acre or larger lot sizes. The low density residential category would include those areas and some additional land adjacent thereto for residential development at a minimum lot size of two acres. A residential cluster option is also recommended to be allowed as a conditional use.

Medium Density Residential - Existing development in the north and west of the Township gave rise to this medium density residential land use category. It is shown to include several large areas of existing, one acre size lot development. Should the Township not be able to provide public sewers within either of the centers, this and the low density residential areas should be considered for accommodating reasonable growth to occur if not able to be centered as proposed.

As shown on the Future Land Use Plan, these areas are shown to include existing development with not too much expansion (in deference to the centered development concept of the overall Plan).

Planned Unit Residential Development - A considerable portion of land on the north side of Landis Avenue between the town of Rosenhayn's boundaries and the proposed Planned Business area, as shown on the Plan, is recommended for a planned unit residential development(PURD). These lands are currently being farmed or wooded with limited development along the highway frontage. They also abut Lummis Branch to the north. Their location adjacent to the town center, an arterial highway and the existing highway business area to the west may hasten the discontinuance of their continued use and offer a well-sited future planned unit residential development area. To prevent sprawl, provide a methodology that would encourage protection of natural resources (wetlands along Lummis Branch and perhaps some farmland) and allow for a variety of housing, the planned unit residential development as currently permitted in the Township is recommended to be designated in this area.

The current zoning regulations had designated lands along the Maurice River and the City of Vineland for such land use, but those lands were purchased by the Landis Sewerage Authority and are no longer available for such development. Current regulations permit PURD's of 50 units or more at densities allowing 20,000 square feet lot areas. A PURD would require that public sewer be available. Additionally, a PURD would be permitted to have a small percentage of its land area along the highway for commercial development. This might be 5% of the overall land area or a ratio of square footage of residential/commercial floor area.

The term "planned unit residential development" is intended to include for purposes of this **Plan** a cluster development or other type of residential planned development meaning primarily residential uses and is required to preserve a given percentage of open space, either farmland and/or natural features like wetlands or stream corridors. For instance, the establishment of age restricted development might be permitted in this area. Should public sewers be unavailable to the Rosenhayn, then this area might be considered for minimum one acre medium density residential still allowing for planned developments like clustering with the one acre minimum lot size. It is inconceivable that this area could allow mobile home parks as a planned residential development although if allowed, such developments should be licensed and have detailed regulations assuring their planned nature, that is including required open space, setbacks, buffers, roadways and other amenities normally or customarily associated with planned residential development.

It is further intended that these areas are seen as transitional between the center and the planned highway business area to the west along this heavily traveled State roadway. Planned residential activity would reduce the impact on the roadway (limiting access points) and help to preserve it from strip commercial development for its entire distance through the Township. It is recommended that planned residential development be a conditional use with principal uses limited to agriculture activities, and lot sizes of three acres for residential development.

Planned Business - The existing highway business activity along western Landis Avenue from just east of Garton Road for three quarters of a mile is considerable and long lived. Currently as noted in the **Circulation Plan**, the land which is divided in deep narrow lots is mainly developed for a depth of several hundred feet. It is recommended that this area be deemed planned business to require that future land use activities be planned to make maximum use of the entire tract and to reduce the impact of too many individual businesses creating unsightly sprawl along the highway as well as to many access points for so short a distance of roadway.

The regulations that would establish this planned business area would call for large lot development with considerable frontage or shared access and required planning for the future or ultimate use of the interior of the lots involved. This requirement should also be placed on any existing business proposing expansion or a change of use triggering site plan review. Large lot development would mean five acres or more that might encompass a national chain store, shopping center, office/professional complex or campus, combination of lodging and/ chain restaurants, and entertainment/recreational uses. Coverage, impervious cover, should be limited to between 50 and 60% of lot area. Agricultural buffers should be required as well.

The term "planned" would be aimed at requiring either one or a multitude of uses fully utilizing the commercial lot to its fullest extent with limited access and reduce clutter to the highway. Although a particular use might not need more than an acre or two for its own use, the site plan would require that details be shown how the remainder of the tract will be developed. The Township might seek the help of the N.J. Department of Transportation to develop such a regulatory scheme as a model for limited and controlling commercial strip development along so important a State roadway. This might be accomplished by designating the number of access points to be permitted. Perhaps funding could be provided to offer assistance through brochures, pamphlets or booklets to show planning designs and techniques to help prospective developers and their planning and engineering professionals meet the criteria proposed. The regulations should encourage other uses to seek sharing or opting into such planned developments where appropriate to their needs and available before seeking permission to develop another site. It would be intended to center such highway business and make maximum use of the lands already used for highway commercial business.

Planned Agricultural Industrial/Commercial - This future land use category refers to lands adjacent to the Cumberland County sanitary landfill on the south side of Lebanon Road and just north of them along Kenyon Road and adjacent to the same type of land use category within the town of Rosenhayn. These lands are north of Lebanon Road is already the site of a farm produce processing plant. Currently the land south of Lebanon Road is farmed and this would be the recommendation for their future land use. However, it also recommended that an overlay zoning district be developed that would allow planned agricultural industrial/commercial development to occur.

The key to this overlay district would be that it would encourage and permit the locating

of agricultural-related businesses to be established in an area perhaps not well suited to residential activities. The Utility Plan also recommends that this area should be provided with sanitary sewer service since the County landfill already is hauling its leachate to the Cumberland County Utilities Authority. The State Plan also encourages the preservation of agriculture including providing those services necessary to that purpose. Permitting the development of agricultural-related businesses in this area would support agriculture and be located in an area suited to it. Regulations identifying permitted agricultural businesses should maintain strict limits on the scope and type of activity to be permitted so that hazardous or obnoxious land use activities are not permitted.

There are also shown on the **Future Land Use Plan** map, three categories of land use that can occur throughout the Township either inside or out of centers. They are the public, open space and conservation land uses and are detailed below.

Public - These are lands owned by a bona fide public entity and utilized or intended for use by a public agency. They include public buildings, schools, the County landfill, the lands of the Landis Sewerage Authority, and Department of Environmental Protection held lands.

Open Space/Conservation - These are lands that are designated for open space and conservation because of their environmental sensitivity. They can be seen on the **Existing Land Use, Open Space and Conservation Plan**, and **Recreation Plan** maps. For the most part, they are lands located along the various streams running through the Township and their attendant wetlands or wooded areas. Their use is recommended for conservation and preservation with limited, conditions-permitting open space and recreational use. From a land use standpoint, it is recommended that they be protected from undue development or harm from adjoining development by an overlay district. Such an overlay would identify the areas of concern as shown by this land use category and impose higher standards for development within these areas than allowed on the underling zoning district regulations. Thus although zoned for residential or business based on adjoining lands' zoning, within these areas development regulations would be more strict in terms of setbacks, types of activities permitted and other zoning requirements based on the sensitive environmental nature of the lands and the detrimental effect development poses.

Within overlay areas, the land use activities should be limited based on findings during development review that said lands are indeed environmentally sensitive. Development regulations should require substantial setbacks, dedication of such lands as part of development project approval or private permanent preservation, and lower coverage standards. Some provision should be made to permit use of land for reasonable development given the extent or degree of environmental sensitive present or adjacent to land proposed for development. The land areas under this land use designation are also highly recommended for purchase for open space and conservation preservation.

Within both of these two above noted designated areas are included lands that should be preserved as permanent open space. Some of this land is already in public ownership and also identified as environmentally sensitive and thus recommended for open space and/or conservation purposes like those shown in the **Open Space/Conservation** land use category. Although they may not be presently dedicated to public use, it is the recommendation of this plan that they are so preserved and that public ownership should not be relinquished because of their value for conservation and/or open space uses in the future. As shown on the **Future Land Use Plan** map, the lands in this category are owned by N.J. Department of Environmental Protection, the County of Cumberland and the Township of Deerfield.

A Buildout Analysis

A buildout analysis was performed on the various land use categories permitting development and taking out existing developed or unusable lands. It is discussed here on a category by category basis to help explain its tabulation.

Rural/Agriculture - There are approximately 3,589± acres of available land in this category as shown on the Plan. Both the conservation areas and existing development has been subtracted to give the available land figure. It is assumed that 85% of these lands will require new roads and accompanying infrastructure like storm sewers to be developed. Since the Plan recommends that development involving four or more lots will have to be by clustering then the acreage available for housing will be reduced further. For sake of analysis there is the assumption that 15% of this area will be development located on existing roadway frontages. The net result of this scenario based on the recommended one (1) unit/three (3) acre ratio proposed, is that approximately 839 new units will be developed.

The proposed permitted uses within this category would still largely be related to agriculture with conditional uses permitting rural residences and a cluster option which would retain the same density as the overall density allowed, a ratio of 3/1. Regulations would also require that all nonfarming related activity be buffered from active farmland to provide a buffer for farmers and reducing the negative impacts of nonagricultural development within farming areas. This factor was not included in the calculation.

Low Density Residential - With an estimated 524 acres developed at 1 unit/2 acres, this land use category would permit a total of 264 units.

Medium Density Residential - At 1 unit/1 acre, this category of land use has a limited 288 acres available for development which would result in 288 units, perhaps less with strict regulation of new development activity along major County roadways are implemented and enforced. Much of this land use area is already developed and is intended to not create nonconforming lots or uses by recognizing the existence of these long time residential areas. This figure may also reduce by clustering requirements.

Center Residential - The 468± acres available for development within this category and the land areas shown within it would seem to indicate that it would be developed 50% on existing lots and 50% would require new roads and accompanying infrastructures. Without sewers thereby requiring minimum one acre lot sizes, this would result in perhaps 398± dwelling units. With sewers, a half acre per dwelling unit capacity would yield is estimated to increase to 796± dwelling units.

At quarter acre lots, the total yield might grow to 1,592± units. Clearly, development regulations will have to be very closely analyzed to determine the right mix of housing to attain a viable and appropriate outcome in full buildout.

This buildout analysis by it nature is a very sketchy and inaccurate picture of what may occur. This land use category is probably one of the most difficult to break down in terms of its expected development pattern over the next 20 years. Sewer or no sewer, virgin land requiring new roads and infrastructure or infill development, single-family, detached, duplexes, townhouses, garden apartments, the possibilities are considerable. It is estimated considerable impact on total number of new units is deliberate however, in that it is intended to keep them in the center not spread out across the community. How it develops will depend on the regulations guiding new land uses within the centers.

Planned Unit Residential Development - For purposes of making this analysis, the full 301± acres were assumed to require 25% open space set aside and 15% roads and infrastructure and would be then be developed entirely at a PURD with 2% of the area to be developed being in commercial and remainder residential of varying types. This would appear to result in 1,062± new dwelling units and 43,560± square feet of commercial space. Of course, should other planned developments be substituted for PURD, like clusters or specialized housing, then there would be reduced or no commercial development and substantially less dwelling unit generation. Without sewers, the area designated this category would have probably less than a third of the total number of new units.

Center Business - Center Business is estimated to comprise approximately 141 acres available for development and the analysis assumption is that about 20% might have a residential component to it while the remaining 80% would be all commercial. This would yield (without sewers) 16 dwelling units and 330,960 ± square feet of commercial floor area.

Center Mixed Use - Assumed to develop as 30% commercial and 70% residential for purposes of trying to estimate new growth potential, these 137± available acres will be generating approximately 584,446± square feet of commercial/business floor area and approximately 246± residential units with sewers or perhaps slightly more if multi-family structures are permitted. Without sewers dwelling units would decrease to 41 units.

Center Industrial/Commercial - The area encompassing 279 acres of this category could

produce 2,641,478± square feet of industrial and commercial floor space. This is based on a 30% coverage requirement.

Planned Agricultural Business - These 99± acres with a 40% maximum coverage and less 15% for roads and infrastructure would generate approximately 1,188,752 square feet of industrial and commercial floor area. In all of the business and industrial/commercial category land uses, the intent is for them to be buffered and limited in coverage to fit into either their center or rural setting.

The overall result is to substantially reduce the number of residential units capable of being built and increasing the industrial and commercial area. Total residential units without public sewers are estimated to be 2,023 dwelling units. With public sewers made available, total dwelling units might increase to 3,147 units at half acre lot sizes, 3,306 if quarter acre lots are allowed. If actually realized over the 20 year span of this Plan, which is unlikely, an additional 6,069 persons might take up residence in the community without sewers and 9,441 persons with sewers and half acre lot sizes. Compared with current zoning buildout figure given in Chapter 2, overall buildout will be reduced and even slightly so if infrastructure is installed.

The amount of square footage for commercial and/or industrial floor area would equal 4,127,911, also a reduction over current zoning buildout.

Recommendations:

1. Prepare new land use regulations aimed at achieving the goals and objectives of this Plan and in accordance with the guidelines stipulated for the various land use category types at their various locations throughout the Township.

2. Allocate land use to result in desired population and industrial/commercial floor areas over given time periods. It is unlikely and unrealistic to expect development to occur so rapid as to double the population within 10 years given past population trends. Although well sited, it is unlikely that new growth would occur that quickly. It is recommended that any zoning regulations not more than double the current population over ten years.

3. The Planning Board should closely monitor development activity and periodically have data analyzed in light of the Master Plan's goals and objectives are being addressed and attained. This should more often than the six-year reevaluation of the Master Plan given the impact a major spurt of development activity can create. In this way, it would allow for making adjustments to keep the Plan focused and prevent or reduce the chance that development overwhelms the community.

4. Carefully considered the impact of proposed densities upon future population growth and the ensuing need for public services and amenities. This will directly affect the capital

budgeting process of the community and therefore, substantially impact tax rates.

Possible Sources of Support:

CCDPD	Cumberland County Department of Planning and Development All State departments and agencies N.J. League of Municipalities

Chapter XII Relationship of Master Plan to Other Plans

The Municipal Land Use Laws requires that a master plan include a specific policy statement indicating the relationship of the proposed development of the municipality as developed in the master plan to (1) the master plans of contiguous municipalities, (2) the master plan of the county in which the municipality is located, (3) the ***State Development and Redevelopment Plan***, and (4) the district solid waste management plan. As can be seen in the following itemized analyses, this master plan proposes land use activities and policies related to the same which are consistent or contrary to the policies and objectives of the master plans of adjoining municipalities, Cumberland County, the State Plan or the Cumberland County Solid Waster Management Plan.

Municipal Plans

Fairfield Township - Fairfield Township borders Deerfield Township along Chatfield Branch from the Millville city line west. Deerfield Township's land area adjacent to that border is proposed for rural/agricultural and the area along the Chatsfield Branch is proposed for conservation. Fairfield's current land use policies call for the land from Fordville Road, County Road 675, east to Millville to be R-2 Residential allowing single-family, detached dwellings on minimum lot sizes of 80' x 100'. The proposed conservation area proposed in the Deerfield Township Master Plan would buffer most of this border with green open space along this stream and its wetlands.

City of Millville - Deerfield Township's boundary with the City of Millville begins at the southeastern most point of the community and runs southwesterly to the Chatfield Branch and then follows that stream west to the Fairfield Township line. South of this border in Millville, the area south of Sherman Avenue in Millville is identified as Public Open Space and this land use category corresponds exactly with the boundaries of the Union Lake Management Area, owned by the N.J. Department of Environmental Protection. The NJDEP also owns lands on the Deerfield side of this municipal border, also parts of the Union Lake Management Area, and which run from the southeastern point of Deerfield Township to Lebanon Branch. These lands with the exception of one nonpublic tract of land identified as rural/agricultural, is designated Public Conservation within Deerfield Township.

The lands along the remainder of Millville's border with Deerfield Township south of the Chatfield Branch and the village of Carmel are classified as Agricultural Conservation, the City's

least dense zoning area requiring five acre minimum lot sizes. Again, the Township's proposed preservation of the stream corridor provides a buffer between the two municipalities and a natural barrier between the village of Carmel and any development to the south in the adjoining municipality. There appears to be consistency with these land use categories.

Pittsgrove Township, Salem County - Almost all of Deerfield Township's eastern boundary is with Pittsgrove Township in Salem County. The border line runs from Centerton Road in the north of the Township south the Maurice River below Tuska Avenue. Starting at this southeastern end of the boundary and moving north the lands within Pittsgrove Township up to the boundary line's intersection with Stillman Avenue are designated Conservation requiring five acre minimum lot sizes. Within Deerfield Township, this same stretch of border is designated either public or conservation from the River north to Lebanon Road. From Lebanon north to the border intersection with Stillman the land use designation is Agriculture proposed for three acre minimum lot sizes.

From Stillman Avenue north to Landis Avenue in Pittsgrove, the land use designation is Commercial/Industrial. On the north side of Landis, the land use designation changes to Highway Commercial/56 denoting the highway business uses permitted along this stretch of Route 56 just east of Rosenhayn. This designation is approximately 1,000 feet deep and then changes to R-40 south of Big Oak Road, called Garrison Avenue in Pittsgrove. This R40 Low Density Residential area permits single-family, detached dwellings on 40,000 square foot lots. On the Deerfield side, the land use categories are Agriculture half way to Landis Avenue where it changes to Center Industrial up to Landis and from Landis to north it is Center Business. Pittsgrove Township has considerable business and industrial activity at this location adjacent to Rosenhayn along Landis Avenue very similar to Deerfield Township. Again, the two communities land use classifications are consistent.

The R40 Low Density Residential land use category continues north on the Pittsgrove Township side to Parvins Mill Road. North of Parvins Mill Road the classification changes again to Rural Residential Zone permitting two acre lots. Within Deerfield Township along this same area beginning at Big Oak Road the land uses are Agricultural then an Open Space/Conservation strip following the Lummis Branch stream corridor, then becoming R2 Low Density Residential allowing two acre lots for half the way north to Parvins Mill Road. For a short distance it reverts back to Agriculture.

North of Parvins Mill Road, Deerfield has Agriculture then another stream corridor for Thundergust Branch and then becomes R1 Medium Density Residential allowing one acre lots to accommodate mostly existing residential development. At no place along this long municipal boundary does there appear to be inconsistency in land use or cause for major land use conflicts.

Upper Deerfield Township, Cumberland County - Deerfield Township shares its entire western boundary from Fairfield Township in the south to Pittsgrove Township in the north with

Upper Deerfield Township from which it split in 1922. From the point where Deerfield, Fairfield and Upper Deerfield Townships boundary line intersect north to Lebanon Road, County Road 654, Deerfield Township has designated the area rural/agricultural with a small amount of residential development (one and two-acre lot sizes) along Irving Avenue approximately a quarter of a mile from the boundary. The land opposite these lands within Upper Deerfield, are all deemed agriculture and require six acre minimum lot sizes. These same types of land use categories are repeated along each side of this border for its entire distance.

Upper Deerfield's lands adjoining the Deerfield line are all classified agriculture from Landis Avenue south. There is a strip of development along Landis Avenue 200 feet wide that is designated for two-acre lots and then from this area north to Parvins Mill Road, Upper Deerfield classifies the land R-1 Residential requiring one-acre lot size as a minimum. On the Deerfield side there is a conservation area designated on either side of Lebanon Branch and two areas designated as medium density residential (most existing one-acre residential development) one being located between Woodruff Road, County Road 705, and Lebanon Road, County Road 654, and the other just north of the conservation area noted along Bridgeton Avenue, County Road 659. The rest of the border from Irving Avenue north to Landis Avenue is designated rural/agricultural

From Landis Avenue north to just north of Big Oak Road, Deerfield Township has existing development designated medium density residential mirroring the existing one-acre lot development adjacent to the municipal boundary. From just north of Big Oak Road the lands are designated rural/agricultural until approximately one mile south of the municipal boundary with Pittsgrove Township which again are designated medium density residential area and again reflecting existing development. On the Upper Deerfield side of this stretch of the boundary there is the same type of land use classification with agriculture between Parvins Mill Road and Richards Road, County Road 605. From Richards Road north to Big Oak Road Upper Deerfield has an R-1 residential area then an approximately 400 foot strip of R-2 residential area which allows minimum lot sizes of one-half acre. Agriculture is then designated north to just south of Briarwood Lane which is also designated R-2 residential and then R-1 residential from just north of Briarwood to the boundary's end.

For most of this considerable distance, the border land use classifications and development patterns are identical with existing low to medium density residential appearing on both sides at various points and the rest of the boundary areas being designated for rural/agricultural land use or conservation. There appears to be no inconsistency with these land use policies either.

City of Vineland - Deerfield Township has a very short distance of its southeastern municipal boundary which borders with the City of Vineland. Current land use authorized within this section of the City is designated W5 Woodlands which permits single-family, detached dwellings on 100,000 square foot lots and farms on 250,000 square foot lots. Other uses permitted on 100,000 foot lots include kennels and riding academies.

On the Deerfield side of the boundary line the land use is publicly owned lands including the Department of Environmental Protections lands which are part of Union Lake Management Area and the lands of the Landis Sewerage Authority which is used for spray irrigation of treated effluent from its plant in Vineland. The Maurice River serves as a major buffer between the two municipalities and is largely owned by the N.J. DEP. There is no inconsistency with land use activities in relation to this boundary.

Cumberland County Master Planning

Deerfield Township has land use categories which are very consistent with the County's recommendations for stream corridor protection and agricultural preservation although the Township's priorities on farmland preservation of some lands in the eastern portion of the Township do not match those of the County. The Township has worked with the County as part of the State Planning cross-acceptance process and there appear to be no major conflicts with land use proposals as set forth. The Township has taken into account the importance of the County road system and has tried to recommend land use policies which will insure the integrity and efficiency of these important traffic arteries. The County has also indicated its willingness to amend its wastewater management plan to remove Deerfield Township from the rural area classification and show said lands within the planning jurisdiction of the Cumberland County Utilities Authority.

State Plan Consistency

The **Resource Planning and Management Map (RPMM) of the State Development and Redevelopment Plan** shows Deerfield Township having at various locations two planning areas and a park and recreation area within its borders. The Park & Recreation Area designated land corresponds to the N.J. DEP. Union Lake Management Area lands also reflected on the Township's Future Land Use Plan.

The PA4 Rural Planning Area composes most of the Township's area as shown on the RPMM largely due to the agricultural soils presence. The PA5 Environmentally Sensitive Planning Area is shown along many of the stream corridors and wetland areas associated with them. They appear to be consistent with the Township's designation of Open Space/Conservation corridors to include all the major streams of the Township. The **State Plan** also recognizes the the Township's centers, the town of Rosenhayn and the center of Carmel.

Portions of Vineland and Millville are recognized as a regional center by the State Planning Commission and Pittsgrove Township has a center identified in Norma which is located a mile or so east on Route 56. This center actually runs along Route 56 from the Deerfield-Pittsgrove border with considerable commercial activity along the adjoining lands. Pittsgove Township has not indicated any interest in seeking centers designation for this area although it is identified on its new master plan.

The Township's proposed planning policies for these planning areas appear to be consistent with the Township's proposal for land use and the **State Plan**. The Township intends to seek both plan endorsement and certification as part of the project to update the planning tools of the Township. This would include designation of the the Township's two centers. As was noted in Chapter 9, the Township is consistent with the district solid waste management plan as adopted by the Cumberland County Improvement Authority.