

COMPREHENSIVE FARMLAND PRESERVATION PLAN UPDATE

KNOWLTON TOWNSHIP
WARREN COUNTY
NOVEMBER 2021



COMPREHENSIVE FARMLAND PRESERVATION PLAN UPDATE

for

Township of Knowlton

County of Warren

Prepared November 3, 2021 by:

The Land Conservancy of New Jersey

An accredited land trust

19 Boonton Avenue

Boonton, NJ 07005



Barbara Heskins Davis, PP, AICP
NJ Professional Planner (License No.: 5926)

This original document was appropriately signed and sealed
in accordance with Chapter 41, Title 13 of the State Board of Professional Planners

COMPREHENSIVE FARMLAND PRESERVATION PLAN UPDATE

for

Township of Knowlton

County of Warren

Produced by:

The Land Conservancy of New Jersey

David Epstein, President

Barbara Heskins Davis, PP, AICP, Vice President, Programs

Kenneth Fung, Senior GIS Manager

Planning Interns:

Sameer Agrawal, Rebecca Bright, Hiyabu Habtemichael, Rachel Hammelman, Brielle Olshan,
Mihir Rastogi, Christopher Sudol, Ethan Wissler, Hope Wright

For further information, please contact:



19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010
TLC-NJ.ORG



Township of Knowlton
628 Route 94
Columbia, NJ 07832
PH: (908) 496-4816
knowlton-nj.com

November 3, 2021

ACKNOWLEDGEMENTS

The Land Conservancy of New Jersey acknowledges the following individuals and organizations for their help in providing information, guidance, and materials for the *Comprehensive Farmland Preservation Plan Update*. Their contributions have been instrumental in the creation of the Plan.

Township Committee

Mayor Adele Starrs
Debra Shipps, Deputy Mayor
Kathy Cuntala
Frank Van Horn
James Mazza

Agricultural Advisory Committee

René Mathez
Robert McNinch
Nate Smith
Paul Sullivan
Frank Arena

Township Staff and Professionals

Kristin Shipps, Clerk
Christine Rolef, Chief Financial Officer

Warren County

Corey Tierney, Administrator, Department of Land Preservation

State of New Jersey

Steven Bruder, Planning Manager, State Agriculture Development Committee

The Township of Knowlton Comprehensive Farmland Preservation Plan Update was prepared with funding from the New Jersey State Agriculture Development Committee.

TABLE OF CONTENTS

<i>Executive Summary</i>	1
Chapter 1. Agricultural Land Base	3
A. Agricultural Landscape	3
B. Soils.....	7
C. Irrigated Land & Water Sources	9
D. Farmland Trends & Statistics.....	10
Chapter 2. Agricultural Industry	13
A. Trends in Market Value of Agricultural Products Sold	13
B. Agricultural Production Trends	16
C. Agricultural Support Services and Related Industries	19
Chapter 3. Land Use Planning	21
A. State Development and Redevelopment Plan	21
B. Special Resource Area: Highlands Region	23
C. Municipal Master Plan.....	23
D. Land Use Trends	23
E. Public Infrastructure – Sewer and Water	24
F. Municipal Zoning.....	25
G. Density Transfer Opportunities.....	30
Chapter 4. Farmland Preservation Program	32
A. Warren County Agricultural Development Areas (ADAs)	32
B. Farmland Preserved to Date by Program.....	33
C. Term Farmland Preservation Program.....	37
D. Coordination with Open Space Preservation Initiatives	38
E. Farmland Preservation Program Funding Expended to Date by Source	38
F. Monitoring of Preserved Farmland.....	38
G. Coordination with Transfer of Development Rights Programs	39
Chapter 5. Future Farmland Preservation Program	40
A. Preservation Goals	40
B. Description of Project Areas.....	40
C. Minimum Eligibility Criteria	41
D. County and Municipal Ranking Criteria.....	47
E. Municipal and County Policies Related to Farmland Preservation Applications.....	47

F. Funding Plan	49
G. Administrative Resources	51
H. Factors Limiting Farmland Preservation Implementation	52
Chapter 6. Economic Development	53
A. Economic Development Plans and Initiatives	53
B. Agricultural Industry Retention, Expansion, and Recruitment Strategies	71
Chapter 7. Natural Resource Conservation	82
A. Natural Resource Protection Coordination	82
B. Natural Resource Protection Programs	87
C. Water Resources	91
D. Waste Management Planning	93
E. Energy Conservation Planning	94
F. Outreach and Incentives	97
Chapter 8. Agricultural Industry, Sustainability, Retention, & Promotion	98
A. Existing Agricultural Industry Support	98
B. Additional Strategies to Sustain, Retain, and Promote Agriculture	101
Maps	M-1
Appendix	A-1
Inventory Tables	T-1
Literature Cited	L-1

Cover Photograph: Terpstra Farm

Section Banners:

- Executive Summary: Brook Hollow Winery
- Chapter 1. Brook Hollow Winery
- Chapter 2. Hillyerd Farm
- Chapter 3. Brugler Farm
- Chapter 4. Makarevich Farm
- Chapter 5. Brook Hollow Winery
- Chapter 6. Bertholf Farm
- Chapter 7. Bertholf Farm
- Chapter 8: Brook Hollow Winery



Executive Summary

Knowlton Township is home to an impressive variety of farms, fields, nurseries, and woodlands. It is among the largest agricultural land bases in Warren County, and more than half the Township is assessed as farmland. Of the land in Knowlton Township that is not farmed, most is covered by rich forests, scenic ridgelines, wetlands, and winding streams. The Township claims significant natural areas associated with the Delaware River, Columbia Wildlife Management Area, and the Delaware Water Gap National Recreation Area. The rolling hills, expansive fields, and pristine natural lands in Knowlton Township combine to form one of the most beautiful rural areas in New Jersey.

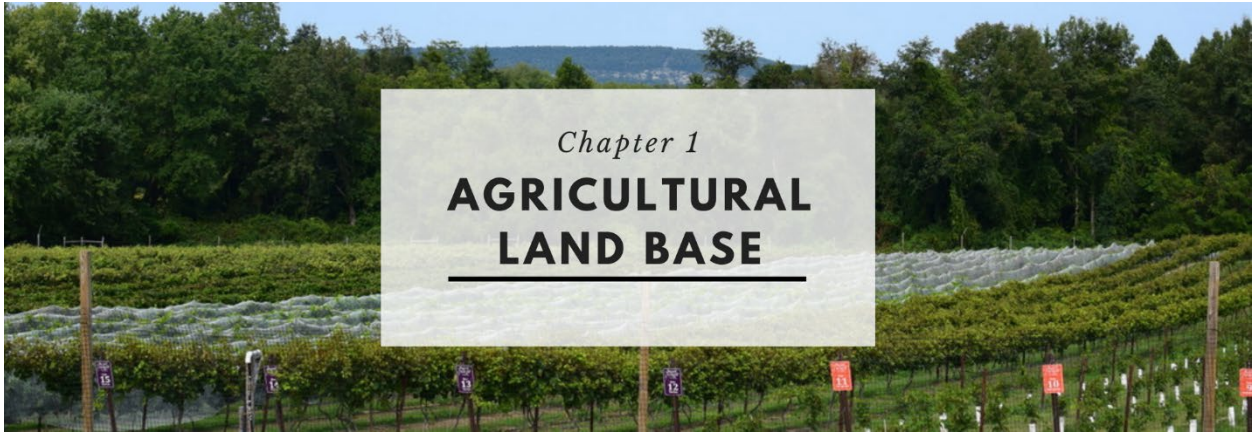
Knowlton Township has **8,274 acres** of farm assessed land devoted to agricultural or horticultural use. The town has aggressively pursued and supports the preservation of agricultural land with a goal of preserving 60% of its farm assessed land. Benefits of farmland preservation in Knowlton Township include:

- Maintains the rural nature of the municipality.
- Voluntary program for landowners.
- Permanently preserves cropland, pasture, and woodland and protects from development.
- Protects groundwater, which is the source of drinking water for residents.
- Protects forest and wildlife habitat.
- Preserved farmland continues to pay property taxes unlike lands owned by government.
- Significant state and county funds (\$8.6 million to date) directly to property owners.
- Improves the overall economy of the town.
- Improves the land value for neighboring property owners.
- Enables the viability of farm businesses, which in turn provides good local jobs.

Since 1995, Knowlton Township has preserved **2,472 acres** of farmland on **32 farms**. This substantial achievement has been due to the support of the Knowlton farmers who preserved their farmland, the support of Warren County and the State of New Jersey, and the support of the residents in Knowlton Township.

In addition to farmland already preserved, the Township has approximately **2,299 acres** that meet the State minimum eligibility criteria and are therefore potentially eligible for preservation. Knowlton has set the goal of preserving **11** additional farms totaling **1,100 acres** over the next ten years.

The *2021 Comprehensive Farmland Preservation Plan Update* restates the town's commitment to farmland preservation. It serves as an update to the *2008 Farmland Preservation Plan* and brings the town's farmland preservation planning efforts into compliance with the revised state guidelines.



Chapter 1. Agricultural Land Base

Note about the data used in the Comprehensive Farmland Preservation Plan Update:

Chapters 1, 2, and 3 use the Farmland Tax Assessment Dataset, provided by the State Agriculture Development Committee for 2017 and 2019. This is used in conjunction with the Census of Agriculture to provide summary information on the business of agriculture for the municipality and county.

Chapters 4 and 5 of the Plan Update rely on the digital mapping acreage, derived from the GIS (Geographic Information Systems) software used to create the maps in the Plan Update. The GIS is the basis by which potentially eligible farms (“targeted farms”) are identified and there may be slight discrepancies in acreage numbers from those provided in the Farmland Tax Assessment Data.

A. Agricultural Landscape

In 2019, the Township of Knowlton ranked sixth in Warren County, with **8,274 acres** of farm assessed land devoted to agricultural or horticultural use, including cropland, pasture, woodland, and equine operations.^a (**Map 1**) Preserved and public lands in Knowlton Township are shown on **Map 2**.^b

Due to the nature of the topography, 45% of Knowlton’s farm-assessed acreage is woodland/wetland (3,715 acres); with 4,495 acres designated active agriculture (cropland and pasture), and 64 acres designated as equine.¹ (**Figure 1**)

^a Farm assessed acreage from the 2019 and 2017 Tax Assessment Dataset.

^b See **Maps** Section at the end of the document.

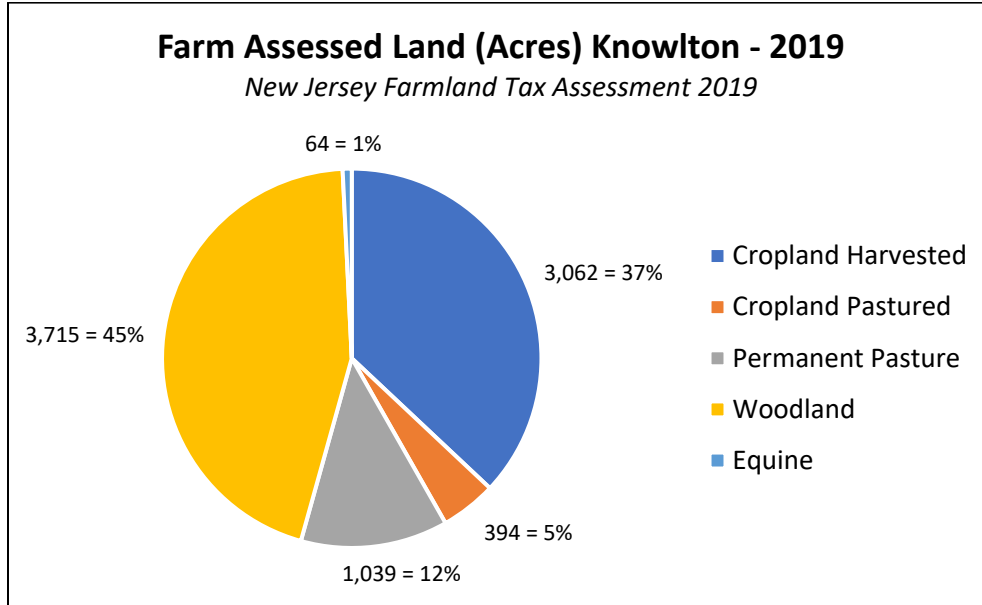


Figure 1. Farm Assessed Land in Knowlton (2019 Tax Assessment)

Knowlton is one of the most rural and scenic areas in New Jersey, perched on state’s western border with Pennsylvania. Farmland occupies 51% of the town and forms an integral part of the landscape, providing agricultural abundance to the region.

The town falls within the Ridge and Valley Physiographic Province. In the Paulins Kill Valley, field crops including, corn, soybeans, and oats are harvested on the town’s flattest areas and best soils. South of the Paulins Kill Valley, livestock farms and hay fields span the Township’s rolling hills.

According to 2015 Land Use/Land Cover (LU/LC) data from the New Jersey Department of Environmental Protection (NJDEP), 23.3% (3,794 acres) of the Township is dedicated to land in agricultural use. Over half (51%) of the township’s land is identified as forest. (**Figure 2, Figure 3, and Table 1**)

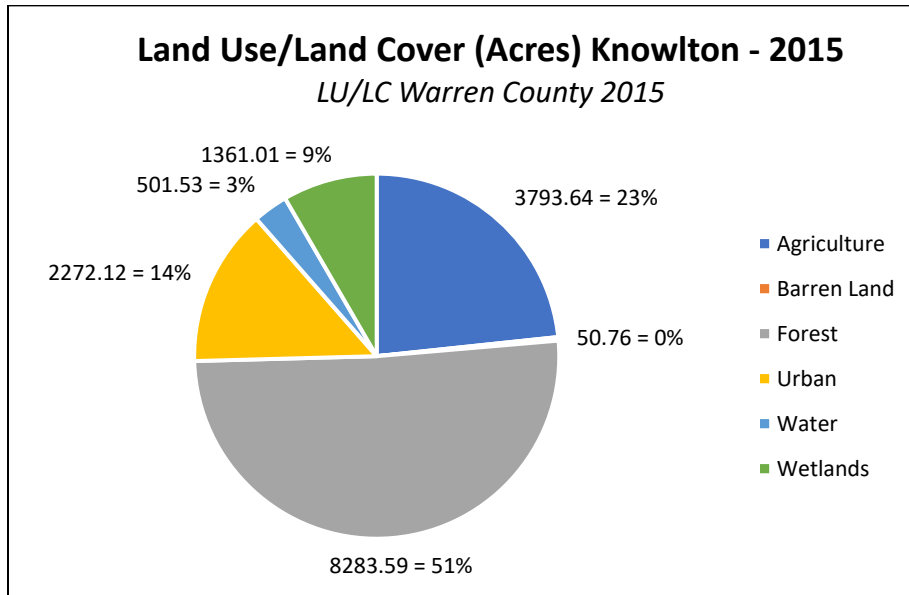
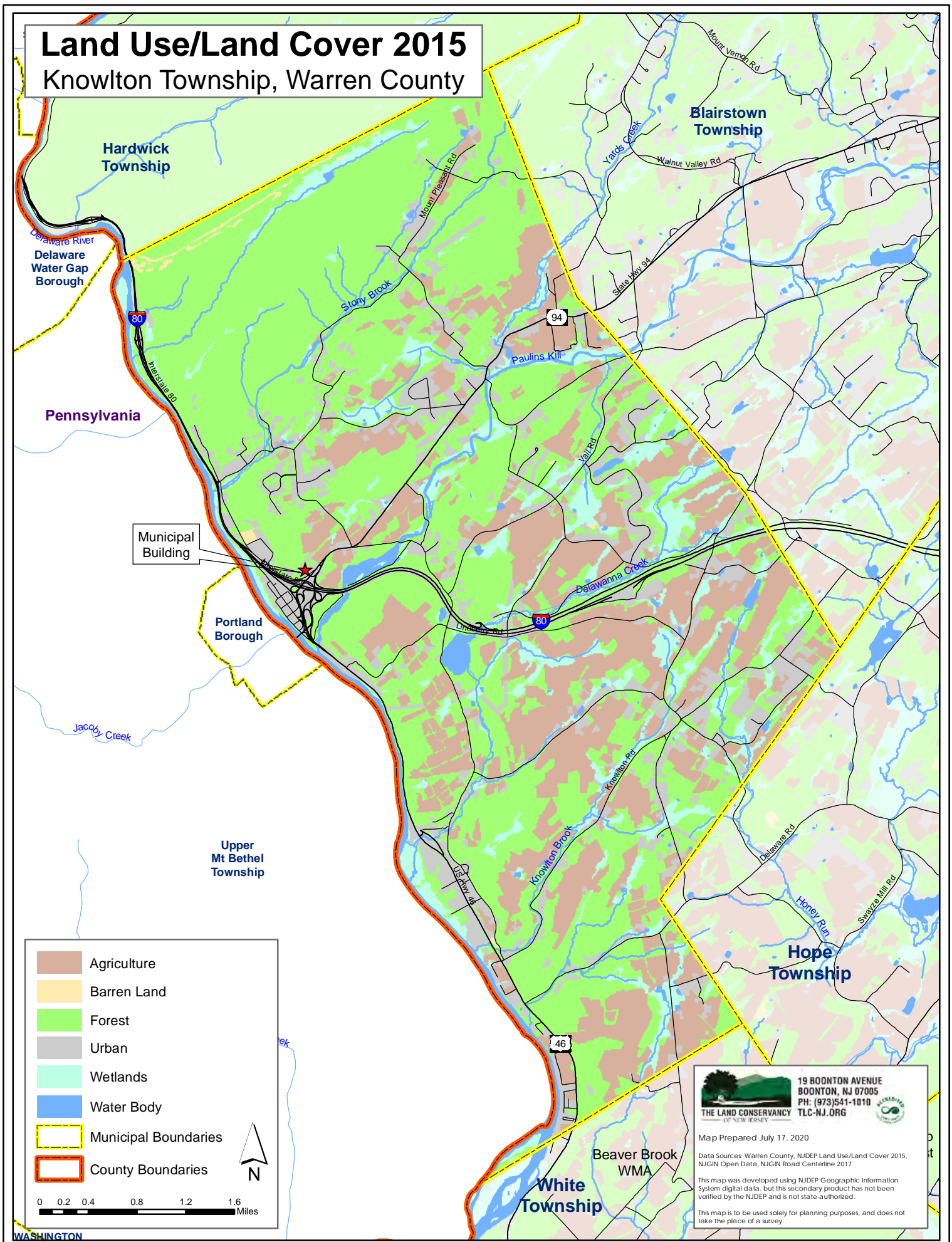


Figure 2. Land Use/Land Cover for Knowlton (NJDEP)

Table 1. 2015 Land Use/Land Cover for Knowlton and Warren County				
	Knowlton		Warren County	
	Acres	Percent	Acres	Percent
Agriculture	3,793.64	23.33%	53,590.13	23.09%
Barren	50.76	0.31%	1,450.88	0.63%
Forest	8,283.59	50.94%	108,685.87	46.83%
Urban	2,272.12	13.97%	41,001.00	17.67%
Water	501.53	3.08%	5,852.96	2.52%
Wetland	1,361.01	8.37%	21,480.52	9.26%

Source: NJDEP 2015 Land Use/Land Cover Primary Land Use Categories

Figure 3. Land Use/Land Cover Map



B. Soils

Soil types are determined by the parent bedrock material from which they were formed, the drainage characteristics they exhibit, and the steepness of the slopes on which they are found. Soil types are grouped into larger categories called soil series, which are based on the parent materials, chemical compositions, and profiles of their member soil types. Soil series are t grouped into broader categories, called soil associations, which were formed through similar processes.² The Natural Resources Conservation Service (NRCS) classifies certain soils as prime, of statewide importance, or unique based on their potential for agricultural productivity.

- *Prime farmland soils*, as defined by the United States Department of Agriculture (USDA), rest on land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. They have the quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed according to acceptable farming methods. Prime soils flood infrequently and are not excessively erodible or saturated with water for a long period of time. There are 1,049 acres of prime farmland soils in Knowlton, of which 275 are in active agricultural use. (**Table 2** and **Table 3**) Accounting for 6.5% of the total soils, these soils belong to the *Hazen-Paulins Kill* (Hd xp) and *Delaware* (Def) series, which can be used for hay, corn, small grains, vegetables, and deciduous fruits.
- *Farmland soils of statewide importance* produce high crop yields when treated and managed according to acceptable farming methods. However, their yields are rarely as high as those of prime soils. There are 1,174 acres of soils of statewide importance in Knowlton, of which 410 acres are in agricultural use. Accounting for 7.2% of Knowlton's soils, most of the soils of statewide importance belong to the *Paulins Kill-Hazen* (Pdua) series and are generally adjacent to the prime farmland soils but on land with more slope. Like the prime soils, these soils can support hay, corn, small grains, and some produce.
- *Unique soils* exhibit specific qualities that may be favorable to the production of specialized crops. There are 102 acres of soils with unique importance in Knowlton Township, of which less than an acre is in active agricultural use. These soils belong to the *Catden series* (Catb) and are generally found in isolated pockets near streams in the more northerly portion of the Township.
- *Soils of local importance* are not mapped or designated by NRCS, but can support field crops, hay, livestock pasturing, and some fruits and vegetables. These soils play an important role in the agriculture of Warren County and in Knowlton Township.

The following major soil series are also found in Knowlton Township:

- Nassau-Manlius (Nau) – 5,888 acres, or 36%
- Wurtsboro-Swartswood (Wus) – 2,929 acres, or 18%
- Venango (Vep) – 1,384 acres, or 8.5%

In Knowlton, 2,325 acres, or 14% of the town, is identified as agricultural soil. (**Table 2, Map 3**)

Table 2. Soil Categories – Knowlton Township		
Abbr	Name	Acreage
DefAr	Delaware fine sandy loam, 0 to 3 percent slopes, rarely flooded	31.19
DefBr	Delaware fine sandy loam, 3 to 8 percent slopes, rarely flooded	51.16
Hd xpAb	Hazen-Paulins Kill complex, 0 to 3 percent slopes, very stony	111.57
Hd xpBp	Hazen-Paulins Kill complex, 3 to 8 percent slopes, very stony	855.13
	Prime Farmland Total:	1,049.06
PduaCb	Paulins Kill-Hazen complex, 8 to 15 percent slopes, very stony	1,173.52
	Farmland of Statewide Importance Total:	1,173.52
CatbA	Catden muck, 0 to 2 percent slopes	102.16
	Farmland of Unique Importance Total:	102.16
AhbBc	Alden silt loam, 0 to 8 percent slopes, extremely stony	228.76
AruCh	Arnot-Lordstown complex, 0 to 15 percent slopes, very rocky	35.42
ArvD	Arnot-Lordstown complex, 15 to 35 percent slopes	36.27
ArvE	Arnot-Lordstown-Rock outcrop complex, 35 to 60 percent slopes	71.52
ChwBc	Chippewa silt loam, 0 to 8 percent slopes, extremely stony	975.78
FrdAb	Fredon-Halsey complex, 0 to 3 percent slopes, very stony	306.14
NauB	Nassau-Manlius very channery silt loams, 0 to 8 percent slopes, rocky	518.76
NauC	Nassau-Manlius very channery silt loams, 8 to 15 percent slopes, rocky	2,178.50
NauD	Nassau-Manlius very channery silt loams, 15 to 35 percent slopes, rocky	2,385.64
NauEg	Nassau-Manlius very channery silt loams, 35 to 60 percent slopes, very rocky	805.44
PduoEb	Paulins Kill-Otisville complex, 25 to 60 percent slopes, very stony	238.95
RnaF	Rock outcrop-Arnot-Rubble land complex, 60 to 80 percent slopes	296.44
RnfC	Rock outcrop-Farmington-Galway complex, 8 to 15 percent slopes	130.79
RnfD	Rock outcrop-Farmington-Galway complex, 15 to 35 percent slopes	427.84
UccAs	Udifluvents, 0 to 3 percent slopes, occasionally flooded	102.44
UdaB	Udorthents, 0 to 8 percent slopes, smoothed	56.28
UdaB	Udorthents-Urban land complex, 0 to 8 percent slopes	324.78
USHBPB	Urban land-Hazen-Paulins Kill complex, 0 to 8 percent slopes	40.22
VepBc	Venango silt loam, 0 to 8 percent slopes, extremely stony	669.65
VepCc	Venango silt loam, 8 to 15 percent slopes, extremely stony	714.13
WATER	Water	409.17
WusBc	Wurtsboro-Swartswood complex, 0 to 8 percent slopes, extremely stony	452.55
WusCc	Wurtsboro-Swartswood complex, 8 to 15 percent slopes, extremely stony	1,890.10
WusDc	Wurtsboro-Swartswood complex, 15 to 35 percent slopes, extremely stony	586.56
	Not Prime Farmland Total:	13,882.12
	Grand Total:	16,206.86

Source: NRCS Soil Data Access website (2020)

The total land in active agricultural use (3,920 acres) represents 24% of Knowlton. Notably, most of these active agricultural acres in Knowlton Township are not prime farmland. (**Table 3**) Active agriculture includes the following LU/LC types: agricultural wetlands, cropland and pastureland, former agricultural wetland, orchards/vineyards/nurseries, and other agriculture.

Table 3. Agricultural Soils and Land in Active Agriculture			
Soil Classification	Total Acres	Ag Acres	Ag % of Total
Prime Farmland Soil	1,049	275	26%
Soils with Statewide Importance	1,174	410	35%
Soils with Unique Importance	102	0.2	0.2%
Not Prime Farmland	13,882	3,235	23%
Total:	16,207	3,920	24%

Source: NRCS Soil Data Access 2020; 2015 NJDEP Land Use/Land Cover data

Over one-quarter of Township land (4,552 acres) is located on slopes steeper than 15%.³ These soils tend to have a high risk of erosion, require management to control runoff and erosion and have some equipment limitations.

C. Irrigated Land & Water Sources

Surface water is the source of water for irrigation in Knowlton Township. Due to local climate and soils, most of the crops that are grown in the Township, such as hay, corn, and soybeans do not require irrigation or are not cost effective to irrigate, even during drought periods, due to the large amounts of land they occupy. In 2017 there was an increase in acres (3) of vegetables which were irrigated as compared to 2010. More notably, only one acre of field crops was irrigated, down from 20 in 2010. (**Table 4**) This does differ from the overall trend in Warren County where land under irrigation has increased during the same time. (**Table 5**)

Table 4. Irrigated Land (acres) in Knowlton				
	1990	2000	2010	2017
Field Crops	0	12	20	1
Fruit	0	0	0	1
Ornamental	1	0	1	2
Vegetables	0	4	6	9
Total	1	16	27	13

Source: Farmland Assessments

Table 5. Irrigated Land in Knowlton and Warren County (acres)				
	1990	2000	2010	2017
Knowlton	1	16	27	13
Warren County	384	335	283	618
% of County	0.3%	3.6%	7.1%	2.1%

Source: Farmland Assessments

D. Farmland Trends & Statistics

The overall size of the total farm-assessed land base in Knowlton Township dropped from 8,479 acres in 2010 to 8,274 acres in 2019, a 2.4% decrease. **(Figure 4)** Warren County farm-assessed land base decreased 1.8% in the same period, from 105,937 to 104,014 acres. In the last ten years (2010-2019), the composition of the Township’s farm-assessed land had the following trends:

- Harvested cropland increased 12.6%.
- Pastured cropland decreased 10.9%.
- Permanent pasture decreased 30.5%.
- Woodland decreased by 0.2%.

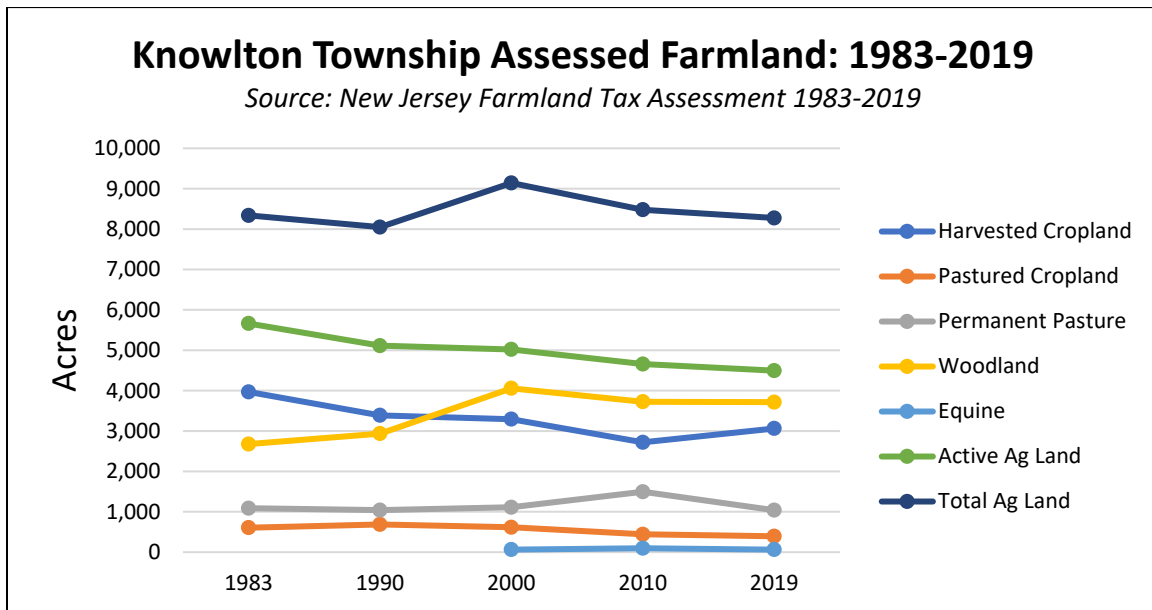


Figure 4. Assessed Farmland in Knowlton Township

Between 1983 and 2019, harvested cropland, the largest category of active agricultural land in Knowlton, declined 23%, from 3,968 to 3,062 acres.^c Corn, dairy cattle head and hay production have decreased from 1983 to 2017. Other crops, such as rye and sorghum, have virtually disappeared from production in Knowlton. Fruit, vegetable, and nursery crops, while representing a small portion of Knowlton’s cropland, have held steady since 1983.

- Corn has declined 48%, from 1,217 acres in 1983 to 628 in 2017.
- Dairy cattle head has declined from 1,237 in 1983 to 138 in 2017.
- Hay has declined 32%, from 2,015 acres in 1983 to 1,371 in 2017.
- Soybean acres have risen from 104 acres in 1983 to 585 in 2017.
- Fruit, vegetable, and nursery crops have been steady around 158 acres.

^c General farmland assessment categories use the 2019 tax assessment data, while individual crop statistics are based on the most recent 2017 data.

Pastured cropland decreased by 35% and permanent pasture decreased by 4.5% in the same period. This loss tracks with the decline in dairy and beef cattle operations, with beef cattle numbers dropping from 532 head in 1983 to 202 head in 2017. Equine operations surged, with ponies and horses rising from 37 to 128, or an increase of 246%. Inventory of goats, swine, and bees are also on the rise.

The acreage of farm assessed woodlands in Knowlton has increased from 2,677 acres in 1983 to 3,715 acres in 2019. Cropland left abandoned or fallow for extended periods of time undergoes ecological succession into forested land, and the increasing costs of farming may compel local farmers to produce less land-intensive products and leave parts of their farms fallow. Secondly, continuously rising property taxes and the USDA forest stewardship incentives have encouraged more landowners of forested properties to obtain farmland tax assessment, thereby increasing the amount of forested farmland in the Township.

Between 1983 and 2019, all farmland assessed categories experienced losses except for woodland. The gain in woodland was substantial enough that the result was a negligible loss in the farmland assessed agricultural land base in Knowlton of 0.8%, from 8,339 acres in 1983 to 8,274 acres in 2019.

In cropland harvested, Knowlton has lost active agricultural land at a faster rate than the County. Between 1983 and 2019, active agricultural land has decreased 21% in Knowlton and 17% in the County. (Table 6)

Table 6. Farmland Assessment in Knowlton and Warren County (1983-2019) (acres)

	Cropland Harvested		Cropland Pastured		Permanent Pasture		Total Active Agriculture	
	Knowlton Township	Warren County	Knowlton Township	Warren County	Knowlton Township	Warren County	Knowlton Township	Warren County
1983	3,968	49,033	606	5,865	1,088	13,513	5,662	68,411
1990	3,387	53,057	686	6,588	1,040	15,172	5,113	74,817
2000	3,292	51,147	617	5,240	1,112	12,891	5,021	69,278
2010	2,720	45,056	442	4,244	1,496	11,861	4,658	61,161
2019	3,062	43,487	394	3,493	1,039	9,752	4,495	56,732
% Change	-23%	-11%	-35%	-40%	-4.5%	-28%	-21%	-17%

Source: Tax Assessment Data

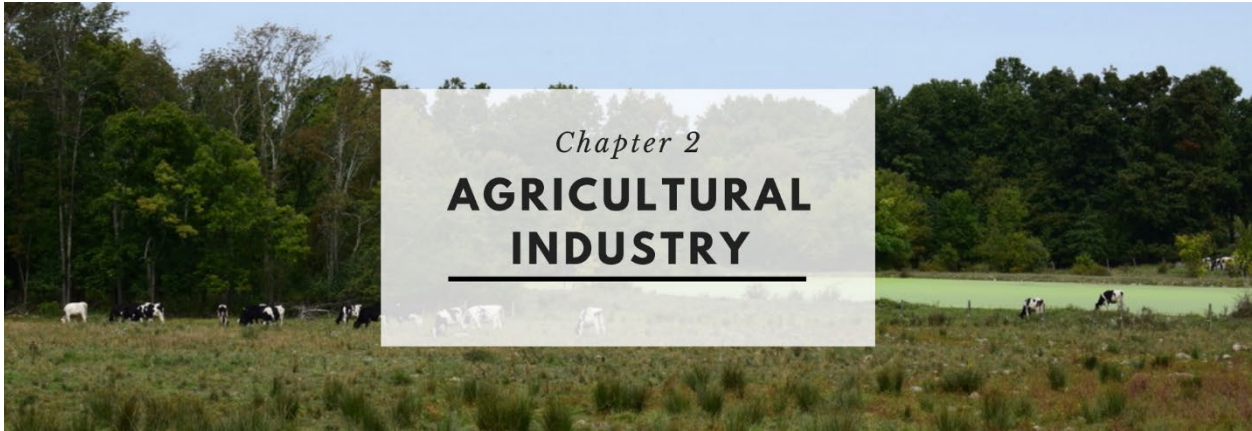
The trend towards smaller average and median farm sizes has been prominent throughout New Jersey and Warren County over the past forty years. In contrast to a county wide 15% decrease in acreage since 1982, there has been a 51% increase in the number of farms, up from 608 to 918 in 2017. Following a continuing trend, the average farm size dropped from 144 to 80 acres.^{4 5} The 2017 *Census of Agriculture* indicates that for ZIP code 07832, which includes most of Knowlton Township, 69 of 81 farm operations were under 50 acres, and 12 were 50 acres or greater. The ZIP code tabulations also indicated that of these 81 operations, 73 farmers operated only land

they owned, six farmers worked both land they owned and land they rented from others, and two farmers were tenant farmers, operating land rented from others or worked for shares.⁶

The average size of Warren County farms was 80 acres in 2017, down from 159 acres in 1982. Additionally, the acreage within medium size farms (50 to 499 acres) is decreasing, indicating that many of these farms are breaking up into smaller operations.

Knowlton has the sixth highest number of farm parcels (individual lots) in farmland assessment in Warren County. Its 183 farmland assessment forms represent 7.3% of the County total of 2,516 in 2019. However, average farm size, at 28 acres, is much smaller than the County average of 80 acres. Median farm parcel size is 13 acres, with as many parcels below that number of acres. The largest farm parcel in Knowlton is 199 acres. Knowlton ranks six in the County in total acres devoted to agricultural or horticultural use, at 8,274 acres, or 8.0%, versus number one ranked Franklin Township’s 10,998 acres. **Table 7** shows the breakdown of farm parcel sizes in Knowlton based on the 2019 tax assessment data.

Table 7. Size of Individual Farm Parcels in Knowlton	
Size	# of Farm Parcels
Under 1 acre	6
1-9 acres	121
10-49 acres	136
50-179 acres	47
179+ acres	3
<i>Source: Knowlton Township Tax Database (2019)</i>	



Chapter 2
**AGRICULTURAL
 INDUSTRY**

Chapter 2. Agricultural Industry

A. Trends in Market Value of Agricultural Products Sold

Agriculture in Knowlton Township is comprised of livestock and conventional field crops. Livestock sales in Warren County produced \$26.1 million in sales in 2017, an 18% decrease from \$31.8 million in 2007, but a 22% increase from 2002. Crop sales, including nursery and greenhouse products, rose 54% from \$43.6 million in 2007 to \$67.0 million in 2017. In total, agricultural sales gained 23% from \$75.4 million in 2007 to \$93.2 million in 2017.⁷ (Figure 5)

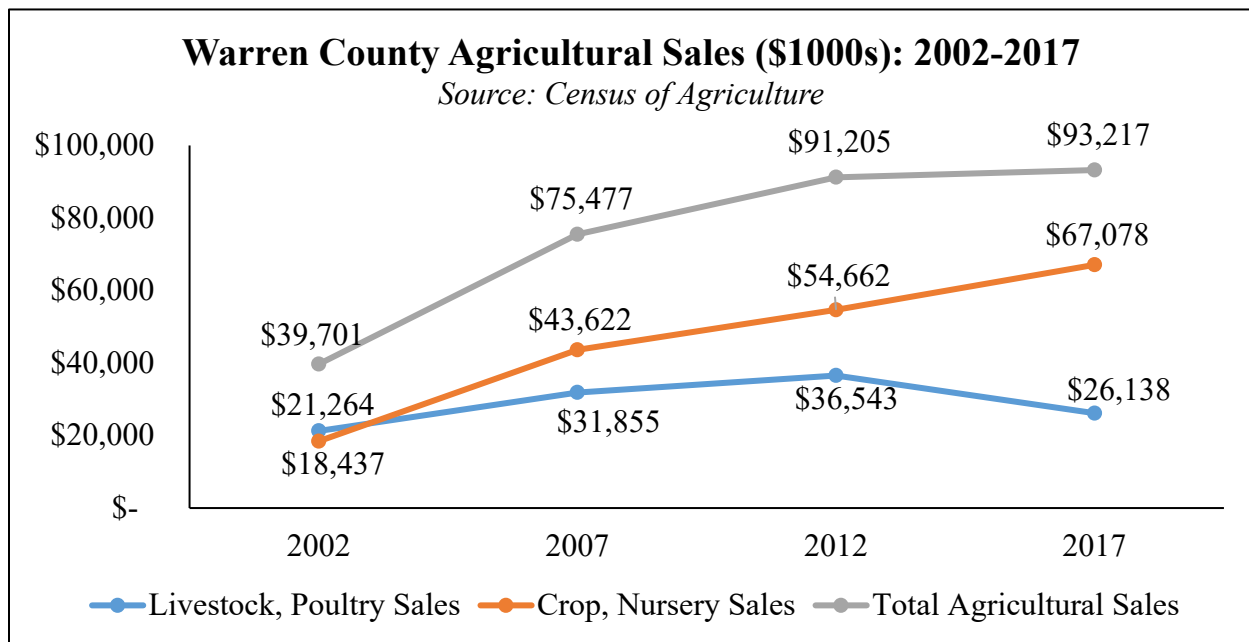


Figure 5. Agricultural Sales in Warren County

As of 2017, Warren County ranked sixth in the state in total agricultural sale revenues. (**Table 8**) Average sales per farm in Warren County dropped 12.7% from 2012 to 2017, the sixth-fastest rate of decline in New Jersey. (**Table 9**)

County	Sales
Cumberland	\$ 212,649
Atlantic	\$ 120,673
Gloucester	\$ 102,454
Salem	\$ 102,342
Burlington	\$ 98,580
Warren	\$ 93,217
Hunterdon	\$ 92,246
Monmouth	\$ 80,633
Middlesex	\$ 38,359
Mercer	\$ 24,981
Morris	\$ 24,824
Ocean	\$ 24,640
Camden	\$ 22,893
Somerset	\$ 20,118
Sussex	\$ 18,226
Cape May	\$ 9,838
Passaic	\$ 2,863

Source: U.S. Census of Agriculture, 2017

In 2002, Warren County had the second largest concentration of dairy and livestock operations in New Jersey (236 farms). In 2017, with 182 farms in dairy and livestock, it is now third in the state.

Dairy sales have declined 64% in Warren County from \$9.0 million in 1997 to \$3.2 million in 2017. This is accompanied by a 74% decrease in dairy farms, from 63 in 1997 to 16 in 2017.

As of 2017, cattle and calves (2,346) are the most common livestock in Warren County, with beef cows (1,450 head) more prominent than dairy cows (896 head). Sheep (1,691 head) represent the second highest livestock animal, with meat chickens as third highest (842 count).

Crops in Warren County sold for a total of \$66.3 million in 2017, a 22% increase from 2012. (**Figure 6** and **Table 10**) One crop subsector, nursery and greenhouse operations, continues to exceed other crop types in Warren County. In 2017, Warren County had 26,364 square feet of nursery stock crops, under glass or other protection.⁸ Annual nursery sales comprised 41% of total agricultural revenue in 2007 (\$22.0 million) and increased to 61% of total revenue by 2017 (\$40.7 million). The sales data for *fruits, tree nuts and berries* are similar to *other crops & hay* and the lines for these overlap on **Figure 6**.

Rank	County	2012	2017	% Change
1	Ocean	\$ 64,885	\$ 94,769	46.06%
2	Cumberland	\$ 292,216	\$ 379,730	29.95%
3	Camden	\$ 91,528	\$ 116,210	26.97%
4	Hunterdon	\$ 46,445	\$ 57,510	23.82%
5	Middlesex	\$ 147,733	\$ 176,772	19.66%
6	Gloucester	\$ 150,154	\$ 176,644	17.64%
7	Cape May	\$ 52,810	\$ 59,988	13.59%
8	Mercer	\$ 72,534	\$ 77,341	6.63%
9	Salem	\$ 135,749	\$ 131,040	-3.47%
10	Monmouth	\$ 102,565	\$ 96,221	-6.19%
11	Burlington	\$ 120,390	\$ 107,738	-10.51%
12	Warren	\$ 116,333	\$ 101,543	-12.71%
13	Atlantic	\$ 312,040	\$ 268,163	-14.06%
14	Sussex	\$ 21,078	\$ 18,081	-14.22%
15	Somerset	\$ 58,016	\$ 44,508	-23.28%
16	Morris	\$ 77,560	\$ 59,389	-23.43%
17	Passaic	\$ 44,045	\$ 32,168	-26.97%

Source: Census of Agriculture, 2012, 2017

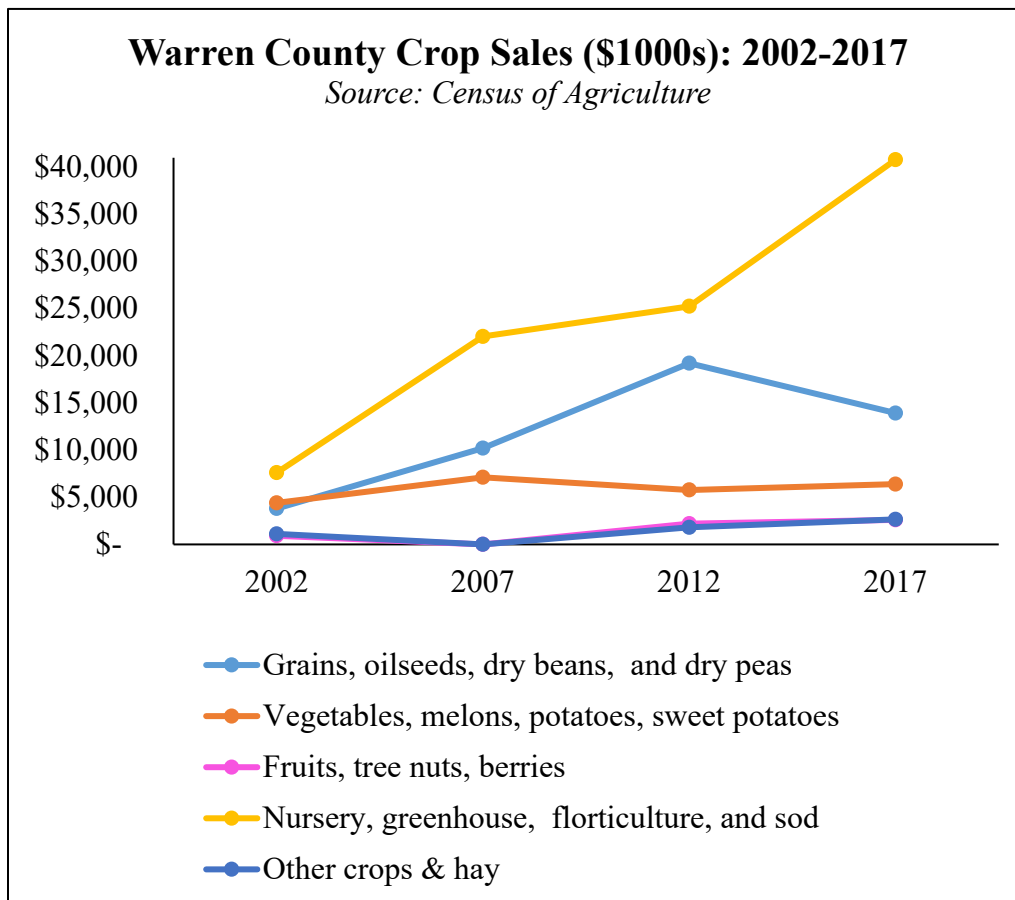


Figure 6. Warren County Crop Sales

	2002	2007	2012	2017
Grains, oilseeds, dry beans, and dry peas	\$3,802	\$10,205	\$19,209	\$13,922
Vegetables, melons, potatoes, sweet potatoes	\$4,406	\$7,114	\$5,769	\$6,388
Fruits, tree nuts, berries	\$918	N/A	\$2,198	\$2,601
Nursery, greenhouse, floriculture, and sod	\$7,601	\$22,053	\$25,248	\$40,793
Other crops & hay	\$1,114	N/A	\$1,808	\$2,656
Total	\$17,841	\$39,372	\$54,232	\$66,360

Source: U.S. Census of Agriculture (2002-2017)

Vegetables were the third highest-grossing crop in 2017, generating more than \$6.3 million in sales. Since 2002, vegetable sales have risen 44%.

Grains, which include corn and soybeans, ranked second to vegetable sales in 2017 and will most likely remain one of the top-grossing field crops.

A small but significant portion of Warren County’s agricultural sales come from other crops, including hay. Sales revenue for this category increased by 138% between 2002 and 2017.

Warren County is home to many fruit farms. Farm sales began growing rapidly during the mid-2000s, going from \$0.91 million in 2002 to \$2.6 million in 2017. Much of this revenue derives from peach and grape sales. Peach farms increased by over 29% in this period, despite acreage falling 49%.

B. Agricultural Production Trends

From 2005 to 2017, soybeans and meat chickens in Knowlton Township rose 1,326% and 12% respectively.⁹ **(Figure 7)** Meat chickens gained 26% from 2010 to 2015, while soybeans grew 402% between 2005 and 2010. Mature dairy saw an 8% decrease in cattle from 2005 to 2010 and fell by 68% from 2010 to 2017. At the same time, beef cattle have lost 12% from 2005 to 2017. Acreage in hay declined by 23% from 2005 to 2017 and saw a 25% decrease from 2005 to 2010. Corn for grain increased by 30% in acreage from 2005 to 2010 but declined 32% from 2010 to 2017. In 2017, field crops were among the most acre-dominant crops in Knowlton Township. **(Table 11)**

In light of the historically low outputs of corn and hay in 2002, long-term trends have stabilized and steadily increased since 2002. **(Figure 8)** Hay has made a resurgence, increasing by 34% since 2012, despite being down 13% since 2002. **(Figure 9)** Soybean production maintained its upward trajectory through 2002, growing 140% from 2002 to 2017. **(Figure 10)**

Production Trends in Knowlton Township (2005-2017)

Source: Warren County Farmland Assessment

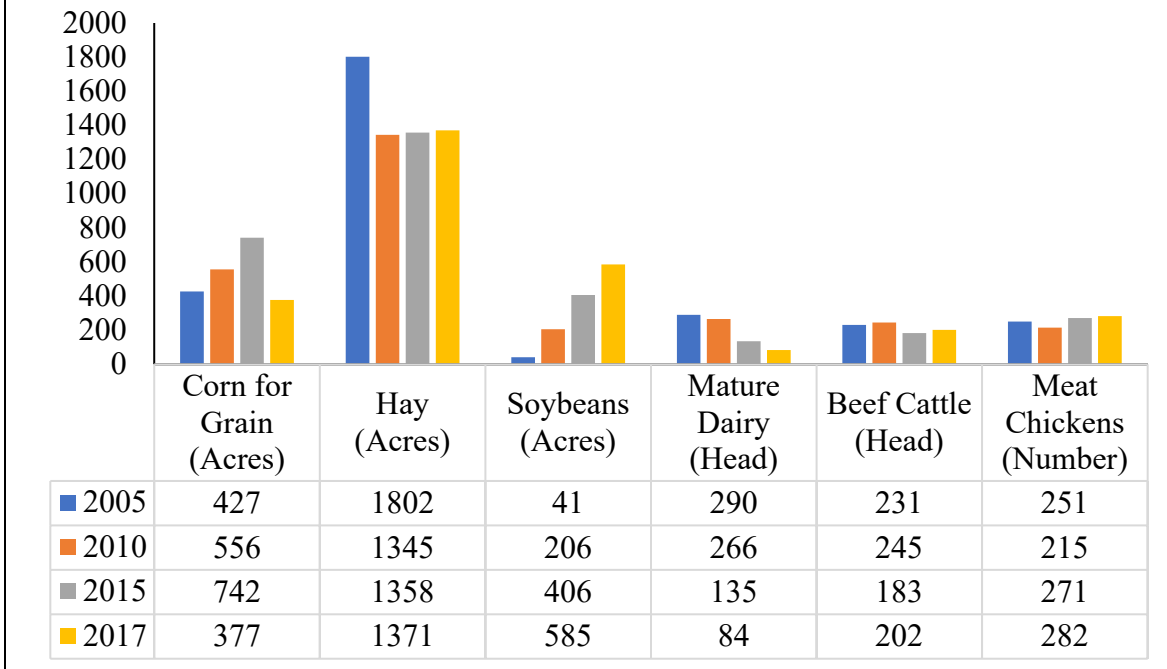


Figure 7. Production Trends in Knowlton Township

Table 11. Dominant Crops in Knowlton Township		
Top 10 Dominant Crops	2017	% Change
Other Hay	1137	-
Soybeans	585	-48.55%
Corn for Grain	377	-35.56%
Corn for Silage	251	-33.42%
Alfalfa Hay	234	-6.77%
Wheat	234	0.00%
Christmas Trees	34	-85.47%
Barley for Grain	30	-11.76%
Grapes	27	-10.00%
Apples	25	-7.41%
Total	2934	
		% of Total
Field Crops	2848	97.07%
Nursery Crops	34	1.16%
Fruits & Berries	52	1.77%
Vegetables	0	0.00%

Source: Farmland Assessment Data

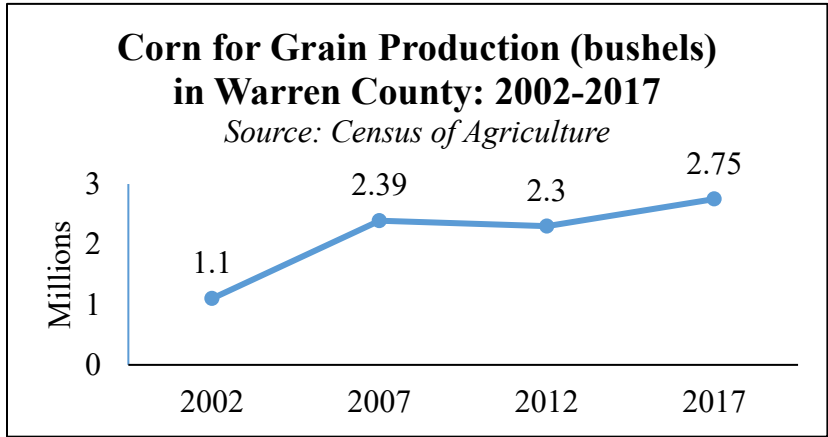


Figure 8. Corn Production in Warren County

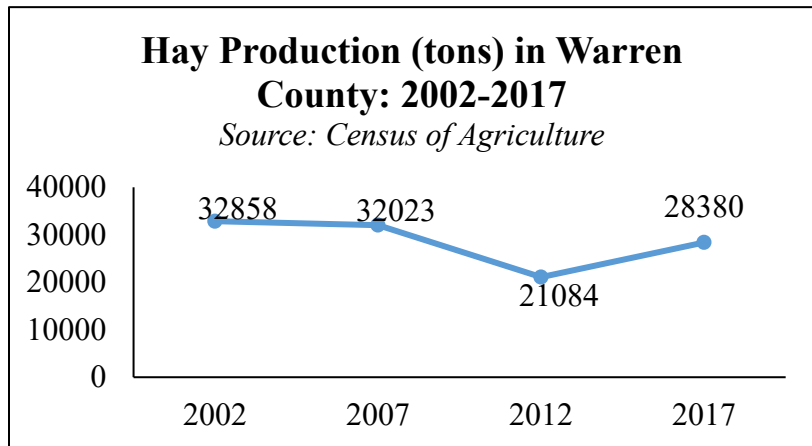


Figure 9. Hay Production in Warren County

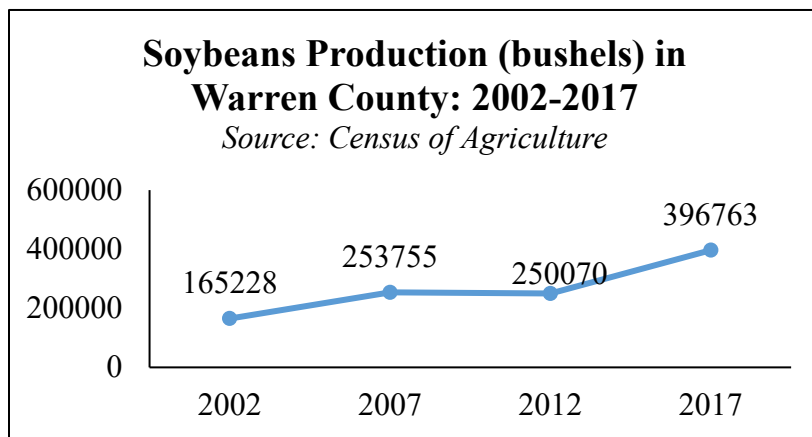


Figure 10. Soybean Production in Warren County

The variation in milk sales has contributed to a reduction in dairy output. From 2002 to 2017, mature dairy decreased by 71%, with an average five year-loss of 33%. The biggest drop occurred between 2007 and 2012, when dairy production fell by 45%.

Livestock production, including beef cattle and meat chickens, have either had slight growth or remained stable since 2002. Chicken production grew by 2% from 2002 to 2007 but dipped 9% by 2017. Beef cattle fell by 8% in 2007, then rose by 20% by 2017, netting a 12% growth rate through the 2000s. (Figure 11)

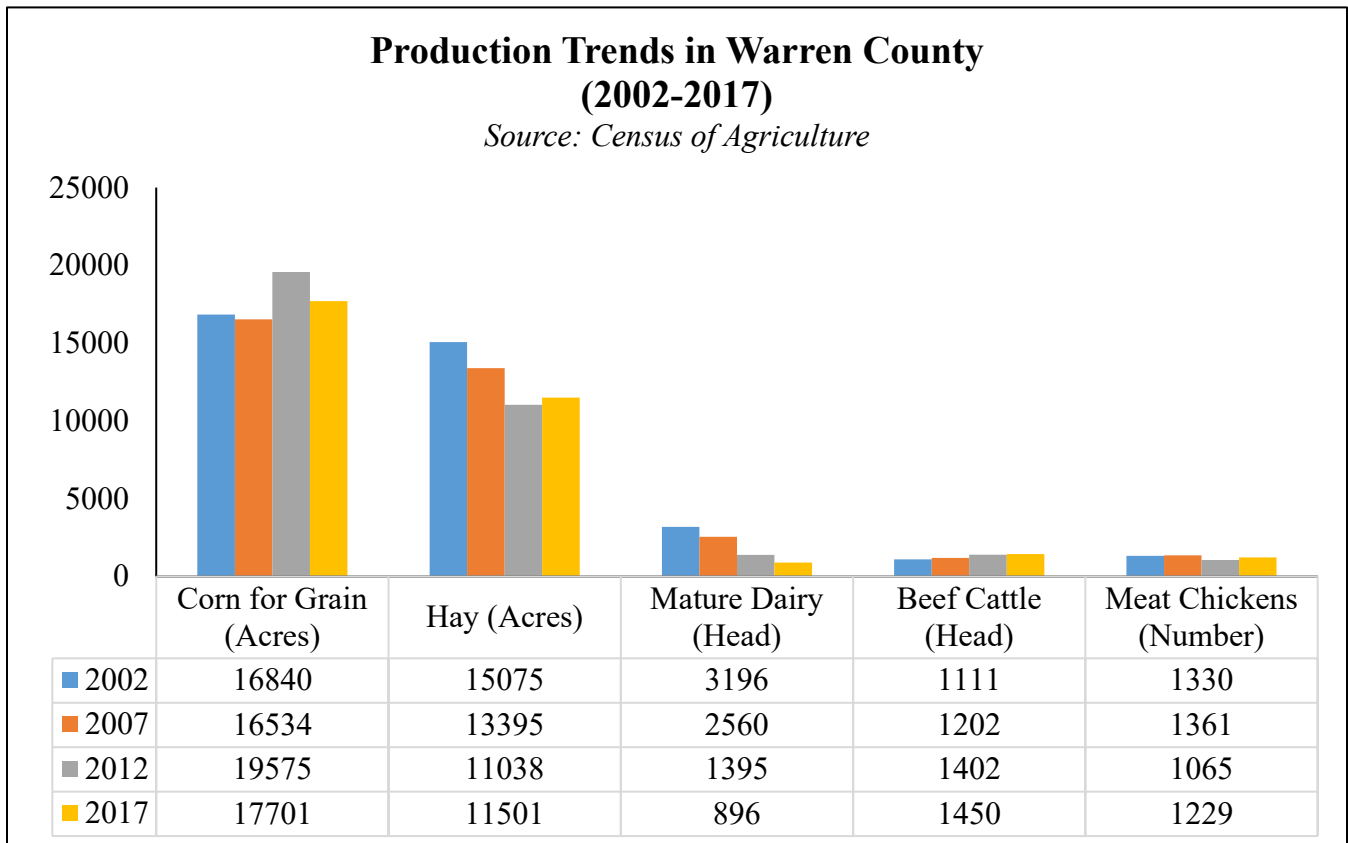


Figure 11. Production Trends in Warren County

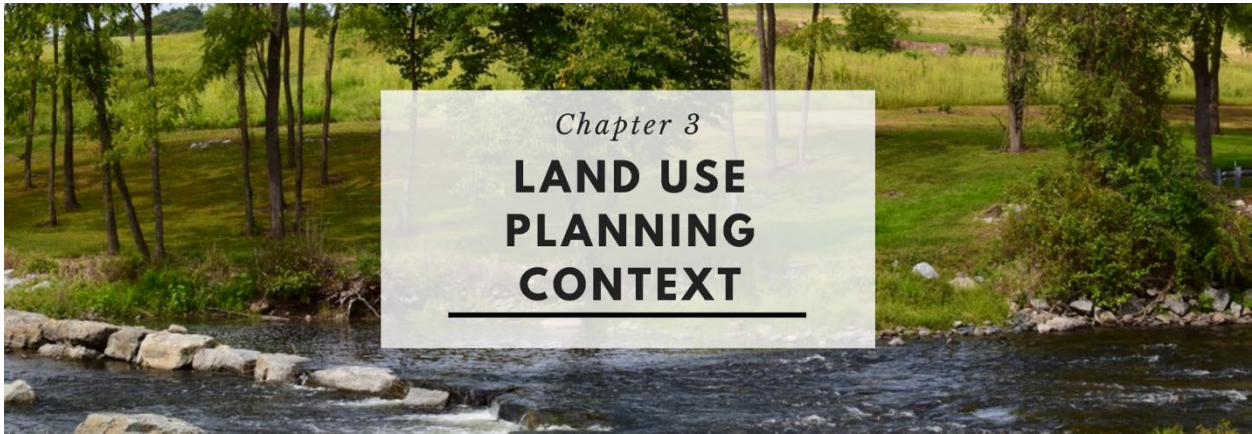
C. Agricultural Support Services and Related Industries

Agricultural support services in Warren County and Knowlton Township include tractor sales and supply stores, feed vendors, and hardware/equipment retailers. Retailers include Central Jersey Equipment, Tractor Supply Co, and Growmark in Bloomsbury. Major feed vendors in and around Knowlton include Blairstown Agway/Ace Hardware and Johnsonville Farm and Garden in Bangor, PA, supporting the nearby cattle farmers. In Hackettstown, the Livestock Auction operates as an independently funded co-operative.¹⁰ As the last remaining auction in New

Jersey, the Livestock Auction gives county farmers and farm suppliers a unique marketplace in which to trade and sell products.

In September 2021, Warren County Commissioners passed a resolution that supports the concept of developing a meat processing plant in the County, noting it will help farmers stay in business, keep the County green, and help prevent disruptions in the food supply chain. They have not endorsed any specific site for the processing plant.¹¹

Despite the loss of support businesses from the region, local farms take advantage of retailers, large animal veterinarians, and feed suppliers located outside of the county and in eastern Pennsylvania. A list of farm related businesses, organizations, and services local to Knowlton farmers is included in **Appendix B**.



Chapter 3. Land Use Planning

A. State Development and Redevelopment Plan

The *State Development and Redevelopment Plan* (SDRP) outlines general policy objectives concerning land use and future development in the State.¹² The combination of Planning Areas and Designated Centers establishes a comprehensive framework for pursuing land use and development regulation throughout New Jersey.

Land in Knowlton Township is included within the Rural Planning Area (PA4), the Rural Environmentally Sensitive Planning Area (PA4B), and the Environmentally Sensitive Planning Area (PA5): (**Figure 12**)

- Rural Planning Areas (PA4): 4,324 acres (~28% of the municipality), located in the southern portion of the Township and the central western portion around the Interstate 80 interchange.
- Rural-Environmentally Sensitive Planning Area (PA4B): 5,890 acres (~38%) and occupy much of the eastern and central portion of the Township.
- Environmentally Sensitive Planning Areas (PA5): These lands occupy much of the northern section of the Township as it rises to the Kittatinny ridgeline, where they border state and federal public lands. There are also pockets of environmentally sensitive land along and south of the Paulins Kill. This Planning Area occupies approximately 3,519 acres (~22%) of the Township.
- Parks and Natural Areas: 1,959 acres (~12%), surrounding the Delaware Water Gap National Recreation Area and the Columbia Wildlife Management Area.

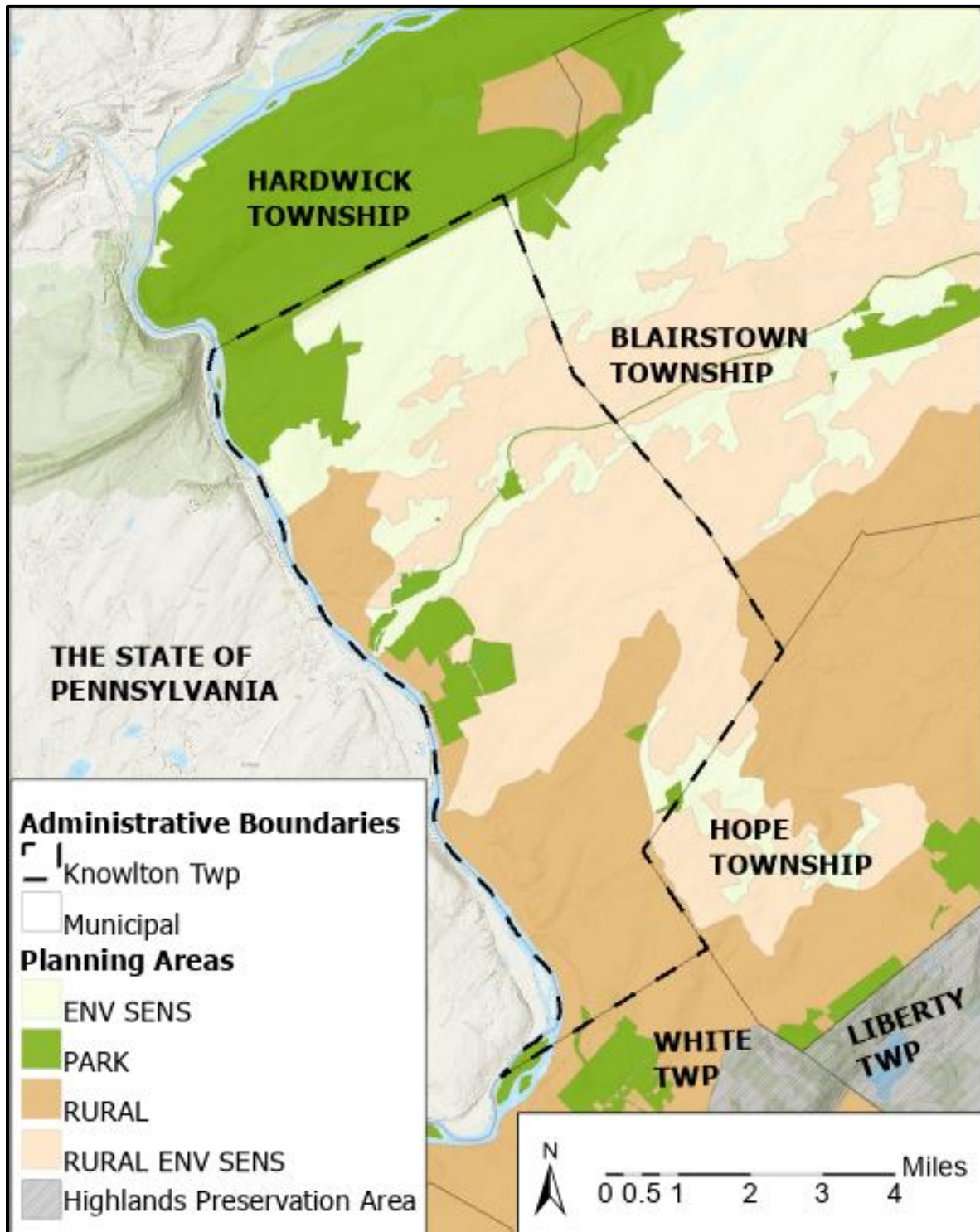


Figure 12. State Development and Redevelopment Plan: Knowlton Township

Centers are defined by the New Jersey State Planning Commission as “compact forms of development that, compared to sprawl development, consume less land, deplete fewer natural resources, and are more efficient in the delivery of public services.” Two areas in Knowlton that could have potential as Centers are Hainesburg, as a designated hamlet center, and Delaware, as a Village, but the Township has no plans to pursue such designations.¹³

B. Special Resource Area: Highlands Region

The New Jersey State Legislature enacted the Highlands Water Protection and Planning Act (HWPPA) on August 10, 2004. The Highlands region covers 13% of New Jersey’s land area. Situated in northwestern New Jersey, its western boundary stops at Knowlton’s border with neighboring Hope and White Townships. The impact for Knowlton is twofold: the Township has the advantage of being near areas defined as high priority for agriculture, and the pressures of being outside the Highlands region and thus potentially more easily accessible to developers.

C. Municipal Master Plan

The introduction to the May 2009 *Reexamination Report and Land Use Plan Amendment* states Knowlton Township, “has a few small, localized areas of development surrounded by mostly rural, environmentally constrained land.” The Township’s Master Plan (1984, 1991, 1997, 1999, 2000, 2003, 2009¹⁴, 2020¹⁵) includes the following statements:

- “...desire to retain Knowlton as a rural agriculture community.”
- “To provide for the preservation of open space and farmland and to ensure that adequate and contiguous parcels of land are available...”

The *Land Use Plan Element*, adopted in 1984 and amended in 2003,¹⁶ recommended “creat[ing] specific design guidelines to preserve rural character.” This was accomplished in 2003 when the design guidelines were updated for the Farmland Preservation Zone. This further resulted in decreasing the minimum density in the Farmland Preservation Zone from 0.2 to 0.1 unit per acre, by ordinance in 2003.

There have been no additional changes to the land use zoning since 2005.¹⁷

D. Land Use Trends

“Knoll town,” known for its hills and limestone knobs, was sectioned off from Oxford Township in 1768. By 1887, the advent of the railroads made easy access to the area for city-dwellers wanting to escape to Knowlton’s scenic landscape and the appeal of the river. With the demise of the railroads, mills, tanneries, quarries and factories followed, and the township was settled as a farming community.¹⁸

According to the 2015 the NJDEP Land Use/Land Cover data, forested areas make up the largest percent of Knowlton Township’s land base (50%), with agricultural and urban uses, second and

third at 23% and 13% respectively. Knowlton has seen a slight reduction in agricultural use with a corresponding very minor increase urban land. (Figure 3 and Figure 13)

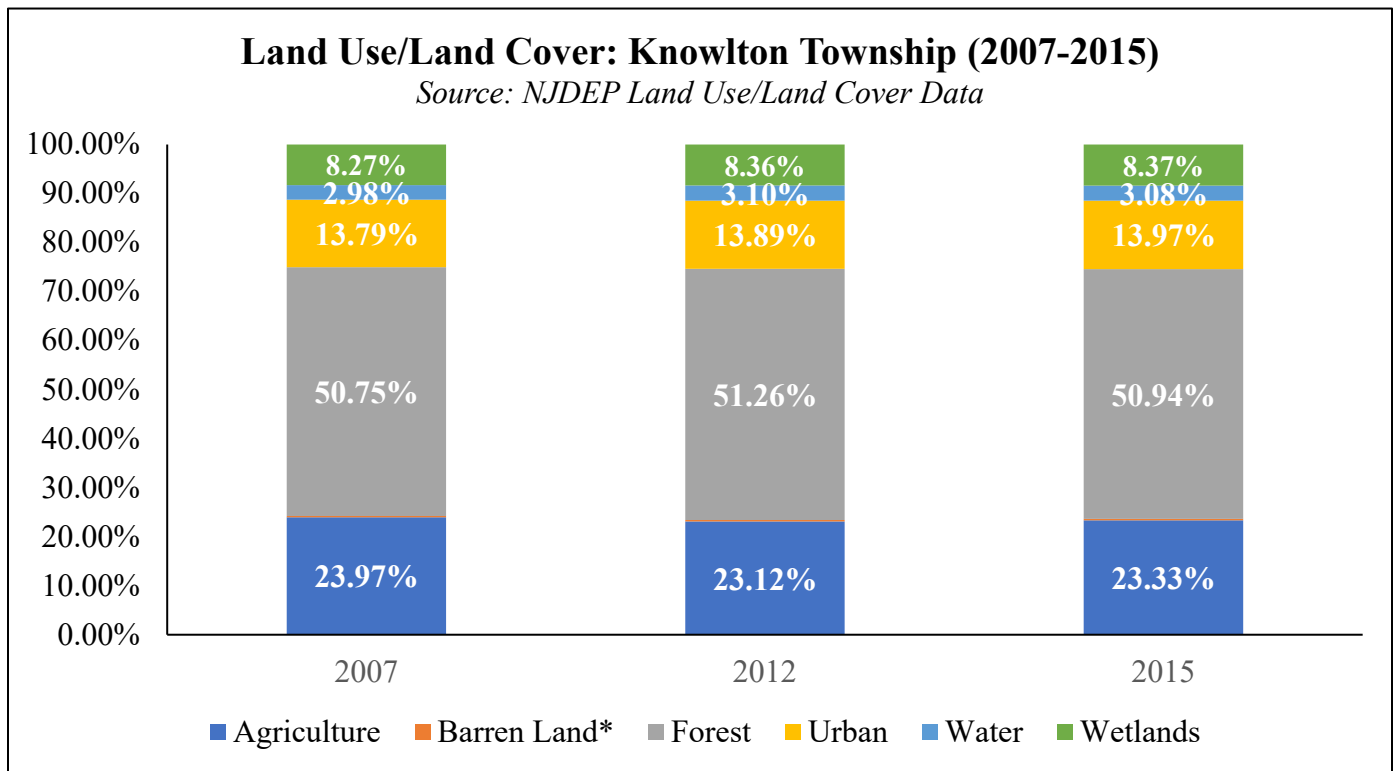


Figure 13. Knowlton Township Land Use/Land Cover Change 2007-2015

*

Note: *Barren land represents less than 1% of the total land coverage in Knowlton Township.

E. Public Infrastructure – Sewer and Water

The Knowlton Wastewater Treatment Plant has operated since 2002 under a public-private partnership with Natural Systems Utilities, LLC. The service area for the plant is limited to the commercial zone around the Exit 4 interchange. By ordinance, the plant is limited to serving only commercial establishments. While provisions allow the Township to extend public sewer services, there are no current plans to do so.¹⁹ In the 2020 Master Plan Reexamination, it stated that the Township will review its Wastewater Management Plan to confirm compliance with NJDEP WQPM standards.²⁰

In 2016 the NJDEP completed a study tracing the salt pollution in wells of homeowners in the Columbia section of the municipality due several factors including road salting and the number of highway interchanges (Routes 80 and 94) interlacing the hamlet. Following the release of the report, the privately owned Travel Centers of America partnered with the Township of Knowlton to provide a reverse-osmosis system to those homeowners who wish to have them installed.^{21 22}

F. Municipal Zoning

1. Types, Lot Size and Distribution in the Municipality

The FPD (Single-Family Agricultural Residential, and Farmland Preservation) and AR-1 (Single-Family Agricultural residential) Zones comprises the top two largest land percentages of all zones, reflecting the agricultural priorities of the Township. (**Table 12** and **Figure 14**) All zones allow farms as principal permitted uses. As commercial and residential uses grow, the Township will monitor its proximity to, and potential disturbance of, farmlands.

Zone	Min. Lot Size
AR-1: Single-Family Agricultural Residential	1 acre
FPD: Single-Family Agricultural Residential, Farmland Preservation	60,000 sq ft*
VR: Village Residential	0.5 acres
C-1: Neighborhood Commercial	0.5 acres
C-2: Commercial	2-10 acres**
PCD: Planned Commercial Development	3-10 acres**
<i>Sources: Warren County Department of Planning, Knowlton Municipal Code</i>	

* Maximum density of 0.1 units per acre.

** Minimum acreage depends on land use as written in the Township Land Use Ordinance.²³

2. Adopted Redevelopment Areas

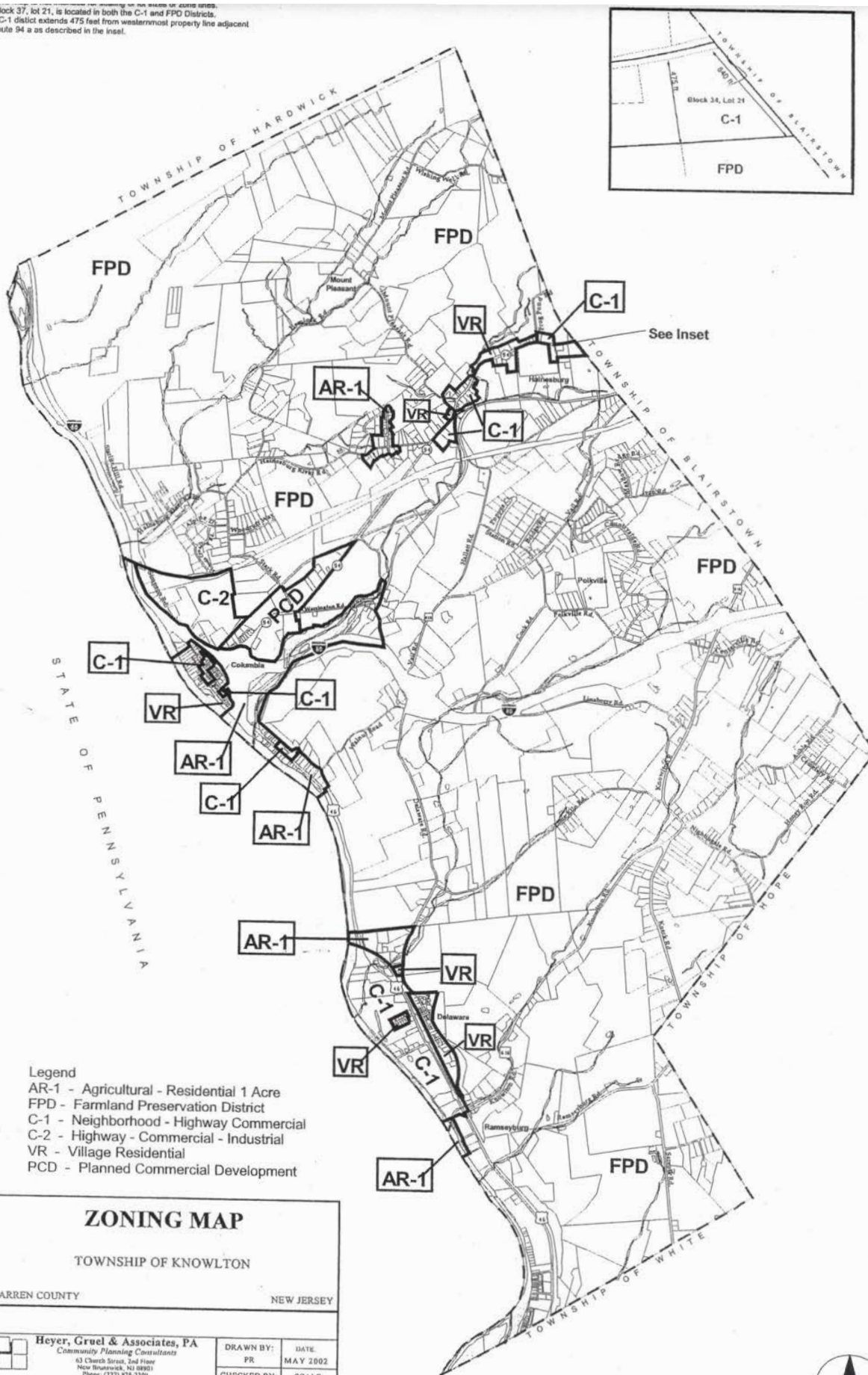
There are no adopted redevelopment areas in Knowlton Township. The *2020 Master Plan* Reexamination recommends that Columbia be designated as an area in need of rehabilitation²⁴.

3. Innovative Planning Techniques

There are mandatory and volunteer options for a municipality to use to set aside land for farmland and/or open space. Voluntary options are ones a town can use when determining maximum lot sizes and mandatory set asides for resource protection. If the municipality turns to mandatory cluster provisions or a mandatory transfer of development rights (TDR) program, the Agricultural Advisory Committee will work with the Planning Board to ensure agriculture resources and land are set aside in a manner to ensure viability of the farm in the future.

Figure 14. Knowlton Township Zoning Map

3. Block 37, lot 21, is located in both the C-1 and FPD zones.
 The C-1 district extends 475 feet from westernmost property line adjacent to Route 94 as described in the inset.



- Legend
- AR-1 - Agricultural - Residential 1 Acre
 - FPD - Farmland Preservation District
 - C-1 - Neighborhood - Highway Commercial
 - C-2 - Highway - Commercial - Industrial
 - VR - Village Residential
 - PCD - Planned Commercial Development

ZONING MAP

TOWNSHIP OF KNOWLTON

WARREN COUNTY

NEW JERSEY

Heyer, Gruel & Associates, PA
 Community Planning Consultants
 63 Church Street, 2nd Floor
 New Brunswick, NJ 08902
 Phone: (732) 928-2200

DRAWN BY: PR DATE: MAY 2002
 CHECKED BY: SCATD

Cluster zoning allows development to occur on a smaller percentage of a site while retaining the net development density permitted by local zoning. A common cluster zoning provision would allow (or require) 50% of a site to be preserved in its natural or agricultural state and would permit the other half of the site to be developed at twice the allowable zoning density. Some clustering ordinances require that certain sensitive natural areas or prime farmlands on a development site be preserved. Cluster zoning provides both the ability to develop a site to its full extent based on zoning and the preservation of contiguous agricultural lands.²⁵

This option is often attractive to builders because there tends to be fewer infrastructure costs associated with roadway construction, power lines, and sewage connections in more compact developments. Clustering is attractive to residents and farmers because it retains some agricultural areas and the rural character they create. Additionally, the undeveloped portions of clustered developments are permanently deed restricted, which helps to ensure the permanence of local farming. Clustering has added effectiveness when open space set-asides on adjacent properties are linked in a coordinated fashion. This requires pre-planning on the part of the municipality.

Knowlton Township requires development clustering for protection of open space and farmland on parcels larger than 50 acres, and for similar reasons is supportive of cluster zoning for parcels smaller than 50 acres.

Lot size averaging is another planning tool that maintains the net allowable zoning density on a site but does not enforce uniform lot size requirements or setbacks. This allows for some development lots to be small to accommodate affordable housing units, neighborhood commercial stores, or “village” development densities, while other lots can be large to encompass active farms or natural areas. To date, this has not been utilized by Knowlton Township to preserve farmland.

Transfer of Development Rights (TDR) is a growth management tool that allocates development rights from one location (the preservation or “sending” area) to another (the development or “receiving” area). These development rights are purchased by developer and allow them to build at higher densities within the receiving zone than existing zoning permits. Viewed as an equity protection mechanism, transfer-of-development rights provides for the preservation of important agricultural lands while fully compensating landowners and minimizing public expenditures. To date, this program has not been utilized by Knowlton Township to preserve farmland.

The New Jersey State Transfer of Development Rights Act (N.J.S.A. 40:55D-140) authorizes the transfer of development rights by municipalities and outlines what a town must do to adopt or amend a TDR ordinance. First, the municipality must amend its master plan to include a Development Transfer Plan Element that outlines a mechanism for assigning development credits to areas in the sending zone and reapplying them to areas in the receiving zone. An updated Utility Service Plan and Capital Improvement Program for the receiving zone should be adopted as well. The municipality must also prepare a Real Estate Market Analysis (REMA) that quantifies the development potential of the sending zone(s) and the capacity of the receiving zone(s) to accommodate additional development. Finally, a town must receive approval from the State Planning Commission to adopt the TDR ordinance. (N.J.S.A. 40:55D-140)

4. Buffer Requirements

In accordance with state and county regulations, there are multiple mechanisms through which agricultural uses are separated from other uses. At the state level, both the NJDEP and the New Jersey Department of Agriculture (NJDA) offer guidelines. NJDEP's Freshwater Wetlands Protection Act Rules provide permit and other administrative exemptions for a range of farming activities, which helps to protect inland water resources. Similarly, NJDEP's Flood Hazard Area Control Act Rules, most recently amended in February 2015, now include numerous agricultural permits-by-rule. The following agricultural activities are included:

- Continuing ongoing agricultural activities that result in no fill,
- Commencing new agricultural activities that result in no fill,
- Undertaking soil conservation practices outside a floodway, and
- Constructing an agricultural building of no more than 1,000 square feet outside a floodway.

There are seven general permits which allow the continuation of agriculture activities, including soil erosion control, bank stabilization or bank restoration, channel cleaning, constructing a roadway across a water body, filling a manmade water body for freshwater wetlands restoration, creating a ford across a water body to manage livestock, constructing a fence across or along a water body to manage livestock, and constructing a pump or water intake for livestock, in otherwise regulated areas.

The Township buffer zones are at a minimum of 10% of the minimum lot width or depth in the zone in which it is located, provided however that no buffer zone is greater than 100 feet.

5. Development Pressure and Land Value

Despite its limited access to regional highways and mass transit, Knowlton Township has experienced growth, particularly beginning in the 1960s through 1990. Knowlton's current population, based on U.S. Census, was 2,946 individuals in 2019.²⁶ This is a 3% decrease from 2010, consistent with what has been occurring county-wide with individuals leaving or not resettling back into the rural sections of northwestern New Jersey (both Sussex and Warren Counties). (**Figure 16** and **Table 13**)

In the period between 2009 and 2019, growth slowed, due to the 2008 economic recession. Both historically and up to 2019, building permits in Knowlton were exclusively for single family homes, and represent about 2.4% of total county permits.²⁷ (**Figure 15**)

The residential permits approved in 2019 was only 16% of the amount issued in 2004 (four permits versus 24 in 2001), when permit numbers peaked. Warren County has experienced a similar trend only issuing 12% of permits in 2018 compared to its numbers in 2000.

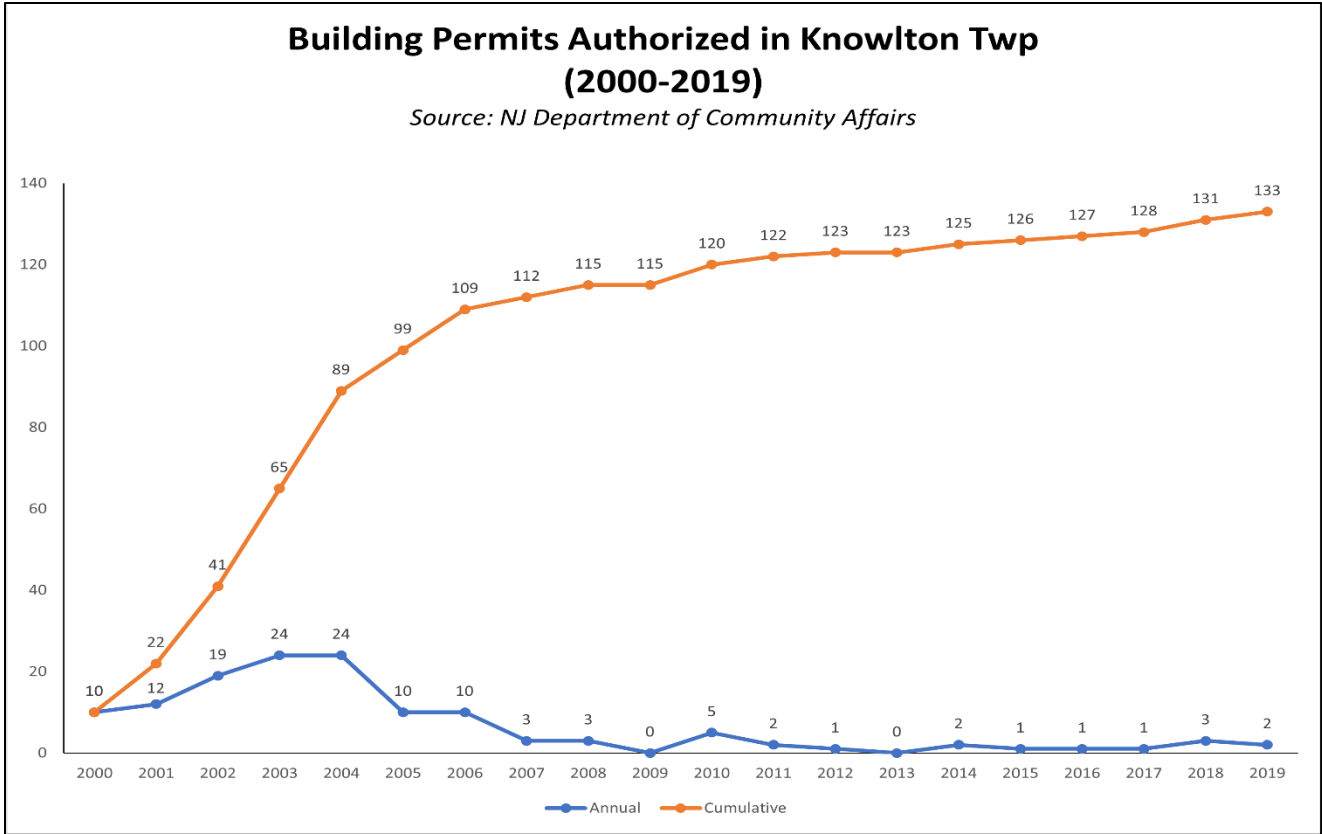


Figure 15. Building Permits Authorized in Knowlton Township

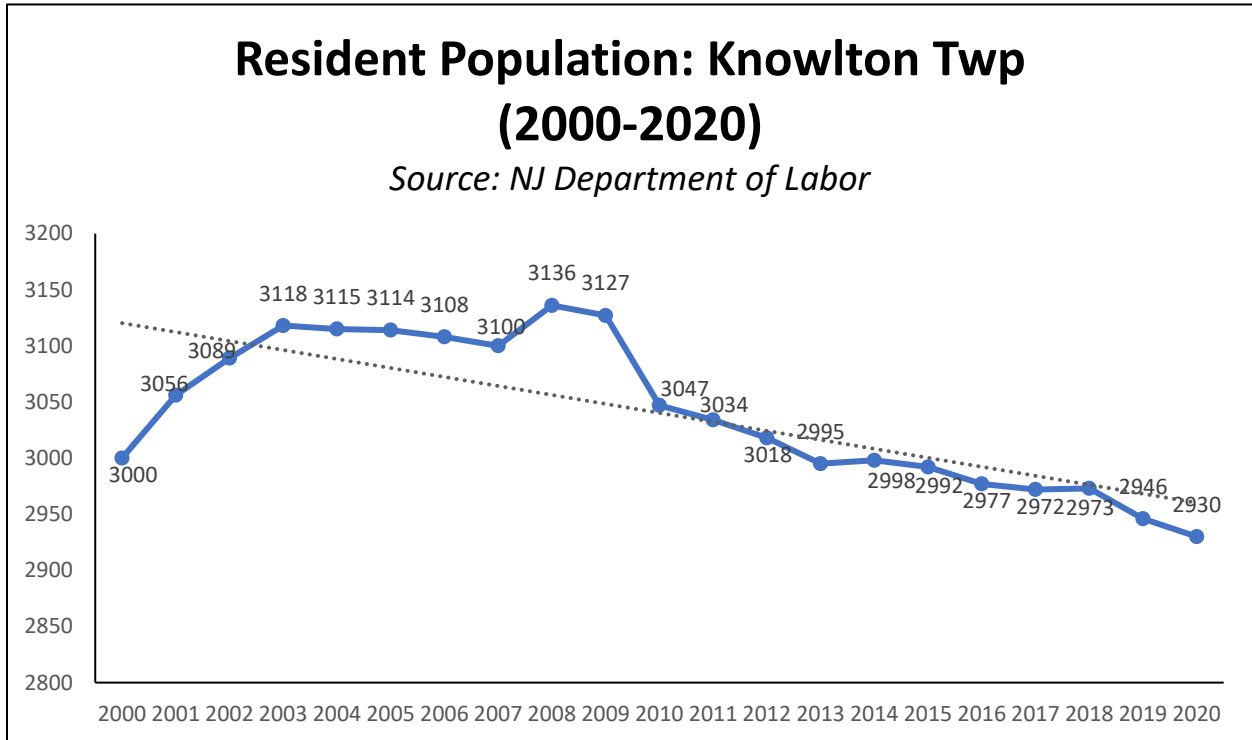


Figure 16. Population Trends in Knowlton Township

Table 13. Population of Warren County (2000-2019)		
Year	% Change	Population
2000	-	102,902
2001	2.23%	105,201
2002	1.50%	106,774
2003	1.30%	108,163
2004	0.30%	108,491
2005	0.34%	108,855
2006	0.19%	109,059
2007	0.11%	109,179
2008	0.66%	109,897
2009	-0.24%	109,638
2010	-0.94%	108,605
2011	-0.36%	108,218
2012	-0.45%	107,733
2013	-0.53%	107,157
2014	0.19%	107,358
2015	-0.07%	107,282
2016	-0.41%	106,845
2017	-0.04%	106,798
2018	-0.47%	106,293
2019	-0.97%	105,267

Source: U.S. Bureau of Census

As the Township transitions into a post-recession world, however, development pressures may be expected to intensify in Knowlton for the near future, due to the relative scarcity of land for new residential development in the northwestern part of the state coupled with potential restrictions on future development in the Highlands Preservation Area within nearby municipalities.

G. Density Transfer Opportunities

One program Knowlton might consider is the *intra-municipal* TDR in which sending and receiving areas are located within the same town. Alternatively, *inter-municipal* TDR programs establish sending areas in one municipality and receiving areas in another. Some form of tax-based revenue sharing may be necessary with inter-municipal TDR programs.

The New Jersey TDR Bank and the Office of Planning Advocacy (Smart Growth) are facilitating TDR activities statewide. They offer Planning Assistance Grants and technical assistance to municipalities looking to establish municipal TDR programs and may provide funds for the purchase of development credits. The State TDR Bank will also provide financial backing on loans secured using development credits as collateral and keep records of all development credit transfers within the State. Knowlton Township may benefit from participating in a TDR program, primarily as a municipality with sending areas.

Non-contiguous cluster zoning is a planning technique that allows one parcel to be preserved while its density is transferred and developed instead on a different, noncontiguous parcel. This technique, first authorized in 1996, allows a municipality to approve “planned developments” consisting of two different parcels, where the “sending area” parcel is preserved, for example, as farmland or open space, and the “receiving area” parcel is developed at a higher than otherwise normally permitted density. Noncontiguous cluster zoning is not currently used in Knowlton Township, where there is minimal opportunity for new development in the higher density zones that accommodate residential development.

The general sentiment in Knowlton regarding density transfer programs is that management of such a program on the local level is beyond the capacity of the municipal government.



Chapter 4. Farmland Preservation Program

Note about the data used in the Comprehensive Farmland Preservation Plan Update:

Chapters 1, 2 and 3 use the Farmland Tax Assessment Dataset, provided by the SADC for 2017 and 2019. This is used in conjunction with the Census of Agriculture to provide summary information on the business of agriculture for the municipality and county. Chapters 4 and 5 of the Plan Update rely on the digital mapping acreage, derived from the GIS (Geographic Information Systems) software used to create the maps in the Plan Update. The GIS is the basis by which potentially eligible farms (“targeted farms”) are identified and there may be slight discrepancies in acreage numbers from those provided in the Farmland Tax Assessment Data.

There are **8,274 acres** of farm assessed land devoted to agricultural or horticultural use, including cropland, pasture, woodland, and equine operations in Knowlton Township. (**Inventory Table 1** and **Map 1**) Farms have been preserved using a variety of programs, and the town remains firmly committed to farmland protection.

A. Warren County Agricultural Development Areas (ADAs)

1. Statutory and County Criteria

The Warren County Agriculture Development Board (CADB) developed the Warren County Agricultural Development Area (ADA) based upon both statutory and county criteria. The ADA designates land that has the potential for long-term agricultural viability. This agricultural use would be the preferred, but not the exclusive, use.

- The land must be agriculturally productive or have future production potential. Zoning must permit agriculture or permit it as a nonconforming use.
- Suburban and/or commercial development must be reasonably non-existent in the proposed ADA area.
- The land must comprise of no greater than 90% of the agricultural land mass of the County.

- Any attributes deemed appropriate by the Board must also be incorporated.

Prior to 2008, the entire County had been designated as the ADA, with the exceptions of Hackettstown, Belvidere, Philipsburg, and Washington Borough. In the *2008 Comprehensive Farmland Preservation Plan*, the CADB updated the ADA using the following criteria:

- Land is currently in agricultural production or has strong potential for agricultural production, or is farm assessed through a woodland management plan.
- Agriculture is the preferred, but not necessarily the exclusive use.
- Agriculture is a use permitted by current municipal zoning ordinance or is allowed as a non-conforming use.

Using the state’s criteria for designating ADA and existing farmland assessment data, the County designated an ADA on a county-wide basis that does not exceed 90% of the agricultural land base. Beginning in 2011, the Warren County Department of Land Preservation and the CADB amended the ADA to include farmland who owners had expressed interest in preserving their property, but the land had not been included in the 2008 ADA. This was summarized in the *2017 Farmland Plan Update*. There have been no changes to Knowlton’s ADA since the *2008 Plan*.²⁸

2. Agricultural Development Area – Knowlton Township

7,779 acres of farm assessed land in Knowlton Township is included within the Warren County ADA. Almost all lands in Knowlton south of Stony Brook are included in the ADA, along with a small amount of land to the north.

Map 1 and **Map 2** show the farm assessed lands in Knowlton, including all preserved farms. A map of the location of the ADA is included within **Map 4**. The Knowlton Township Project Areas 1 (ADA Project Area North) and 2 (ADA Project Area Northwest) are shown on **Map 5**.

B. Farmland Preserved to Date by Program

As of August 2021, there are **32 farms** totaling **2,472 acres^d** preserved through the farmland preservation program in Knowlton Township. The State of New Jersey has spent \$7,300,236, approximately 75% of the total cost share, to protect farmland in Knowlton. The County has spent a total of \$1,727,489, or approximately 18% of the total cost share. Knowlton has provided \$718,096 in funds (7% of the total cost). (**Table 14**)

More than half of the projects (57% of the total preserved farmland) in Knowlton are protected through the Municipal Planning Incentive Grant (PIG). The County Easement Purchase program preserved 25% of total farmland. The SADC Direct Easement Purchase program and the County PIG each preserved 9% of the total farmland.

As of August 2021, there are two farms pending preservation in Knowlton Township.²⁹

^d As recorded by the SADC.

Table 14. Preserved Farms in Knowlton Township

Farm	Program	Acres	Total Cost	State Cost	County Cost	Municipal Cost	Cost per Acre	Year
Makarevich, Gene	County EP	171	\$538,489	\$391,473	\$147,016	\$0	\$3,150	1995
Terpstra, Orrie	County EP	109	\$338,799	\$246,995	\$91,804	\$0	\$3,100	1995
Millheim Estate	County EP	161	\$479,358	\$351,691	\$127,667	\$0	\$2,970	1995
Joswik	County EP	169	\$400,546	\$297,071	\$103,474	\$0	\$2,400	1998
Durholz	County EP	63	\$152,822	\$113,239	\$39,583	\$0	\$2,430	2000
Walters	SADC Direct	149	\$472,765	\$472,765	\$0	\$0	\$3,170	2002
Ridgewood Hunt Club	SADC Direct	311	\$1,120,885	\$1,120,885	\$0	\$0	\$3,600	2003
Flitcroft, David	County EP	172	\$533,645	\$342,566	\$191,079	\$0	\$3,100	2003
Hillyerd (Knowlton Direct)	SADC Direct	84	\$320,500	\$320,500	\$0	\$0	\$3,800	2003
Zahn / Aguero	County EP	29	\$99,834	\$71,641	\$28,193	\$0	\$3,400	2004
Arena	Muni PIG	35	\$175,555	\$119,377	\$28,089	\$28,089	\$5,000	2005
Mangine	Muni PIG	4	\$15,840	\$10,912	\$2,464	\$2,464	\$4,000	2005
Brugler Farm #1	Muni PIG	33	\$224,748	\$142,340	\$36,794	\$45,614	\$6,750	2005
Brugler Farm #2	Muni PIG	47	\$325,455	\$204,873	\$60,291	\$60,291	\$6,920	2005
Diecidue, Agostino	Muni PIG	46	\$182,148	\$127,504	\$54,644	\$0	\$4,000	2006
Fritz, Gladys	County EP	13	\$11,550	\$9,292	\$2,323	\$0	\$900	2007
Gessie	Muni PIG	28	\$289,543	\$173,725	\$57,908	\$57,906	\$10,300	2007
Bromm & Meris	Muni PIG	62	\$465,457	\$288,583	\$88,436	\$88,436	\$7,500	2008
Carmeci	Muni PIG	35	\$351,870	\$211,122	\$70,374	\$70,374	\$10,000	2009
Peck	Muni PIG	37	\$146,807	\$94,107	\$26,350	\$26,350	\$4,000	2010
Buchman	Muni PIG	59	\$161,846	\$119,206	\$21,319	\$21,319	\$2,700	2010
Ring	Muni PIG	41	\$157,599	\$109,935	\$23,832	\$23,832	\$4,000	2011
Bertholf	Muni PIG	55	\$294,828	\$197,479	\$48,674	\$48,674	\$5,300	2012
Brook Hollow #1	Muni PIG	7	\$69,810	\$41,886	\$13,962	\$12,962	\$10,000	2013
Anderson	Muni PIG	117	\$607,802	\$409,097	\$99,352	\$99,35.2	\$5,200	2015

Table 14. Preserved Farms in Knowlton Township

Farm	Program	Acres	Total Cost	State Cost	County Cost	Municipal Cost	Cost per Acre	Year
Kinney	County PIG	22	\$131,348	\$86,783	\$44,564	\$0	\$5,600	2015
Conti	Muni PIG	274	\$1,028,025	\$726,471	\$150,777	\$150,777	\$3,750	2018
Mazza	Muni PIG	20	\$96,136	\$65,611	\$15,262	\$15,262	\$4,600	2019
LaBarre	County PIG	48	\$154,080	\$111,694	\$42,366	\$0	\$3,200	2020
Stampono/CDEK.LLC	County PIG	33	\$152,195	\$104,157	\$48,038	\$0	\$4,600	2021
Brook Hollow #2	Muni PIG	12	\$220,212	\$132,127	\$44,042	\$44,042	\$18,300	2021
Kitchen	Muni PIG	26	\$134,170	\$90,763	\$21,704	\$21,704	\$5,200	2021
Total:		2,472	\$9,846,140	\$7,300,236	\$1,727,489	\$718,096		

Sources: SADC and Warren County Department of Land Preservation

Muni PIG: Municipal Planning Incentive Grant program
 County PIG: County Planning Incentive Grant program
 County EP: County Easement Purchase program
 SADC Direct: State Direct program

Since the completion of the *2008 Farmland Plan*, **14 farms** have been preserved, protecting **786 acres** of agricultural land. All but three (the Kinney, LaBarre, and Stampono Farms) were preserved through the Municipal PIG program. The largest of these was the Conti Farm (274 acres) in 2018 and the smallest was the Brook Hollow #2 (12 acres) in 2021.

The Township Committee remains committed to protecting the agricultural legacy and rural character of the municipality.

1. County Easement Purchase

County Easement Purchases (CEP) involve the sale of farmland development rights to the county by the landowner. To be eligible for the CEP program, the land must be in the ADA and be eligible for farmland assessment. In Knowlton, eight farms have been preserved through the County Easement Purchase program, protecting 887 acres of farmland.

2. County Planning Incentive Grants

The goal of County Planning Incentive Grants (PIGs) is to protect and preserve large pieces of contiguous farmland through the purchase of development easements. Warren County completed their *2008 Comprehensive Farmland Preservation Plan* to bring it into compliance for the County Planning Incentive Grant program. In Knowlton, three farms have been preserved through the County PIG program, protecting 103 acres of farmland.

3. Municipal Planning Incentive Grants

Municipal Planning Incentive Grants (PIGs) are similar to the County PIGs in their goals, requirements, and implementation. Like the County PIGs, Municipal PIGs require a local financial commitment for preserving farmland. To qualify for this program, the municipality must have an agricultural advisory board and a source of funding for farmland preservation. Farms to be preserved through a municipal PIG need to be approved by the CADB. As part of a Municipal PIG, the SADC funds 60% of the development easement purchase with the County and the municipality splitting the remaining cost.

In Knowlton, 18 farms have been preserved through the Municipal PIG program, protecting 938 acres of farmland.

4. SADC Direct Easement Purchase

The SADC Direct Easement Purchase is a program that allows a landowner to apply directly to the SADC for the sale of development rights. In most cases, the State will pay up to 100% of the certified appraised easement value in the direct easement purchase program. The Direct Easement Program does not usually receive monetary contributions from the County or municipality.

In Knowlton, the state has preserved three farms on 545 acres at a cost of \$1,914,150 in state funds. In the case of the Hillyerd Farm, the Township considered the property so necessary to protect that it bonded for the purchase of the development rights and then sold the rights to the state.

5. SADC Fee Simple

A fee simple acquisition involves an entire property being purchased directly by the state. The SADC pays the survey and title costs, the landowner is exempt from paying rollback taxes for farmland assessment, and the transaction can be completed in a matter of months. The property is then resold at auction, and the SADC does not retain ownership. To participate in this program, the farmland must be within an ADA, and be eligible for Farmland Assessment. No farms in Knowlton have been preserved through a SADC fee simple acquisition.

6. Non-profit Grant Program

Grants from the SADC to nonprofit organizations fund up to 50% of the fee simple or development easement values on farms. No farms have been preserved through this program in Knowlton Township.

7. Transfer of Development Rights

TDR is a growth management tool that transfers development rights from one location, a sending or preservation area, to another, an identified growth or receiving area. To date, this program has not been used by Knowlton to preserve farmland.

8. Other Programs and Partnerships

Through the Municipal Farmland Preservation Program farms can be preserved directly by a municipality either using SADC grant funding or with the intention of later receiving cost share participation from the SADC. To date, no farms in Knowlton Township have been preserved using this program.

C. Term Farmland Preservation Program

The Term Farmland Preservation Programs are cost sharing programs for soil and water conservation projects, in which the farmer receives up to 50% of the costs for these projects, as well as protection against nuisance complaints, emergency fuel and water rationing, zoning changes, and eminent domain actions. In return, the farmer signs an agreement that restricts the land to agricultural use for either eight years or sixteen years. For entrance into these programs and to qualify for benefits, a farm must be located within the county ADA. Technical assistance for the soil and water practices comes through the NRCS.

In Knowlton Township, no farms currently participate in the eight-year programs.

D. Coordination with Open Space Preservation Initiatives

Farmland preservation and the identification of targeted farms should be coordinated with open space planning efforts. Trail easements and adjacency to proposed and existing active recreational facilities are potential areas of concern for farmers.

In 1997 Knowlton Township voters approved a referendum to establish an open space tax. These funds are used in partnership with the state and county programs for the preservation of farmland and purchase of land for recreation and open space. Knowlton Township is currently completing its *Open Space and Recreation Plan* with grant funds from the Open Space Institute through the Delaware River Watershed Initiative. The *Open Space Plan* will offer a strategic view to open space preservation, targeting areas along the river corridor which have been subject to ongoing flooding and identifying connections between preserved farmland and public open space lands. The Agricultural Advisory Committee (AAC) and the Open Space Committee share meetings and members, ensuring coordination of projects and goals.

E. Farmland Preservation Program Funding Expended to Date by Source

The Knowlton Open Space Trust Fund, which funds both farmland and open space preservation, was approved in 1997 by voter referendum and collected one cent (\$.01) per one hundred dollars (\$100) of assessed property value. In 1999, the Township increased the farmland preservation tax to two cents (\$0.02). The Fund currently generates \$51,800 per year and had a balance of \$25,122 as of December 31, 2020. To date Knowlton has expended a total of \$893,163 on farmland preservation projects. **Table 15** details the amount generated per year for the past six years.

Year	Tax Rate	Amount Generated
2015	\$0.02	\$51,827
2016	\$0.02	\$52,037
2017	\$0.02	\$51,726
2018	\$0.02	\$51,691
2019	\$0.02	\$51,656
2020	\$0.02	\$51,817

F. Monitoring of Preserved Farmland

Warren County monitors the property to verify that compliance with the deed restrictions on the preserved property is taking place. The Township's AAC will notify the Warren CADB if violations are suspected. The Upper Delaware Soil Conservation District performs annual inspections of the preserved farmland property for the Warren CADB. The inspectors take note of the following:

- change in ownership since the previous inspection.
- evidence of non-agricultural development (approved or otherwise).
- use of the premises for agricultural activities.
- presence of expansion of non-agricultural activity since the previous inspection.
- if the non-agricultural practice has been abandoned.
- evidence of mining or removing of materials such as sand, gravel, rock.
- evidence of dumping.
- whether or not the farm has an approved conservation plan.
- any improvements to farm buildings and residences.
- any new agricultural buildings erected.

G. Coordination with Transfer of Development Rights Programs

TDR may be used in conjunction with the traditional Purchase of Development Rights (PDR) program; these two programs are not mutually exclusive. As previously discussed, Knowlton Township is not currently enrolled in or developing a TDR program.



Chapter 5. Future Farmland Preservation Program

A. Preservation Goals

Knowlton Township is 25.41 square miles (16,263 acres) in size. Of this, **8,274 acres (51%)** are under farmland assessment, which includes croplands, woodlands, farm structures, and wetlands/waterways that occur on an agricultural property.³⁰ Since 1993, Knowlton Township has preserved **2,472 acres** of farmland. (**Table 14**) Based upon the State’s Minimum Eligibility Criteria for productive soils and tillable land, **2,299 acres, or 26 farms**, are over 20 acres and potentially eligible for farmland preservation in Knowlton Township. Each of these farms is located within the County ADA.

In Knowlton, a locally important farm can be greater than 20 acres in size. This analysis was run on both an individual lot basis (single lot farm) and for multiple lot farms.

Based upon the available funding to purchase and preserve farmland, and the amount of farmland potentially eligible for preservation, the following preservation goals are identified for Knowlton Township:

- One-year target: 100 acres, 1 farm
- Five-year target: 500 acres, 6 farms
- Ten-year target: 1,100 acres, 11 farms

B. Description of Project Areas

In the *2017 Comprehensive Farmland Preservation Plan*, the Warren CADB identified seven project areas within the County’s ADA for farmland preservation. Knowlton Township falls within Warren County’s Project Area North and Project Area Northwest. These project areas correspond to Knowlton Township’s municipal Project Area 1 and Project Area 2, respectively. Project Area 1 (North) is in the northern section of the Township, to the north of Interstate 80. Project Area 2 (Northwest) is located south of Interstate 80. (**Table 16**)

Table 16. Project Areas in Knowlton Township				
(acres)	Total Size	Farm Assessed Properties	Unpreserved Farmland	Preserved Farmland
Knowlton Township	16,263	8,770	6,102	2,558
Project Area 1 (North)	6,111	3,468	2,373	985
Project Area 2 (Northwest)	7,250	4,353	2,785	1,568
<i>Source for acreage: ArcGIS Mapping Analysis</i>				

C. Minimum Eligibility Criteria

Minimum Eligibility Criteria are based upon the SADC’s rules for farmland preservation and project eligibility.[°] In order to be eligible for preservation the site must be developable, have soils capable of supporting agricultural or horticultural production, and meet minimum tillable land standards. (N.J.A.C. 2:76-6.20) In summary:

For all lands less than or equal to 10 acres:

- The land must produce at least \$2,500 worth of agricultural or horticultural products annually; and
- At least 75% or a minimum of 5 acres of the land (whichever is less) must be tillable; and
- At least 75% or a minimum of 5 acres of the land (whichever is less) must be capable of supporting agriculture or horticulture; and
- The land in question must exhibit development potential as defined by the SADC (based upon zoning, ability to be subdivided, less than 80% wetlands, less than 80% slopes of 15% or more); or
- The land must meet the above criteria or be eligible for allocation of development credits pursuant to a Transfer of Development Credits (TDR) program.

For lands greater than 10 acres:

- At least 50% or a minimum of 25 acres of land (whichever is less) must be tillable; and
- At least 50% or a minimum of 25 acres of land (whichever is less) must have soils capable of supporting agriculture or horticulture; and
- The land in question must exhibit development potential as defined by the SADC; or
- The land must meet the above criteria or be eligible for allocation of development credits pursuant to a Transfer of Development Credits (TDR) program.

For a farm application to qualify for SADC cost share, the farm must have at least one parcel (individual lot) listed on the targeted farm list; comprise an assemblage of substandard parcels which together meet SADC minimum standards; or have sufficient justification by the municipal Agricultural Advisory Committee (AAC) and the Warren CADB that the parcels were not identified as targeted due to a specific mapping issue or other error.

[°] Adopted by the SADC May 21, 2007, and July 25, 2019.

The town may proceed without State funding on projects that do not meet these Minimum Eligibility Standards, but as a rule, the County and Knowlton will not cost share on applications that do not meet SADC minimum standards. In all cases, the Knowlton Township AAC will work closely with the Warren CADB to review and process applications from landowners for farmland preservation. The Knowlton AAC will follow all County and State procedures to ensure consistency in application review and processing.

Within the identified project area, candidate farms are identified which meet the tillable land and soils minimum eligibility standards. To determine farms that are potentially eligible for preservation, a series of queries were made utilizing the ArcGIS 10.8.1 digital mapping software for soils and tillable land. These are described in further detail below and shown on target farm analysis maps, **Map A** (meeting tillable criteria), **Map B** (meeting soils), **Map C** (farms meeting both criteria and over 20 acres – target farms).

Farmland that meets the SADC Criteria for Tillable Land

Tillable acreage was determined using the NJDEP 2015 Land Use/Land Cover mapping for agricultural lands. The land categories that are defined as the “tillable land” based on the 2015 NJDEP Land Use/Land Cover, are as follows:

- Agricultural Wetlands (Modified)
- Confined Feeding Operations
- Cropland and Pastureland
- Former Agricultural Wetland
- Orchards/Vineyards/Nurseries/Horticultural Areas
- Other Agriculture

Farm parcels were sorted by size based upon the SADC Minimum Eligibility Criteria for tillable land:

<u>Farm Size</u>	<u>Requirements</u>
0-6.667 acres	75% tillable
6.667-10 acres	5 acres tillable
10-50 acres	50% tillable
50+ acres	25 tillable acres

Farms which meet the minimum eligibility criteria for tillable land in Knowlton are shown on **Map A**.

Farmland that meets the SADC Criteria for Agricultural Soils

Agricultural soils as defined by the SADC are those soils capable of supporting agricultural or horticultural production. The use of the NRCS Soil Survey identifying prime, statewide, and unique agricultural soils is the first and best indication of the farmland soils. The interpretation of the tillable land layer from the NJDEP Land Use/Land Cover data (including pastureland) is the second screen for soils capable of supporting agriculture with the following provisions:

- It is best to make determination of soils capable of supporting agriculture on a site-specific basis (that is for individual submitted applications);
- For farmland planning, on a municipal and county basis, the tillable land layer can also be used to show general areas of farmland potentially eligible for preservation if it is noted that this picture of farmland would need to be confirmed on an individual basis by studying:
 - ✓ Practices the individual farmer has made to farm the land
 - ✓ Amount and location of steep slopes on the farm
 - ✓ Number of stony/gravelly soils on the farm

The SADC has agreed that soils capable of supporting agricultural production are those classified as agricultural by the NRCS Soil Survey or identified as tillable by the NJDEP Land Cover/Land Use mapping.³¹

Farm parcels are sorted by size based upon the SADC Minimum Eligibility Criteria for soils:

<u>Farm Size</u>	<u>Requirements</u>
0-6.667 acres	75% soils capable of supporting agricultural production
6.667-10 acres	5 acres of soils capable of supporting agricultural production
10-50 acres	50% soils capable of supporting agricultural production
50+ acres	25 acres of soils capable of supporting agricultural production

Farms in Knowlton Township that meet the NRCS minimum eligibility criteria for soils are shown on **Map B**.

Farmland that meets SADC Criteria for both Tillable Land and Soils

Utilizing the tillable acreage determined from the NJDEP 2015 Land Use/Land Cover mapping for agricultural lands and soil acreage determined using the Soil Survey as prepared by the NRCS for prime farmland soils, soils of statewide importance and soils of unique importance, farm parcels were sorted on size based upon the SADC Minimum Eligibility Criteria for tillable land and soils.

Farms in Knowlton that meet the minimum eligibility criteria are shown on **Map C** and listed in **Inventory Table 2**. In Knowlton, this analysis was run on both an individual lot basis (single lot farm) and for multiple lot farms.

- ✓ Single Lot Farm: Individual tax parcel
- ✓ Multiple Lot Farm: Collection of contiguous lots comprising one farm
- ✓ >20 acres: Locally important farm

Overall, there are **2,299 acres** of farm assessed land (26 farms) which meet the minimum eligibility criteria for the state’s farmland preservation program. Knowlton, there are 12 multiple lot farms and 14 single lot farms which meet the criteria and are over 20 acres in size.

Table 17 lists those single lot farms, and **Table 18** identifies those multiple lot farms (collection of contiguous individual lots). This information is also included **Inventory Table 2**.

Based upon the available funding to purchase and preserve farmland, and the amount of farmland potentially eligible for preservation the town has identified the following goals:

One-year target: 100 acres, 1 farm
 Five-year target: 500 acres, 6 farms
 Ten-year target: 1,100 acres, 11 farms

Table 17. Single Lot Farms > 20 acres which are Potentially Eligible for Preservation				
Block	Lot	Location	Owner	Acres (Tax Data)
5	16	444 RTE 94	ULLMAN FAMILY PARTNERSHIP LP	180.92
8	6.02	29 HAINESBURG RIVER RD	HUGH J & MARYANN MURRAY FAMILY	23.04
71	2.02	16 RAMSEYBURG RD	BAUMANN, CHARLES & ALICE	104.10
71	8	44 SEREPTA RD	SMITH, MARY JOAN & DEMERS, DOEKE	77.15
71	6	40 SEREPTA RD	MURRAY, GREGORY J & MARJORIE	19.87
61	15	76 KNOWLTON RD	MATAKITIS, RONALD & ELIZABETH	20.00
8	6.01	HAINESBURG RIVER RD	HOH, JOHN & SALLIE	29.00
44	7	13 SHOTWELL RD	LONIE, RICHARD D & MARYLINN T	114.89
8	2	17 WOODRUFF WAY	CASSER, CLAUDIA	57.10
61	19	130 KNOWLTON RD	SCOTTO DICARLO, GUISEPPE & VERONICA	101.38
68	10	39 RAMSEYBURG RD	MILLINGTON REALTY LLC	97.70
62	6.03	37 CENTERVILLE RD	EGIDIO ANTHONY & CHRISTINE	30.30
61	16	90 KNOWLTON RD	TODESCHINI, JEAN L	138.42
62	10	11 CENTERVILLE RD	DEAN, IRVIN W	64.60
Total Single Lot Farms (14 farms):				1,058.47

Table 18. Multiple Lot Farms >20 acres which are Potentially Eligible for Preservation
(collection of contiguous individual lots)

Block	Lot	Location	Owner	Acres (Tax Data)	Farm Acres (Tax Data)
70	5.04	33 SEREPTA RD	ALVERRA CONCEPTS	7.78	65.99
70	5.03	31 SEREPTA RD		9.33	
70	5.05	35 SEREPTA RD		5.19	
70	5	29 SEREPTA RD		43.69	
34	18.03	421 RTE 94	BOWMAN, LEWIS W & ERLA MAE	10.01	64.39
34	18.02	423 RTE 94		3.00	
34	18	437 RTE 94		11.91	
34	18.01	425 RTE 94		34.89	
34	18.04	435 RTE 94		4.58	
68	31	117 KNOWLTON RD	CLIFFORD, SUSIE	77.24	96.26
61	17	104 KNOWLTON RD		19.02	
45	7	24 CENTERVILLE RD	DELORENZO, JAMES A	8.43	57.86
45	6	26 CENTERVILLE RD		49.43	
47	5	107 LINABERRY RD	GUARRACI PIETRO ET AL	125.40	128.40
47	5.04	111 LINABERRY RD		3.00	
43	3	26 RICH RD	KARNEY, PAMELA ANN & RICHARD H	111.17	136.65
46.01	2	25 RICH RD		25.48	
72	1.03	154 RTE 46	KNOWLTON RIVERSIDE ESTATES INC	6.73	38.92
72	1.04	RTE 46		6.00	
72	1.05	RTE 46		6.00	
72	1.06	ROUTE 46		20.19	
40	9.06	4 BRIDGE RD	MCNINCH, ROBERT A	3.01	123.01
40	7	130 VAIL RD		85.40	
40	9.10	12 BRIDGE RD		3.03	
40	9.11	11 BRIDGE RD		3.03	
40	9.07	6 BRIDGE RD		3.01	

Table 18. Multiple Lot Farms >20 acres which are Potentially Eligible for Preservation
(collection of contiguous individual lots)

Block	Lot	Location	Owner	Acres (Tax Data)	Farm Acres (Tax Data)
40	9.01	140 VAIL RD		3.03	
40	4	120 VAIL RD		13.47	
40	9.08	8 BRIDGE RD		3.01	
40	9.09	10 BRIDGE RD		3.01	
40	9.05	2 BRIDGE RD		3.00	
68	9	54 KOECK RD	MURRAY, DAVID	131.29	146.30
68	9.01	54 KOECK RD		4.95	
68	9.04	55 KOECK RD		2.61	
68	9.05	56 KOECK RD		7.08	
62	3	43 KNOWLTON RD	ROGERS, RICHARD D	126.29	251.19
62	11	24 AUBLE RD		58.33	
62	6	29 KNOWLTON RD		24.00	
62	14	58 AUBLE RD		39.50	
62	11.01	AUBLE RD		1.38	
62	6.05	CENTERVILLE RD		1.00	
62	11.03	AUBLE RD		0.69	
28.01	1	601 RTE 94	ULLMAN FAMILY PARTNERSHIP, LP	30.24	32.24
28.01	1.01	615 RTE 94		2.00	
47	4	123 LINABERRY RD	VASS, MARY KATHRYN L & WAYNE	66.00	99.48
46	2	120 LINABERRY RD		33.48	
Total Multiple Lot Farms (12 farms):					1,240.69

D. County and Municipal Ranking Criteria

The Warren CADB uses the SADC's ranking criteria as the basis for qualifying farms for preservation. The County would consider cost sharing with the Township on applications that do not meet the SADC minimum standards on applications that have compelling factors including (but not limited to) adjacency to other preserved farms or fit into the overall plan for the County for farmland preservation.³² In these special cases the CADB may use its own ranking sheet to determine each of the following for individual applicant farms:

- the quality of the local soils
- total tillable acres available
- local buffers and boundaries
- zoning
- County growth and existing infrastructure
- municipal commitment to agriculture
- other financial commitment to agriculture

Points are received in each category relevant to the suitability of the local conditions for agriculture. The higher the score received, the higher the ranking. For the Municipal PIG program, the Warren CADB uses the SADC Minimum Eligibility Criteria as the basis for participating with the local municipality.

Knowlton's Agricultural Advisory Committee and Township Committee are committed to preserving as much of the Township's agricultural land base as possible and supports innovative funding mechanisms and preservation tools. The focus of the Township's farmland preservation program is to preserve the productive agricultural landscape of the community.

E. Municipal and County Policies Related to Farmland Preservation Applications

Knowlton Township follows the policies established by Warren County regarding housing opportunities, division of premises, and exception areas. These policies are documented in the *2017 Warren County Comprehensive Farmland Preservation Plan Update*. The Warren CADB follows the SADC's policies regarding these issues. Below is a summary of the state policies.

1. Approval of Housing Opportunities

Agricultural labor housing: Agricultural labor housing is not currently protected under the Right to Farm Act in the State of New Jersey and the SADC has not, to date, adopted an official policy for agricultural labor housing.³³ However, the SADC recognizes the need for this type of housing and does have guidelines that a landowner must refer to construct labor housing on preserved farms for work on the preserved farm.

The guidelines are:

- Agricultural labor housing must be permitted with approval of easement holder and the SADC.
- Must verify need for “production” aspects of farm.
- Must be full time employed on the premises (seasonal labor is permitted).
- Structure must be sized appropriately based on labor needs.
- Cannot be used for owner or any lineal descendent of owner.³⁴

These applications are reviewed by the SADC and the CADB. The Township of Knowlton Code, Chapter 19, Land Development, allows housing for seasonal agricultural workers as a conditional accessory use in most of the Township and sets out detailed conditions and standards in Section 19-601. These conditions allow for seasonal/temporary housing on farms of at least seven acres that are qualified farms under the Farmland Assessment Act. The housing must be designed for temporary occupancy rather than year-round use, cannot include housing provided on a commercial basis to the general public and must be used to house only those workers hired for the farmer’s own use.³⁵

House replacement: The policy of the State Agriculture Development Committee on house replacement is that requests for replacement of a residence on permanently preserved land must be reviewed and approved on an individual basis by the CADB and the SADC, to minimize the impact on the agricultural operation. This is supported by the CADB and AAC for Knowlton Township. In addition, the Township’s position is that replacement houses should retain the same overall footprint and overly expensive dwellings should be avoided.³⁶

Residual dwelling site opportunity allocation: Residual Dwelling Site Opportunities (RDSOs) are lingering potential housing prospects located within a deed-restricted farm. By designating an area as an RDSO, the landowner is implying that the land will be used for a residential unit or other structure as referred to in N.J.A.C. 2:76-6.17. The maximum RDSO density is one residence per 100 acres. The purpose of the building in question must be for “single-family residential housing and its appurtenant uses.”³⁷ To qualify as an RDSO, the SADC requires that the use of the residential unit be for agricultural purposes and “at least one person residing in the residential unit shall be regularly engaged in common farm site practices.” This is supported by the Knowlton Township AAC and Warren CADB. RDSO units must be requested at the time of application and approved by the CADB and SADC prior to closing (SADC Policy P-31).

2. Division of the Premises

The goal of the SADC, supported by the Warren CADB and Knowlton Township AAC, is to preserve large tracts of farmland. The division of the premises by way of subdivision may significantly alter the potential use of the preserved land. Therefore, a division of the premises is not an encouraged practice; however, when division occurs it must be for agricultural purposes and must result in agriculturally viable land parcels. A landowner wishing to divide permanently preserved farmland must submit a written request. The application must be approved, in writing, by both the SADC and the CADB.

3. Approval of Exception

Exceptions are defined by the SADC as “acres within a farm being preserved” which are “not subject to the terms of the deed of easement.” When an exception is made, the landowner does not receive any compensation in the excepted area. The SADC discourages the preservation of farms that do not have at least one exception, and it is important to take the number, size, location, and purpose of the exception into consideration. Exceptions may be granted in some circumstances, especially in the case of non-severable exceptions, or where the exception might be justified (e.g., to allow for the expansion of pre-existing non-agricultural uses, for trail easements, etc.). It is critical to make decisions about exceptions at the time of application, as exceptions cannot be granted, expanded, or moved once the farm has been preserved. There are two types of exceptions that can occur: severable and non-severable.

Severable: A severable exception is defined by the SADC as an “area that is part of an existing Block and Lot owned by the applicant which will be excluded from the restrictions of the Deed of Easement and may be sold as a separate lot in the future.”³⁸ Typically, there is “no requirement to subdivide a severable exception prior to or after the deed of easement is executed.”

Non-severable: Non-severable exceptions are defined by the SADC as “area that is part of an existing Block and Lot owned by the applicant, which will not be subject to the restrictions of the Deed of Easement but cannot be sold separately from the remaining premises.”³⁹

Exceptions made to farmland have the potential to impact the value of the property. When an appraisal occurs, both severable and non-severable exceptions are considered in the determination of the restricted/after value of the property. The Warren CADB and Knowlton Township AAC follow the exception policies as identified by the SADC.

F. Funding Plan

The *Preserve New Jersey Act 2014* established that a portion of the Corporate Business Tax was to be dedicated to preservation efforts. Of this revenue, 60% is allotted to Green Acres, 4% goes to Blue Acres (administered by Green Acres), 31% is set aside for farmland preservation (SADC), and the remaining 5% goes to Historic Preservation (New Jersey Historic Trust).

1. Municipal and County Funding Sources

The Warren County Land Preservation Department is responsible for administering Warren County's Farmland, Historic, and Open Space Preservation Programs. In 1993, Warren County voters approved a non-binding public referendum by a margin of 2-1 which allowed for the collection of an additional tax of up to 2 cents per \$100 of assessed valuation. In November 1999 and again in November 2002, county voters approved non-binding open space referendums by large margins, each time recommending an increase in the open space tax of another 2 cents per \$100 of assessed property value.

The Open Space Trust Fund, which currently collects 2 cents per \$100 of assessed property value, has enabled Warren County to preserve over 20,000 acres of farmland, 1,700 acres of county parkland, and participate in numerous historical and open space preservation efforts with local non-profits and municipalities throughout the county.⁴⁰The funds are allocated as follows:

- 55% to the CADB for farmland preservation.
- 25% to the Municipal and Charitable Conservancy Trust Fund Committee (MCCT) for non-profit and municipal sponsored open space and historic preservation projects.
- 20% to the Board of Recreation Commissioners (BORC) for acquisition of county parkland.

The Knowlton Farmland Preservation Trust was approved in 1997 by voter referendum and collected one cent (\$.01) per one hundred dollars (\$100) of assessed property value. In January 1999, the Township increased the farmland preservation tax to two cents (\$.02). Allocation of funds from the Trust is under the purview of the Township Committee, which evaluates each initiative on merit. Historically, the Committee has tended to give priority to farmland, followed by open space, and recreation development.

Knowlton Township has also bonded to finance farmland preservation. This has accelerated the Township's ability to proactively preserve farmland. For each of the farms the municipality purchased through the bond, the Township also sought state and county cost share funding.

2. Financial Policies – Cost-Share Requirements

Knowlton Township works with Warren County according to its current cost-share requirements for preserving farms. The Warren CADB will fund one-half of the difference between the amount the SADC funds and the total cost for preserving a farm, based upon the Certified Market Value (CMV), through the municipal Planning Incentive Grant program. The remainder is funded by the municipality.

Knowlton Township is supportive of donation/bargain sales and installment purchases. Both tools serve to leverage limited funding resources.

Donation and Bargain Sale: This mechanism for preserving a farm involves donation by the landowner. If the landowner donates a portion of the value of the development rights when an easement is sold, this is called a bargain sale. A bargain sale can result in substantial tax savings for the landowner and can stretch farmland preservation funds. The landowner donation is a reduction in the amount of gain that is subject to the capital gains tax, and the landowner can take a tax deduction for the amount donated against his or her federal and state income taxes.

Installment Purchase: Through an installment purchase agreement, development rights may be acquired by the Warren CADB through a payment plan that provides payments to the landowner over time. Receiving the income from the sale in installments may provide the landowner with financial management and/or tax advantages.

3. Cost Projections and Funding Plan Associated with Preservation Goals

The Knowlton Township Municipal Open Space, Recreation, Farmland and Historic Preservation Trust currently generates \$51,817 per year and has a balance of \$25,121.61.⁴¹ To date Knowlton has expended a total of \$893,162.72 on land preservation projects. However, the cost of land has risen since the earliest acquisitions were made, affecting the cost per acre for future acquisitions. The Township looks to leverage the municipal funds with county and state cost-share grants on farmland projects. It is anticipated that the municipal cost share will average 15% (at a minimum). The following assumptions can be made:

- The Trust Fund generates \$51,817 per year.
- Average price per acre is \$4,500.
- The average price per acre will increase 5% over the next five to ten years.
- The Township is purchasing land in partnership with County and State (no direct purchase by Township).
- The municipal cost share is on average 15%.

Based upon the above assumptions and the AAC's goal of preservation 11 farms (1,100 acres) in the next ten years, it is anticipated that the Township will have a total project cost of \$4,950,000 and contribute \$742,500, if their percent contribution remains at 15%. This would require bonding of the municipal Open Space Trust Fund.

Utilizing the SADC sliding scale for cost-sharing, and the estimated per acre value of the purchase of a farmland easement in Knowlton Township, it is likely that the state will contribute approximately 60% of the funding on a Municipal PIG project with the County and Township contributing the remaining 40% (split equally, 20% and 20%).

G. Administrative Resources

1. Staff/Consultant resources

The Township of Knowlton has an Agricultural Advisory Committee (AAC) that meets as needed to discuss farmland projects and issues. The AAC developed the Township's initial *Farmland Preservation Plan* and administers the program for the municipality.

2. Legal support

Legal support for Knowlton Township's farmland preservation program is provided by the municipal attorney, up to the point of contract signature, after which the county attorney is used.

3. Database Development

The AAC maintains the database of farmland in the municipality and works with the Warren County Department of Land Preservation on projects and data issues, as needed.

4. Geographic Information System (GIS) Capacity

The Land Conservancy of New Jersey has provided Geographic Information System mapping services for Knowlton Township for the *Comprehensive Farmland Preservation Plan Update*.

H. Factors Limiting Farmland Preservation Implementation

Knowlton Township has a strong commitment to preserve its farmland. The high rate of farmland preservation in Knowlton Township has been attributable to the willingness and the ability of the Township to leverage its own funding to protect farmland. Knowlton Township strongly supports the municipal PIG program. Knowlton Township's program faces financial challenges as it moves forward in purchasing and preserving land during the next ten years.

Landowner interest in the farmland preservation program continues to be a challenge for the AAC in attracting new projects. In 2021, two new bills e passed (S-2605 and S-3484) incentivizing solar energy development on unreserved farmland. S-2605 establishes a successor program to the Solar Renewable Energy Certificate (SREC) program within the Board of Public Utilities that will distribute certificates to solar facilities that qualify.⁴² S-3484 aims to establish a dual-use solar energy pilot program that would permit the construction and operation of dual-use solar projects on unreserved farmland, allowing the land to be eligible for farmland assessment.⁴³ Under this bill, continued agricultural production is allowed under and around the solar equipment. The new bills will help facilitate New Jersey's advances in renewable energy sources but may deter owners of unreserved farmland from participating in farmland preservation efforts.



Chapter 6. Economic Development

A. Economic Development Plans and Initiatives

Knowlton continues to be mainly agricultural, with 8,274 acres of land in agricultural or horticultural use,⁴⁴ primarily in livestock and conventional field crops. The farmland preservation program is a critical component of the farming industry, and its success in Knowlton is measured not by acres preserved but also by the programs put in place to support the farmers and their businesses. To be a full partner in a successful farmland preservation program, agriculture as an industry must be vibrant, self-sustaining, and innovative.

Among the most substantial trends shaping local agriculture has been the decline in the dairy market. Dairy was the foundation of the region's agricultural industry, but the lack of demand, combined with the amount of labor involved, contributed to the closing of dairy farms in Knowlton. Corn, soybeans, and hay are the primary crops, and farms that supported the dairy industry have moved toward different agricultural activities.

Land prices in Warren County have remained relatively stable for the past 5 to 10 years, though there has been recent development pressure from warehouse and solar projects. Development continues for commercial and light industrial purposes and can take land out of agricultural production.⁴⁵ Knowlton Township government is aware of this potential pressure and has established methods to limit development through its planning initiatives and zoning regulations.

The combination of declining traditional agricultural markets and increasing land pressure will likely promote innovation in the ways farmers supplement their incomes. Farmers in Warren County are meeting these challenges by producing goods with higher rates of return. As traditional farming practices become less economically feasible, these initiatives are going to be important for Knowlton farmers.

New Jersey offers Knowlton farmers several support agencies and programs ranging from technical advice to farm loans. The NJDA *Smart Growth Tool Kit* provides information to support municipal and county government, businesses, nonprofit groups, and local citizens in their efforts to achieve the goals and objectives outlined in the NJDA *Agricultural Smart Growth Plan for New Jersey, 2006*.^{46, 47} The Tool Kit embraces the five linked components that have

been identified by NJDA as critical for the future of farming: Farmland Preservation, Innovative Conservation Planning, Economic Development, Agriculture Industry Sustainability, and Natural Resource Conservation. Additionally, the NJDA released a *2011 Economic Development Strategies* report to expand and strengthen various sectors of the agriculture industry in New Jersey, including strategies for produce, horticulture, dairy, livestock and poultry, field crops, organic, equine, and agritourism.

The Warren CADB and its Department of Land Preservation are directly and administratively involved with the preservation and enhancement of farming in the County. This includes acquisition, monitoring, assisting with Right to Farm disputes, working with municipalities to create farm-friendly atmospheres where possible, and coordinating with the state, County, and other organizations to maximize the agricultural potential of the County, including an awareness of the need to support agriculture from an economic development perspective.⁴⁸

In 2017, 86 of Warren County's 918 farms, or 9% of all farms, had sales of more than \$100,000, accounting for 92% of the total revenue. This leaves 91% of farms accounting for 8% of the remaining total sales, indicating a wide disparity in revenue between a large majority of smaller farms and a small minority of larger farms. From a profitability standpoint Warren County farms had a net cash farm income of \$21,227,000 in 2017. The average farm market value of \$101,543 was lower than the statewide average of \$111,095.^f (**Table 19**)

Using the *Census of Agriculture*, crop sales climbed slowly from \$8.3 million in 1987 to \$18.4 million in 2002, before jumping to \$43.6 million in 2007 and continuing to climb to \$54.7 million in 2012 and to \$67.1 million in 2017. Within the crop sector, nursery/greenhouse was the largest sub-sector in 2017 with 61% of the market share, more than the 46% market share in 2012. The grains sub-sector came in second, with 21%, and vegetables, fruits, hay, and Christmas trees all lagged with 10%, 4%, 4%, and 1%, respectively. Over this same 30-year period (1987-2017), livestock sales went from \$27 million in sales in 1987 before slightly improving to \$31.9 million in 2007 then declining to \$26 million in 2017.

As part of this emphasis on the business of agriculture, the NJDA issued its *2011 Economic Development Strategies*, which identify and propose methods to expand and enhance various subsets of the agriculture industry in New Jersey, including produce, horticulture, aquaculture and seafood, dairy, field and forage crops, livestock and poultry, organic, wine, and agritourism. The NJDA observes that "local access to large affluent markets has long been an advantage for the marketing of [those] products. While our markets are still there, competition has become tougher. New Jersey...must continually work to rediscover its competitive advantages, improving access to nearby markets and strengthening consumer loyalty."⁴⁹

^f *Census of Agriculture* data is available through the USDA NASS portal, accessed here: <https://www.nass.usda.gov/AgCensus/index.php> or through specialized searches on the Quick Stats interface accessed here: <https://quickstats.nass.usda.gov/>. Citations throughout this document refer to information gathered from these sources for the indicated years.

Table 19. Warren County Agricultural Economic Overview			
	2007	2017	% Change to 2017
Market Value/Products Sold (\$1,000)	\$75,477	\$93,217	24%
Average/Farm (\$)	\$80,897	\$101,543	26%
Production Expenses (\$1,000)			
Production Expenses (\$1,000)	\$59,355	\$77,551	31%
Average/Farm (\$)	\$63,617	\$84,478	33%
Net Income (\$1,000)			
Net Income (\$1,000)	\$20,843	\$21,227	2%
Average/Farm (\$)	\$22,340	\$26,650	19%
Farms w/Net Gains			
Farms w/Net Gains	358	309	-14%
Average/Farms (\$)	76,983	101,820	32%
% of All of Farms	38%	34%	-11%
Farms w/Net Losses			
Farms w/Net Losses	575	609	6%
Average/Farm (\$)	11,682	16,807	44%
% of All of Farms	62%	66%	6%
Total Acres			
Total Acres	74,975	73,874	-1%
All Farms	933	918	-2%
Average Acres/Farm	80	80	0%
<i>Source: Census of Agriculture</i>			

Using recommendations outlined in the *2011 Economic Development Strategies* report, Warren County municipalities, including Knowlton Township, can investigate ways to expand and/or diversify into more profitable sectors to ensure sustainable agriculture practices and profitability. For each of the sectors, the 2011 report encourages farmers to continually seek new local, state, and interstate markets to strengthen market share. Knowlton has 191 Farmland Assessment forms for 2017.^{50g}

Produce

Major efforts by the NJDA are directed at increasing the demand for New Jersey grown produce through branding, agritourism, farm direct sales programs, and farm markets. The NJDA *2011 Economic Development Strategies* include all these activities. NJDA is committed to promoting agritourism through the *Jersey Fresh* website, the distribution of printed materials, and other forms of advertisement and promotion including collaborating with Rutgers University through the New Jersey Agricultural Experiment Station (NJAES-RCE), and promotion of the work of other organizations such as the New Jersey Farmers’ Direct Marketing Association. Knowlton farms with appropriate activities benefit from such promotion.

^g Farmland Assessment data has been accessed from datasets shared by the State Agricultural Development Committee; data referenced as Farmland Assessment refers to data from the following reports: either Warren County data for the years 2000, 2005, 2015, and 2017, and/or for state data for 2017.

The NJDA 2011 *Economic Development Strategies* for produce focused on the *Jersey Fresh* program and food safety. NJDA's *Jersey Fresh* labels program is promoted throughout the state, to strengthen the appeal of the *Jersey Fresh* brand to supermarket chains and other retailers. This has been largely successful, with major retailers such as Wegmans, ShopRite, Trader Joe's, Target, ACME, and Foodtown (among others) carrying and promoting produce from the *Jersey Fresh* program.⁵¹

Produce, which includes vegetables and fruits, is a leading agricultural commodity in New Jersey. In 2017, Warren County vegetable growers on 94 farms harvested 1,671 acres, with resulting sales of \$6,388,000. Fruit, tree nut and berry combined sales totaled \$2,601,000 in 2017, an increase of 16% from 2012. Total produce sales increased after 2002, from \$5,324,000 in 2002 to \$8,989,000 in 2017, a 69% increase.

Knowlton had a total of 137 acres which were harvested for fruits and vegetables in 2017, a slight increase from 124 acres in 2015. Prominent produce in 2017 were apples (25 acres), sweet corn (26 acres), pumpkins (7 acres), and other mixed vegetables (7 acres). Grapes, which used 27 acres, is a newer crop in the area.⁵² Some of these crops do not require as much land as field and forage crops such as soybeans and hay, making them a positive match with the trend towards smaller farms over the years, especially those that follow organic or sustainable practices. However, these crops also have higher input costs than crops such as hay, and in that respect can benefit from economies of scale.

Opportunities for promoting produce (and, in many cases, numerous other agricultural products) include:^h

- NJDA *Jersey Fresh* website lists 10 farms within a 5-mile radius of Knowlton, including eight on-farm markets and one winery.⁵³
- *Jersey Fresh* also offers community-supported agriculture (CSA), where residents can pledge to support a farm in advance of the growing season, where they receive shares of the total harvest in return.⁵⁴
- *Rutgers New Jersey Agricultural Experiment Station Cooperative Extension (NJAES-RCE)* created an educational website dedicated to agritourism for the public, planning and policy professionals, farmers, and educators.⁵⁵
- A training website was also developed by the Rutgers Agritourism Team for farmers and can be found at <http://agritourism.rutgers.edu/training/>.
- *New Jersey Skylands* promotes agritourism throughout Warren County, offering descriptions of the Warren County Farmers Fair, wineries, farmers markets, and other attractions. The website offers a comprehensive list of different types of produce available and the best time to attend pick-your-own operations for each produce category.⁵⁶
- *Natural Jersey* is a site promoting local natural health products and sustainable living. They highlight producers, such as farms, farm stands, and farmers markets throughout New Jersey which align with their mission and nearby farms and vineyards.⁵⁷

^h These websites are not meant to exclusively promote produce-centric farms, but rather to highlight various farms and events throughout Warren County, including Knowlton.

- *Tour de Farm New Jersey* holds an annual cycling event in both Sussex and Warren Counties, with the goal of supporting local farmers. Farmers provide samples, as well as goods for sale along the route;⁵⁸
- *Warren County Farmers Fair* is a weeklong festival in nearby Harmony featuring many local farms offering products for sale, as well as hot air balloons, artwork and other attractions.⁵⁹
- *Greenmarket* is a network of New York City farmers markets designed to promote small family farms within the region. Over 50 Greenmarket locations are found within all five boroughs, where Race Farms in Warren County offers products for sale.⁶⁰
- Other resources listing direct marketing opportunities for produce in Knowlton and include VisitNJfarms.org, NJ Farmers Direct Marketing Association (<http://njfarmmarkets.org/>), Northeast Organic Farming Association – New Jersey (NOFA-NJ) (<http://nofanj.org>), LocalHarvest.org, and EdibleJersey.com (pick-your-own listings).

Specific recommendations include:

- Utilize consistent, inclusive, and up to date accurate information from the state, county, and regional/association websites.
- Establish or reestablish community farmers markets with help from the CADB, the NJAES-RCE, and the Warren County Economic Development Advisory Council.
- Explore expansion/diversification into value-added produce products, such as jams and jellies, in workshops and direct communications from the CADB in concert with the NJDA and Rutgers.
- Explore “Contract Growing,” that is, growing goods for specific customers on a contract basis (such as regional pharmaceutical or biotech companies).
- Explore diversifying into ultra-niche crops and produce crops that serve the needs of growing ethnic populations in the region, through NJAES-RCE workshops, videos, and resources: <https://njaes.rutgers.edu/ultra-niche-crops/>,⁶¹ <https://sustainable-farming.rutgers.edu/alternative-world-crops/>.⁶²
- Utilize state promotional campaigns, free signage, and other signage opportunities.
- Offer Community Supported Agriculture and other retail options to capture consumer dollars to garner increase from profitability, as well as raise community awareness of local agriculture.

Nursery, Greenhouses, Floriculture, and Sod

The NJDA *2011 Economic Development Strategies* focused on ensuring plant health, including inspections and research; increasing consumer awareness of the *Jersey Grown* brand; and working with government agencies to use New Jersey-produced products wherever possible. This was the highest-ranking category of agricultural commodities in Warren County in both 2012 and 2017, bringing in \$25,248,000 and \$40,793,000, respectively. It accounted for 28% of total agricultural sales in 2012, and 44% in 2017, compared with 40% and 45% statewide.⁶³ This sub-sector exhibited steady growth from \$1 million countywide in 1987 to \$7.6 million in 2002, before jumping to \$25.2 million in 2012, and jumping again to \$40.8 million in 2017. The county experienced a 232% revenue increase from nursery/greenhouse products from 2002 to 2012, and a 62% increase from 2012 to 2017. The sales increase is attributed in part to businesses taking

advantages of market niches and new technologies, supplying specialty products to customers throughout the region.

Knowlton had a total of 56 acres dedicated to nursery (including cultivated sod and floriculture) in 2017, down slightly from 59 acres in 2015 and 99 acres in 2005. NJDA's *Jersey Grown* website lists nine garden centers and nurseries in Warren County that are certified to market the *Jersey Grown* brand.⁶⁴ None of these listings are based out of Knowlton. There are no businesses in Knowlton listed in the NJDA's directory of current state certifications.⁶⁵

Other strategies to follow may include:

- Increase consumer awareness of the *Jersey Grown* brand; utilize the resources of the NJDA for advertisement and marketing purposes;
- Seek and/or expand contracts with large box store operations such as Home Depot, Lowe's, and Walmart; contact Warren County for opportunities;
- Promote "drive up" operations where consumers can buy directly from the nursery or greenhouse.

Field and Forage Crops

The NJDA *2011 Economic Development Strategies* for field and forage crops provide strategies to improve production, yield per acre, and management practices; and support organic crop production plans for a green energy initiative involving biofuel production that could provide a new local market for New Jersey agricultural products. A total of 2,884 acres in Knowlton are dedicated to field crops, with a heavy focus on corn, hay, and soybeans.

In 2017, the County reported total sales of grains, oilseeds, dry beans, and dry peas to be \$13.9 million, a -28% change since 2012 (\$19.2 million) with hay and other crops totaling \$2.7 million, a 47% change since 2012 (\$1.8 million), together representing approximately 23% of total agricultural sales in Warren County.

Corn In 2017, Warren County ranked second in the state for corn, with a total of 18,431 harvested acres (17,701 acres of corn for grain, and 730 acres of corn for silage), which brought in \$9.9 million in sales. In 2012, Warren County harvested 20,883 acres of corn (19,575 acres of corn for grain, and 1,308 acres of corn for silage), resulting in sales of \$15.4 million. Though the total monetary amount for corn sales is not released on a municipal level, Knowlton farmers harvested a total of 628 acres of corn (377 acres of corn for grain, and 251 acres of corn for silage) in 2017, a decrease from 2015 when a total of 936 acres of corn was harvested (742 acres of corn for grain, and 194 acres of corn for silage).

Hay Knowlton harvested 1,371 acres of hay, including alfalfa hay in 2017, roughly the same as the 1,358 acres harvested in 2015. Warren County overall harvested 10,340 acres of hay (including alfalfa hay, excluding haylage) in 2017, bringing in a total of 24,669 tons, an increase from 10,155 acres harvesting 18,836 tons in 2012.

Soybeans Warren County ranked fifth in the state for soybeans in 2017, with 63 farms harvesting 8,285 acres of soybeans, bringing in a total of \$3.7 million in sales. The 2017 numbers show an

increase from 5,661 acres harvested in 2012 totaling \$3.4 million in sales, and the 5,382 acres harvested in 2007 bringing in \$1.7 million in revenue. While the acres of soybeans harvested and the total yield both increased from 2007 to 2017 by 54% and 56% respectively, the increase in total sales grew by 118%. Knowlton farmers harvested 585 acres of soybeans in 2017, an increase from the 406 acres in 2015.

Field and forage crop strategies to consider include:

- Utilize improved management practices and ways to boost yield per acre.
- Capitalize on any available workshops on cropland and pasture management from the county or state.
- Diversify to row crops that meet newly emerging markets or markets with increasing demand (such as spelt as a dietary substitute for wheat or switchgrass for pelletized energy) and pursue to value-added marketing opportunities (such as sorghum for homemade jams and jellies that can be marketed from roadside stands, at community markets and over the Internet).
- According to NJAES-RCE “there are a number of profitable alternative world crops that can be grown in New Jersey to satisfy the demand for fresh produce by immigrant populations. These crops are suited to diversified small to mid-size farms where high returns per acre is required.”⁶⁶ World Crops,⁶⁷ of which NJAES-RCE is a sponsor, can point farmers to crops that meet the needs of ethnic populations in the area.
- Transition to certified organic or naturally grown bean and grain crops to increase their value.
- Investigate and possibly invest in crop insurance to mitigate market risk.
- Utilize county assistance to investigate alternative crops for local production and new markets (such as hops, specialty small fruits, small-scale animal products).

Dairy

Dairy has historically been one of the dominant agricultural sectors throughout Warren County but is now almost completely gone. In 2017, Warren County had 22 farms with milk cows, and only 16 farms that sold milk from cows, totaling \$3.3 million. As of 2017, Knowlton had 138 head of dairy cattle compared to 483 head in 2006 and approximately 1,237 head in 1984. This decrease in dairy production reflects the larger trend seen throughout Warren County.

The NJDA *2011 Economic Development Strategies* for dairy included establishing a premium price for New Jersey-produced milk and ensuring stable pricing; increasing the demand for milk through sale and promotion of *Jersey Fresh* milk and milk products at community and retail markets; promoting FIN-PAK and risk-management software programs to producers; implementing dairy-quality benchmarks; and establishing a health and safety standard for sale of raw milk directly to consumers.

Strategies for reviving the Knowlton dairy industry include:

- If applicable, license under the Jersey Fresh Quality Grading Program, which allows raw milk to be used in goods bearing the logo *Made With Jersey Fresh Milk*.

- Take advantage of the services offered by the Garden State Dairy Alliance, including disease control, milk quality, marketing and promotion, and technical assistance.
- Explore various additional products, such as cheeses and markets for dairy, including local restaurants and grocery markets.
- Aggressively market value-added dairy products, especially those that can carry the *Made With Jersey Fresh Milk* logo.
- Consider and encourage the NJDA’s campaign to establish a process to allow sales of raw milk direct from the farmer to the producer and the positive effects it might have for dairy farmers in Warren County.
- Encourage passage of proposed raw milk legislation that would permit sale of raw milk under certain conditions and establishes a raw milk permit program (A585, re-introduced in the 2020-2021 State Legislative session, pending in the Assembly Agriculture Committee).⁶⁸

Livestock and Poultry

The NJDA *2011 Economic Development Strategies* for livestock focused on animal health, ensuring safe and legal sales of poultry and eggs at community farmers markets; and supporting youth programs involving livestock. Operations in Knowlton include cattle and calves, sheep and goats, hogs, bees, fur, poultry, and eggs. (Table 20)ⁱ

Table 20. Livestock and Poultry in Knowlton									
	Cattle and Calves	Sheep and Goats	Swine	Bees	Fur Animals	Ducks	Meat Chickens	Egg Chickens	Turkeys
2005	714	245	67	32	17	62	251	407	30
2010	691	494	121	15	35	78	215	507	37
2015	350	162	406	48	18	62	271	395	69
2017	340	188	650	42	47	56	282	541	11
% Change (2005-2017)	-52%	-23%	870%	31%	176%	-10%	12%	33%	-63%

Source: Farmland Assessment Data (SADC)

Between the years 2005 and 2017, the cattle stock dropped by 52%, reflective of the end of dairy, and a corresponding reduction in beef cattle. There may be a good market for non-dairy cattle, provided they can be USDA certified^j to increase direct sales to consumers.⁶⁹

ⁱ In the 2017 Farmland Assessment, equine species are included under “Livestock and Poultry;” however, for the purposes of this document, and in alignment with the categories put forward by the NJDA in its *2011 Economic Development Strategies*, they are discussed later in this chapter in a separate section on the Equine industry.

Other livestock that shows downward trends in Knowlton are ducks (-10%), turkeys (-63%), and sheep and goats (-23%), following national and state dietary and cultural shifts. The fastest growing animal industry is swine, with an 870% growth between 2005 and 2017. Other growing animal herds are fur animals (176% growth), egg chickens (33% growth), and bees (31%). These products are specialized and easy to sell directly to consumers.

While sheep and goat numbers fell by 23% over this twelve-year time, these might still be a niche sector for farmers to explore to provide specialty meat and value-added, such as milk, cheeses, soaps, and mohair products to nearby markets. The national price for wool in 2019 was \$1.89 per pound and the average yield per fleece was 7.2 pounds. *Grown in Warren* highlights the growing demand for sheep and goats due to growing ethnic food market.⁷⁰

To strengthen and expand its place in the Knowlton economy, some cattle, sheep, hog, goat, poultry, and specialty livestock strategies may include:

- Ensure animal health.
- Encourage USDA inspections in area farms to permit more direct sales of cuts of beef to consumers.
- Explore additional markets, including local hospitals and assisted-living operations, restaurants and grocery markets, and increased outlets for meat sales at regional community markets (such as the Hackettstown Livestock Auction) and special events (such as the Warren County Farm Fair).
- Seek opportunities for production contracts with poultry and livestock processors.
- Investigate outlets for dairy products for goats and sheep and educate farmers about the benefits of diversifying into these value-added opportunities.
- Explore increased marketing opportunities for goat meat to meet the preferences of growing ethnic populations in the state.
- Encourage passage of proposed raw milk legislation that would permit sale of raw milk under certain conditions and establishes a raw milk permit program.
- Assist farmers with farming techniques, including continued and additional cooperation with the NJAES-RCE, NJDA, and NRCS.
- Promote the agritourism potential of livestock and livestock products in concentrated agricultural areas including exotic animals and poultry, such as “looking” or “petting” zoos, on-farm sales of value-added products such as wool and cheeses, and educational school tours.

Organic Farming

The NJDA *2011 Economic Development Strategies* for organic farming included promoting federal cost-sharing funds for certification reimbursement; integrating marketing of *Jersey Organic* brand alongside *Jersey Fresh*; and working with NOFA-NJ towards research and technical assistance for organic growers.

^j This has been referred to as a “chicken-or-the-egg” dilemma – the USDA generally does not certify cuts of beef for direct sales because they feel there are insufficient numbers of cattle in the county, and farmers cannot sell more cuts for direct sales because the USDA has not come to certify their products.

Organic crops and animals have the potential to be an important market for Knowlton Township and Warren County. With an increasing population, potential markets in Pennsylvania and New York State (including Philadelphia and New York City) and increased consumer awareness regarding food production, organic products, and the markets that support them should continue to gain a stronghold and become more mainstream as people demand high quality, readily accessible and affordable organic products. Certification of organic farms is regulated by the USDA via the Organic Food Production Act of 1990 (OFPA) through a National Organic Program (NOP) and can be somewhat costly and time consuming compared to non-organic farming. This may dissuade some farmers otherwise amenable to this type of farming.

“Natural” farming is a type of farming that seeks to emulate organic farming, but is not overseen by laws or regulations, as is organic farming. Natural farming is somewhat less costly and time consuming than “organic,” and therefore may be a viable option for some farmers and their potential customers. Another alternative, for farmers transitioning to organic production, is the ability to market their products under the NJDA’s newly introduced “Transitional Sustainable” label, eliminating the need to wait 36-months to profit from this niche market. With its strong produce sector, Warren County is in an excellent position to facilitate the market growth of organic and natural agriculture products. Certified Naturally Grown (CNG) is a non-profit organization that offers certification “tailored for small-scale, direct-market farmers and beekeepers using natural methods.” Its standards are based on the NOP standards, but CNG uses a peer-review process, as it is more affordable for small operations than certifying through the state program.

Small organic operations (growers or processors), those with gross sales of less than \$5,000 per year of unprocessed organic product and/or less than \$5,000 of processed organic products (such as jam), can be exempted from the NOP certification process. They can market their products as organic if they follow the national organic standards for production, labeling and recordkeeping, but they cannot use the USDA Organic seal, which can only be used on certified products. They can also sell their products to the retail market, which can sell them as organic if the retailer does not re-package or process the product.⁷¹

In 2017, the Census reported two Warren County farms with the USDA NOP certification, one farm making the transition to NOP certification, and one farm which was listed as exempt from certification. On the state level in 2017, 102 farms reported \$13 million in sales of NOP certified or exempt organically produced commodities. There is an opportunity for other farms to invest in this practice to satisfy the continually growing trend.

Warren County and Knowlton can:

- Improve marketing of organic and natural produce.
- Explore various additional markets, including local restaurants and grocery markets.
- Promote agritourism for organic and natural farms stands.
- Educate growers about organic and natural regulatory and certification requirements.
- Explore ways to support organic food growing and processing.

Equine

The NJDA *2011 Economic Development Strategies* for the equine industry focused on horse health and promotion of the industry through the *Jersey Bred* brand, hosted events, the equine website, and including youth programs. The *2017 Census of Agriculture* indicates that New Jersey produced over \$28 million in equine sales. Sales and farm sizes have varied since the category was created in 2002, where 39 farms averaged \$9,380 in sales. 2007 saw a much higher average sales figure, due to a spike in total equine revenues, resulting in a \$22,770 sales average per farm. 2012 saw the lowest average sales, dropping to \$5,188 per farm.

Many equine farms in Warren County consist of pasture and stable horses. Part of the value of this small but viable sector comes from services offered, which are not included in total sales figures. The New Jersey Equine Advisory Board does not report any equine facilities in Knowlton.⁷² Farms which have breeding services can make use of the *Jersey Bred* logo when marketing their animals.

On the state level, equine rules adopted August 4, 2008, established Agricultural Management Practices (AMP) for Equine Activities on Commercial Farms (N.J.A.C. 2:76-2A.10) and expanded the list of equine activities eligible for Right to Farm protections (N.J.A.C. 2:76-2B.3). While breeding, raising, pasture, and hay production had always been eligible, the following were newly added: boarding, keeping, training, rehabilitation of horses and complementary activities including but not limited to clinics, open houses, demonstrations, educational camps, farm events, competitions and rodeos, as long as these activities are related to the marketing of horses that are raised, bred, kept, boarded, trained, or rehabilitated on the farm, and are in compliance with municipal requirements. This state level support is important to the sustainability and viability of the equine sector in Warren County.

To retain and grow its market share in the state and regional equine industry, Knowlton can:

- Ensure the health of equine animals.
- Educate farmers about the benefits of equine rules and seek guidance from Warren County about the rights of equine farmers.
- Promote the industry at shows and festivals, such as the Warren County Farm Fair.
- Promote the industry through enhanced listings of Warren County and Knowlton equine events in state, regional, and County website and print listings.
- Promote the agritourism aspect of the equine industry through farm tours, horse and pony rides, and boarding and riding lessons.

Wine

According to the *2011 Economic Development Strategies*, the state's grape production has not kept pace with its wine production. Strategies focused on expanding the locally grown content of New Jersey wine; supporting licenses to distill fruit-based spirits; expanding the number of eligible retail outlets supporting the ability to sell wines at farmers markets; and promoting New Jersey's wine trails.

In January 2012, Governor Christie signed into law in a bill permitting direct shipping by New Jersey wineries,⁷³ and on July 2, 2014, the Governor signed into law another bill that establishes

a pilot program through March 1, 2018, to allow wineries on preserved farms to conduct special occasion events under certain conditions as defined by the appropriate CADB.⁷⁴ In February of 2020, A2773 was introduced which would “allow preserved farms to hold 14 special events per year,”⁷⁵ essentially establishing the pilot program in law. The legislation was voted out of Assembly Committee.

A portion of western Warren County, along the Delaware and Musconetcong Rivers and their tributaries, has also been designated by the federal government as a wine grape-growing region.⁷⁶ In 2017, Knowlton had 27 acres dedicated to growing grapes, a new crop since 2005. Warren County had a total of 141 acres growing grapes in 2017, an increase of 117% from the 65 acres in 2005.

Knowlton may consider:

- Exploring the feasibility for additional Warren County and Knowlton farmers to diversify into grape production (or other fruits suitable for wine making).
- Coordinating with wineries from other New Jersey counties, and New York and Pennsylvania, to grow a regional wine industry.
- Market through state tourism and marketing apparatuses, including the *Jersey Fresh* site (<https://findjerseyfresh.com/explore/#findfresh>), and the Official Tourism Website of New Jersey, visitnj.org.
- Encouraging promotion of Warren County and future Knowlton wineries and wines through publicity, expanding a County-wide wine trail or wine tour to multiple vineyards, and promoting expanded distribution of local wines to local outlets such as retail outlets and restaurants, and for other special events.

Aquaculture

The NJDA *2011 Economic Development Strategies* lists New Jersey as one of the country’s largest and most culturally diverse consumer seafood markets. Warren County aquaculture operations rank third in the state in 2017 and include catfish, trout, baitfish, sport or game fish, and other food fish. To support a growing aquaculture and seafood economy, Warren County and Knowlton may consider:

- Working with the State Division of Animal Health to identify revenue streams for testing and certification development for finfish species that will allow transportation and sale of live farm-raised fish to markets in other states.
- Assist in crafting a supportive policy and regulatory path to allow aquaculture to grow in New Jersey, including revising the aquaculture rule providing for the Aquatic Farmer License Program, developing land-use permitting specifically for aquaculture, and assisting the industry and NJDEP in utilizing Aquaculture Development Zones.

Agritourism

Agritourism is one potential link in the long-term sustainability of the agriculture industry in Knowlton and Warren County. Knowlton currently supports agritourism through its weekly farmers market; roadside farm stands; pick-your-own operations; and direct sales of Christmas trees and nursery products. A successful example of agritourism is the seven-day Warren County

Farmers Fair held annually. The Farmers Fair, which highlights the past and present agriculture heritage of Warren County, has been operating since 1937, and is extremely popular, drawing thousands of visitors each year.

One advantage for Knowlton farmers is the proximity to New York City and Pennsylvania's metropolitan areas, providing millions of potential customers to target. The NJDA *2011 Economic Development Strategies* for agritourism focused on expanding roadside programs, including signage and eligibility for signage, consumer promotion through an agritourism brochure, press releases and promotion of agricultural fairs, along with continued development of njfarms.org.

The strategy to expand roadside promotion included expanding participation of agritourism operations in the Tourist Oriented Destination Signage (TODS) program through the New Jersey Department of Transportation (NJDOT), gaining a discounted agritourism rate and increasing the maximum distance (set at three miles) an operation can be from a state road to be eligible for the signage promotion. At least two of these goals have been achieved: in 2014, the maximum distance for an agritourism operation is 10 miles, and the annual cost per sign is \$400 versus \$800 for other businesses. To be eligible, businesses must be open at least six hours a day, five days a week during its growing or operating season.⁷⁷

Visitnjfarms.org, mentioned in the *2011 Strategies*, is a website sponsored by Rutgers, the New Jersey Farmers Direct Marketing Association, and the New Jersey Farm Bureau (NJFB). Its focus is on agritourism activities provided on commercial farms in New Jersey, and farmers must self-register. It includes a "find farms" option, event listings and a chart showing what is in season, and a map of various agritourism destinations. In 2011, the NJAES-RCE reported that "...census data shows our state ranks first nationally in the percentage of farm revenue earned from agritourism" and that 1 in 5 New Jersey farms offer agritourism activities.⁷⁸

In April 2014, the state gave further support to agritourism as a recognized sector of the agricultural industry by adopting an Agricultural Management Practices (AMP) for On-Farm Direct Marketing Facilities, Activities and Events into the New Jersey Register (N.J.A.C. 2:76-2A.13). The AMP "establishes performance-based standards for commercial farms seeking to qualify for right-to-farm protection for on-farm direct marketing facilities, activities and events that are used to facilitate and provide for direct farmer-to-consumer sales, such as farm stands, farm stores, community-supported agriculture and pick-your-own operations, and associated activities and events that fit within the scope of the Right to Farm Act. The intent of the AMP is to provide statewide standards on which farmers, municipalities, CADBs and the public can rely, while also providing flexibility to commercial farm owners and operators."⁷⁹

The *2017 Census* reports that Warren County had \$4.4 million in direct sales, representing 5% of total agricultural sales for the County. This is an increase of 245% over 1997, even while the total number of farms increased by only 4%. (**Table 21**)⁸⁰

	1997	2002	2007	2012	2017	% Change '97-'17
Farms	162	174	221	161	169	4%
Sales (\$1,000)	\$1,277	\$1,545	\$1,952	\$2,150	\$4,403	245%

Source: Census of Agriculture

The wine sector has introduced not only tasting rooms and tours, but innovative programs such as music nights and weekend runs through the vineyards in neighboring towns. This sector can benefit local agriculture as additional income. Agritourism helps change the perspective of the non-farming community and increases visibility, understanding, and appreciation of farming by residents and visitors. Visibility is given to agritourism opportunities through the many websites and publications available. (Table 22) For every dollar in agritourism sales, \$0.58 of additional sales are generated in other businesses (e.g., restaurants, construction, insurance, etc.).⁸¹

Source	Description
State	
NJDA Jersey Fresh Website ⁸²	Roadside markets On-farm activities Wineries
NJAES-RCE	Agritourism education ⁸³
NJDA Jersey Equine Website	Equine events ⁸⁴ Equine facilities ⁸⁵
Visit New Jersey Farms Website ⁸⁶	Farms, farm products, activities and events Ability for website visitor to build itinerary of farms to visit
Visitnj.org (Office Tourism Website of New Jersey)	Farms & orchards ⁸⁷ Wineries & vineyards ⁸⁸ Fairs ⁸⁹
Regional	
New Jersey Skylands Website ⁹⁰	Calendar of events Farms, Gardens, Wineries Family Attractions
Warren County Website ⁹¹	Tourism page includes links to countrywide and regional attractions
Explore Warren ⁹²	Farm markets, and pick-your-own
Organizations	
NJ Farmers Direct Marketing Association, Inc. (www.njfarmmarkets.org) ⁹³	Farms and farm market
New Jersey Christmas Tree Growers Association ⁹⁴	Christmas Tree farms

Among the series of recommendations included in this report are:

- Marketing and promotion – centralized promotion system, agritourism marketing website, better inclusion and integration of agritourism on the New Jersey Division of Travel and Tourism marketing materials; stronger links between farmers and Women, Infants and Children (WIC), Senior, and school lunch nutritional programs; and assisting counties with funding for agritourism promotion.
- Liability protection and insurance – support the development of a New Jersey Agritourism Limited Liability act modeled after laws in Virginia and North Carolina and explore ways to reduce costs of liability insurance; encourage farmers and operations to protect their livelihoods with insurance.
- Regulatory guidance for operators – includes proactive communication about relevant regulations, and education about requirements and protections under the Right to Farm Act; address impediments to signage.
- Training and information workshops for farmers – include hospitality training, marketing strategies and other issue-specific workshops such as liability, grants, traffic, signage; offer a forum for farmers getting into agritourism to interact with those who already are involved.
- Role of CADB – examine preservation policies to identify and address any restraints to agritourism development; provide outreach to operators and municipal officials; develop model long-term leases for farmers renting preserved farmland; host open houses and tours at agritourism operations such as those offered by the Somerset CADB and County Board of Agriculture; encourage municipal adoption of model Right to Farm ordinance.
- Resources – “how-to” website; innovation fund providing grants or low interest loans; technical assistance for farmers in identifying and obtaining grant funding.
- School tours – identify and compile farm-related curriculum for different grade levels.

Knowlton can work with the state, the CADB, state agencies, organizations, and County farmers to affect a strong agritourism presence in the County. Strategies may include:

- Establishing additional permanent, three season community markets, which may assist local farmers in selling farm and value-added products, strengthening the business of agriculture within the County.
- Establishing event-specific cooperative farm stands at community events in the County, which would promote and benefit the Knowlton farming industry and offer additional opportunities for product sales.
- Creating a regional harvest festival in the fall, a horticultural festival in the spring, or a farm itinerary tour of participating farms that could be listed on the Warren County Tourism page.
- Establishing a working farm devoted to public education, similar to The Farm Institute⁹⁵ on Martha’s Vineyard, a working farm on preserved land that offers innovative programs that involve children, families and others, such as local chefs who come in to demonstrate recipes that can be prepared using local produce.
- Working with schools and farmers to develop and promote an expanded curriculum of opportunities for school tours to farms and for farmer visits to schools, maintaining a list

of available farmers, and acting as a clearinghouse or coordinating link between schools and farmers.

- Expanding participation in WIC & Seniors Farmers Market Nutrition Program as Certified Farmer Vendors. Four \$5 vouchers are available for each eligible WIC/Senior participant to use June through November to redeem for fresh fruits, vegetables, and herbs grown by local farmers.⁹⁶
- Implementing a permanent signage program on a municipal or county level to supplement the NJDOT Tourist Oriented Destination Signage (TODS) program that alerts and directs tourists and residents to agritourism destinations to help increase business and income for these farming establishments, informing farmers of the availability of these programs and encouraging participation.
- Exploring growth in other sections of agritourism such as hunting, fishing, and trapping. Often farmers do not charge for these privileges, if they offer them, perhaps, in part because of liability issues. Liability has also become an issue for petting zoos, causing some farmers in other areas to repurpose to “looking zoos” to avoid the safety and health issues that can ensue from interaction between farm animals and visitors. If the Limited Liability protection mentioned above were enacted, farmers might feel freer to generate income from these activities.

Potential challenges to successful expansion of agritourism in Knowlton and Warren County include:

- Impediments to farmers making long-term investments in crop diversification (such as the unavailability of long-term leases for farmers who rent rather than own the land).
- Market saturation (too many farmers engaged in any given type of agritourism could cause profitability for individual farmers to fall, even as it contributed more dollars to the overall agricultural sector).
- Lack of recognition for agriculture in regulations and master plans, including municipal, federal or state regulations that make it difficult or expensive for farmers to participate, such as requiring food products to be processed in federally licensed kitchens or slaughterhouses.

Farmers with direct sales or agritourism activities can post their listings in the following online resources: localharvest.org (CSAs), NOFA-NJ (organic and sustainable), visitnjfarms.org, NJDA websites (Jersey Fresh, Jersey Grown, Made with Jersey Fresh), and Warren County’s tourism page. Farmers who want to learn more about running an agritourism operation can start with the resources available from the Rutgers Sustainable Farming on the Urban Fringe website. Agritourism resources include information on selecting a venture, writing business, marketing and risk management plans, and information on the Right to Farm Act and Agricultural Management Practices.⁹⁷ Additionally, the NJAES-RCE has publications available on its website on specific agritourism topics, such as how to budget for a corn maze.⁹⁸

General Strategies

“Many different agencies, councils and organizations, working through a variety of programs, have the common goal of assisting New Jersey’s agricultural community,” according to the *2011 Economic Development Strategies*. “Strengthened communication and coordination between

agencies and programs can result in multiple benefits for the agricultural community.” Two areas of focus were called out: Farmland Assessment and Crop Insurance and Technical Assistance; and Export Development:

- Farmland Assessment – Updating documentation, supporting farmers in filling out applications, and supporting tax assessors in determining farmer eligibility.
- Crop Insurance – Implementing an education initiative in partnership with the USDA Risk Management Agency and Rutgers Cooperative Extension to increase knowledge and skills among farmers and improve their financial health.
- Technical Assistance – Offering assistance concerning the New Jersey Uniform Construction Code as it relates to farm buildings and the Real Property Appraisal Manual, Farm Building Section.
- Recycling and Food – Increasing participation in agricultural plastics recycling programs and assisting food processing industry in finding markets for soon-to expire and expired foods.
- Motor Vehicle Requirements – Providing information about regulations, license plates for farm vehicles, and other vehicle related provisions through a user-friendly website.
- Financing – Providing information on federal, state, and commercial lending institutions financing for agricultural loans.

Grown In Warren (2019)

Knowlton farmers continue to look for ways to explore new markets, promote their products, and increase the profitability of their agricultural operations. In 2019, Warren County released a report titled, *Grown in Warren, A Strategic Growth & Planning Report*, which outlines strategies for both Warren County and local farmers to “promote the sustainable growth of farming and related business.” The report includes an analysis of the opportunities, challenges, trends, and recommendations for the agricultural community in Warren County.⁹⁹ As this report mentions, Warren County is “ideally located within a two-hour drive of over 20 million potential customers in the New York-New Jersey-Philadelphia region...who are interested in the locally grown, locally sourced agricultural products that Warren County farmers can provide.”

Strategies include increasing direct marketing operations and promoting visibility through attendance at farmers markets, Community Supported Agriculture (CSA), on-farm sales and agritourism, promoting organically grown produce, sustainably and humane meat and animal products, value-added products, specialty crops, and ethnic products. The report also stresses the importance of internet promotion and direct customer engagement, as well as the promotion of regional initiatives such as “Grown in Warren” and regional bike tours.

The branding and execution of “Grown in Warren” is essential to the marketing and promotion of high-quality produce grown locally for a market invested in sourcing from and supporting local farmers. The four parts to this integral strategy are: 1.) establish the brand, 2.) increase the market share for Warren County’s agricultural producers, 3.) bringing added value to products that are associated with the “Grown in Warren” brand, and 4.) gaining acceptance and use of the “Grown in Warren” brand among the county’s agricultural community, with re-sellers of those products. and with consumers.

Specific recommendations for farmers include:

- Bring Warren County’s agricultural products to the consumer through direct sales.
- Utilize the brand identity of “Grown in Warren” to market products as fresh and locally grown.
- Bring consumers to Warren County with on-farm activities and other agritourism practices.
- Participate in high volume urban farmers markets.
- Establish a Community Supported Agriculture (CSA) operation.
- Adopt practices that will result in multiple complimentary income opportunities.
- Process crops into high margin value-added products such as soups, jams & jellies, personal care products and other consumer items.
- Create an internet presence to connect with potential customers, bring visitors to the farm and to sell products direct to consumers.
- Forge relationships with restaurant owners, chefs, brewers and other institutional consumers looking to source ingredients locally.
- Grow specialty and ethnic produce that includes fruits, vegetables, meats, and poultry.
- Plan for generational succession and transition to the next generation of Warren County farmer.
- Engage in cooperative regional marketing of Warren County’s agricultural products.



The report conducted an in-depth analysis on the strengths, weaknesses, opportunities, and threats (SWOT) to the Warren County agricultural community. (**Table 23**)

There is a strong link between outdoor recreation activities (hiking trails, roads conducive to bicyclist), farming and farm stand locations, and economic prosperity. “Warren County has a great deal to offer visitors interested in agritourism and ecotourism. The county features a beautiful natural environment with a myriad of opportunities for outdoor activities that include hiking, fishing, kayaking and bicycling in addition to on-farm visitation.”

Planning for both agritourism and outdoor recreation is important because, “while the county is well-situated to take advantage of this consumer market in term of geographic location and suitable attractions, there is a decided lack of facilities to support this potentially lucrative source of business. There are few hotels in the county. Municipalities generally do not permit the creation of Bed & Breakfast facilities in the residential zones that predominate in the county’s rural communities. Public transit access is extremely limited.”¹⁰⁰

Table 23. Grown in Warren – SWOT Analysis	
Strengths include: <ul style="list-style-type: none"> • Large productive land base • Experienced population of farmers • Proximity to markets • Access to high-income/high-profit activities • Excellent soils • Supportive local communities • Beautiful natural environment 	Weaknesses include: <ul style="list-style-type: none"> • Aging population of farmers • Very high cost of land • Difficult for new farmers to access land • Difficult access to capital • No established distribution networks • Lack of facilities for overnight visitation • Limited public transportation
Opportunities include: <ul style="list-style-type: none"> • Growing New types of crops • Selling to new markets • Taking advantage of consumer preferences • Developing regional branding • Demand for ethnic products • Demand for organic produce • Expanding opportunities for agritourism 	Threats include: <ul style="list-style-type: none"> • Volatile commodity prices • High cost of business • Complex & restrictive regulatory environment • Encroaching development • Uncertain impacts of climate change • Changing labor market
<i>Source: Grown in Warren Report</i>	

Specific recommendations on increasing agritourism and ecotourism in Warren County include:

- Extend marketing efforts to surrounding areas.
- Create and promote themed driving and biking tours.
- Support visitor transportation and accommodation options.
- Encourage multipurpose extended visitation.
- Actively market Warren County as a destination.



One of the benchmarks for a successful campaign was to have 175 farms registered on the “Grown in Warren” portal.¹⁰¹ It is an additional opportunity for farmers to gain visibility and connect the market with the larger community.

B. Agricultural Industry Retention, Expansion, and Recruitment Strategies

Diversity of agricultural commodities to broaden the agricultural base now dominated by hay, corn, and soybeans would help to ameliorate any economic downswing in either the general economy or a specific sector of the county’s agriculture industry. The AAC and the Township stand behind the local agricultural industry. The AAC is supportive of agriculture initiatives, but the volunteer nature of the organization and the existing obligations hinder any increased efforts.

1. Institutional

Minimum wage impact on farm businesses – The State minimum wage was raised to \$10.30 for agricultural employees effective January 2020, followed by an increase to \$10.44 on January 1, 2021. There are further wage increases every year from 2022 until 2027, when the minimum wage reaches \$15.00 per hour.¹⁰² This minimum wage applies to farm workers and exceeds the federal minimum wage of \$7.25, as does that of neighboring New York State, raised to \$12.50 on January 31, 2020.¹⁰³ Pennsylvania, however, still has an exception for farm workers, particularly seasonal workers, giving it a competitive advantage in operations that are hired-labor intensive. Generally, the production of vegetables and fruits (produce) requires the highest amount of hired farm labor, mainly at harvest time, to pick and process the vegetables and fruits. Knowlton farms employ some farm labor to assist with their operations. Other products that are prevalent in Knowlton such as hay and corn require little or no hired farm labor (most labor is done by farm families). As such, farm labor costs are not as large a problem for Knowlton farmers as they are for farmers in parts of the County or State that have major produce agriculture industries.

Farmer Support—Farmers at all levels can benefit from support. A variety of resources exist at the state level, published on the SADC website.¹⁰⁴ These include:

- Agriculture credit and finance.
- Business development for agriculture, food manufacturing, and related industries.
- Farm building construction.
- Motor vehicle regulations for agriculture.
- Real property appraisal manual, farm building section.
- Recycling for agriculture.
- Risk management and crop insurance.
- Sales and use tax on farmers purchases.
- Trespass, vandalism, and liability on farms.

One program, *Farm Link*, serves as a resource and referral center for new farmers, farmers seeking access to land and farming opportunities, landowners seeking farmers, and farmers working on estate and farm transfer plans.¹⁰⁵ In 2015, the SADC launched “NJ Land Link,” an interactive website connecting farmers seeking land or farming opportunities with those who have existing farmland or farming opportunities. Farmers interested in land or partnership/job opportunities, as well as those wanting to advertise available land and opportunities, sign up and create and manage their own listings. In FY2018, “NJ land Link had more than 845 registered users and more than 200 active listings.”¹⁰⁶

Resources specific to estate planning and retirement planning are available through the *Farm Link* Program’s Farm Transfer, Succession, and Retirement Planning section.¹⁰⁷ Resources include workshops, Farm Succession Guidebook,¹⁰⁸ plans and planning information, workbooks and worksheets, and informational documents. Farm Link can also be used to facilitate succession when there is no next generation to take over the farm. Information is also available for the incoming generation of farmers through this Farm Link Program.

Two resources available to farmers through the SADC are the New Jersey Farmland Leasing Guidebook,¹⁰⁹ created as part of a Beginning Farmer grant project,¹¹⁰ and a New Jersey Agricultural Mediation Program Handbook, subtitled “A Guide for Farmers, Neighbors and Municipalities.”¹¹¹ In addition, the state, NJAES-RCE and supply companies, such as fertilizer and pesticide merchandisers, provide other often-seasonal workshops for farmers, keeping them up-to-date on various issues related to the agricultural community.

Another opportunity is the New Jersey Agricultural Society’s New Jersey Agricultural Leadership Development Program (NJALDP), administrated by Burlington County College.¹¹² NJALDP is “a two-year professional development opportunity, which is designed specifically for individuals in farming and agribusiness to become informed, articulate leaders.” Through a series of seminars and domestic learning experiences, NJALDP participants explore various agricultural topics, debate key issues, sharpen communications skills, particularly through public speaking, and establish and cultivate an extensive agricultural network throughout the state.

One program which could be expanded to Warren County is the School Gardens initiative, funded by Team Nutrition Training mini-grants provided by the USDA, the NJDA, and Grow Healthy – a program of the NJAES-RCE. This is a hands-on way to educate children about the importance of farming. Expanding this program to schools in Knowlton would be a way to increase the awareness of both students and their parents about the benefits and value of the agricultural industry in the Township.

According to the NJAES-RCE, the Grow Healthy program is a way to:

- Help children eat more fruits and vegetables.
- Offer nutrition education, physical activity, gardening & agriculture programs.
- Connect with local farms.
- Serve more local foods.
- Offer farm-to-school & nutrition trainings for foodservice staff.¹¹³

The Grow Healthy Initiative in Warren County is run by Sherri Cirignano, Family & Community Health Sciences Educator II (phone: 908-475-6504; email: cirignano@njaes.rutgers.edu).

Marketing, Advertising, Public Relations Support

Marketing and advertising are critical to profitability. Some farmers do opt to use paid advertising in local newspapers, but many, particularly those with smaller farms, hesitate to consider advertising, believing that the costs outweigh the benefits. They prefer to take advantage of free or less costly opportunities to market their products, such as state, regional and County public and promotional websites that will “advertise” the products. Several embrace the opportunities of direct marketing, from roadside stands and from their own websites.

The CADB, the NJAES-RCE, and the state are great resources for farmers to learn about the availability of various free promotional channels such as the *Jersey Fresh*, *Jersey Bred*, *Jersey Grown* and *Jersey Equine* websites, Visit NJ Farms website, and the Warren County “Tourism” web page. For those farmers who want to consider paid advertising or garner free media coverage, web resources can help with the planning. For example, the New Jersey State

Horticultural Society website publishes ad rates for its quarterly newsletter, *Horticultural News*.¹¹⁴ Another website for Community Involved in Sustaining Agriculture (CISA),¹¹⁵ a non-profit organization in Western Massachusetts, offers a Basic Marketing Practices manual.

Signage

Signage promotes visibility and awareness of agriculture in general, as well as benefitting the individual farmers. Municipal considerations of farming needs when drafting their sign ordinances can be helpful in supporting farmers' efforts to promote their products. Farm stands are often seasonal businesses that need to capture potential sales at harvest time. Signs that give directions to the farm stand and let customers know what is available are important. Having farm-friendly ordinances in place can make it easier for farmers to promote their products and can minimize right-to-farm complaints in cases where farmers run up against opposition to their signage, whether from neighboring residents or municipal officials. Farm signage can also benefit the municipality by drawing more visitors and dollars to the area, benefitting other businesses in the community as well as the farmer. Signs should conform to local, county, or state right-of-way and sight standards.

For farmers who qualify for the *Jersey* series of marketing programs, signage is available. This ranges from free price cards to banners and stickers, hats, and T-shirts. *Jersey Fresh* point-of-sale signs and other materials, both free and fee-based, can be ordered using the point-of-purchase application on the NJDA's Marketing and Development Jersey Fresh page. Information on how to participate in the *Jersey Fresh* program is also included.¹¹⁶

Farmers Markets

In 2020, three community farmers markets were operating in Warren County. It is suggested that the County consider establishing a three-season market:

- Blirstown Farmers Market, Outside across from Blirstown Elementary School, 5 Stillwater Road, Saturdays 9:30 am – 1 pm, June 6–October 31.
- Washington Borough Weekly Farmers Market, Washington Borough Main Street (Route 57), near the Downtown Pocket Park (40 East Washington Avenue), Saturdays 10 am – 2 pm, June 20 – September 26.
- Warren County Farmer Market, 565 County Route 519, Belvidere (White Township School), Sundays 10 am – 2 pm, June 2 – September 29.

Community Supported Agriculture

Economic support of the Knowlton agricultural community also comes from local grass roots groups. This support is embodied in CSA, which consists of:

- A community of individuals who pledge support to a farm operation so that the farmland becomes the community's farm. In such an arrangement, the growers and consumers provide mutual support, and share the risks and benefits of agriculture.
- Members or "share-holders" of the farm pledge in advance to cover the anticipated costs of the farm operation and farmers salary.
- Members receive shares in the farm's products throughout the growing season.

- Members also receive the satisfaction gained from reconnecting to the land and participating directly in food production.
- Members also share in the risks of farming, including poor harvests due to unfavorable weather or pests.
- Generally, growers receive better prices for their crops, gain some financial security, and are relieved of much of the burden of marketing.¹¹⁷

The Foodshed Alliance is a grassroots group that is in Blairstown Township. This group sponsors the Blairstown Farmers Market and supports community agriculture in the greater Warren County area. The Foodshed Alliance seeks to “*promote a robust farm economy in northwest New Jersey through local efforts and regional collaborations.*” The Alliance promotes local efforts by assisting individual farmers with sustainable farming methods, making preserved farmland accessible to farmers at affordable long-term leases through the Sustainable Agriculture Enterprise (SAGe) program, protecting rivers through the voluntary River Friendly Farm Program, working towards establishing a food hub in New Jersey, connecting farmers with consumers through farmers markets and buyers’ clubs, and gathering information about how much land is being farmed in the Ridge and Valley region. In addition, the Alliance has published the *Food Hub Feasibility Study for Northern New Jersey, the Northern New Jersey Regional Foodshed Resiliency Plan*, and the *Sustainable Agriculture Enterprise Information and Application for Sustainable Farm Businesses*.¹¹⁸

Agricultural Education and Market Research Coordination

Knowlton may want to consider coordinating with Warren County and the Rutgers Cooperative Extension of Warren County to identify and integrate market research on agriculture and economic trends.

The NJAES website offers additional information relating to animal agriculture, farm management and safety, pest management, plant agriculture, and other elements of interest to those involved in commercial agriculture. The Warren County NJAES-RCE traditionally has been a sponsor of workshops, often funded through grants secured by the NJAES-RCE, and a helpful resource for local farmers in many other ways.

Rutgers School of Environmental and Biological Sciences (SEBS) is “committed to the study of how human and environmental health can intersect to support a healthy and sustainable future.”¹¹⁹ Programs and activities include on-campus living labs, research laboratories, farms, greenhouses, gardens, living-learning communities, a historic herbarium, and an entomology museum.

Strategies Knowlton can use to support agricultural education and market research coordination include:

- Coordinate with NJAES-RCE and NJDA to research and market agricultural education.
- Seek grants to fund farmer education.

2. Businesses

Input Suppliers and Services

Very few, if any, large scale agriculture suppliers, which supply medium to large size agriculture operations, exist in Warren County. The several suppliers in the area operate on smaller, more local scales. Many such suppliers are farmers themselves (for instance, selling feed from their corn crops to other local farmers raising animals), without any formal business practices such as advertising.¹²⁰ Without an adequate number of suppliers within reasonable driving distances of farms, the business of farming can become so expensive and time consuming as to not be profitable. The Township welcomes agriculture-related businesses within the confines of its existing zoning.

With the decline of local suppliers, and the ease of access through the internet, mail orders from supply stores further away might work for small equipment or shipments. It is not ideal for large orders. Equipment and supply stores in Warren County include:

- Tractor Supply in Blirstown and Washington Townships, Warren County.
- Central Jersey Equipment in Columbia.
- Frank Rymon and Sons in Washington Township, Warren County.
- Tickner's in Hackettstown.
- Smith's Tractor in Washington Township, Warren County.
- Mayberry in Port Murray.
- S&L Kubota in Belvidere.

Seed and chemical supplies in the area include:

- Agway/ Ace Hardware in Blirstown, Warren County.
- Penwell Mills Feed in Port Murray, Warren County.
- Ise Feed in Stewartsville, Warren County.

Product Distributors and Processors

Processing facilities such as creameries, slaughterhouses, and lumber mills have become absent from Warren County, and therefore Knowlton as well, forcing local farmers to ship their products out of town to be processed.¹²¹

Field and forage crops are generally sold locally to cattle and equine operations, landscapers, nurseries, and farm stands as baled straw, or kept for the farmer's own livestock and other uses. Small volumes are also sold at the Hackettstown Livestock Cooperative Auction Market. Corn products^k are almost entirely sold wholesale and fluctuate depending on the national market. Small amounts of corn are sold as retail to hunters for bait.

Produce products are sold through a variety of channels. The majority is sold through retail markets to maximize profits, and some are sold either directly to consumers or through roadside

^k This does not include sweet corn, which falls into the produce section below.

stands. Some farmers may travel to metropolitan areas, including New York City, to sell produce at farmers markets and/or greenmarkets. Additionally, some produce is wholesaled to local supermarkets.

Livestock products can be quite varied. Some animals are sold in their entirety directly to consumers (whether still alive or previously slaughtered). Other animals are sold at the Hackettstown Livestock Cooperative Auction Market. Farmers, as well as wholesalers, butchers, and private individuals sell, buy, and trade livestock, eggs, and crops at the Market. Knowlton farmers use the Livestock Cooperative Auction for the purchase and sale of agricultural livestock and products.¹²² The Auction is located on West Stiger Street in Hackettstown and is open every Tuesday throughout the year. It is the only remaining livestock auction in the state and is a staple of the Warren County agriculture industry.

3. Anticipated Agricultural Trends

Product Demand

From a county historical perspective, total agricultural sales have increased sharply from \$39.7 million in 2002, to \$75.5 million in 2007, \$91.2 million in 2012, and \$93.2 million in 2017. Much of this growth has been fueled by increased grain, nursery, and greenhouse sales, in part due to the consolidation of several large farms and cost-savings through economies of scale. The nursery, greenhouse, grain, and vegetables sectors of the agricultural industry should continue to be healthy and viable sectors since they often serve the needs of increasing livestock practices such as sheep, goats, and poultry in the face of a declining cattle industry, as well as a homes and businesses within the County and the region.

The livestock sector has seen changes to its non-dairy and dairy subsectors, both of which have experienced lengthy declines in cattle stocks but have held constant since the early 2000s. Milk production follows this trend as well, with the commercial dairy industry completely gone now. The cattle industry is believed to be trending towards smaller and smaller farming operations, many of which will raise a small amount of cattle as part-time jobs to qualify for farmland assessment.¹²³

Value-added products can bring additional income to farms involved in direct marketing through farm stands and websites. Direct marketers can capitalize on the advantages of selling at retail rather than wholesale, selling from their own location rather than having to pay transport costs, and of generating additional income by developing value-added products such as pies, cheeses, jams, honey, and other products that serve the increasing numbers of customers who want the advantages of ready-made and the appeal of items “home-made” by someone else.

An increased demand for organic products may encourage farmers to adopt more natural farming methods. Since federal certification requires a three-year commitment, many farmers may lean toward “natural” farming methods for food crops and for livestock, such as grass-fed beef raised without hormones or antibiotics.

One emerging trend is the emerging resurgence of hemp (*Cannabis sativa*). The growing support for hemp products, and the recent legislative actions which removed it from the Schedule I list of

Controlled Substances Act, have created a new market. The “New Jersey Industrial Hemp Pilot Program” was signed in 2018, for hemp that is cultivated and tested to ensure that THC content does not exceed 0.3 percent.¹²⁴

Other avenues to explore include:

- Changing the farm operation’s mix of products.
- Consider new crop opportunities being researched/promoted by the NJDA, the NJAES-RCE, and the NJFB: hops, tree nut crops, organic or low input produce or meat products, aquaculture, biotechnical and pharmaceutical use of farm products or animals, and hemp.
- Marketing livestock as dressed meat on a retail basis.
- Fresh herbs, sold at retail, in bunches or as potted plants.
- Economic development through preservation.
- Agricultural Enterprise District (AED) as a potential preservation mechanism. Modeled after Urban Enterprise Zones, the AED would provide economic development advantages, particularly to preserved farms, and use taxes from farmland assessed land to seed the formation of an economic development corporation and development of a program.

Market Location

Knowlton is located near the large population centers of New York City and Philadelphia, with a direct route to New York City via Interstate Route 80. Maximizing the use of nearby highways can increase the number and type of consumer markets to be reached by Knowlton farmers. At least one local farm, Race Farm, takes advantage of these connections to bring produce as far as New York City on a weekly basis year-round and to community farmers markets in northeastern New Jersey.

The agriculture community in Knowlton can seek contracts with area schools, such as Knowlton Elementary and North Warren Regional High School, to supply healthy, fresh farm products for use in their cafeterias. Area hospitals and senior/nursing homes are also possible customers. Since all of these are permanent institutions, once established these markets can be considered as “permanent customers” and revenue sources for the Knowlton agriculture community.

Future of Agriculture

Among the most substantial trends reshaping the Township’s agriculture base is the rapid rise of the crops sector. Since the 2002 Census, crop, nursery, and greenhouse products have outpaced livestock and poultry sales. Niche products such as packaged and organic goods that generate “value added” revenue streams are likely to increase.

Challenges facing Knowlton’s farmers are land prices and property taxes. Higher land prices threaten to replace many of the County and Township’s farmlands and open space areas with residential and commercial developments that are less compatible with agricultural production.

The average age of farmers in Warren County is increasing. Young farmers are attracted by higher paying opportunities in other employment sectors, and fewer are becoming farmers. Consequently, the average age of farmers in Warren County has increased from 50 years old in

1982, to 56 years old in 2002, 59 years old in 2012, and to an interval between 55 and 64 in 2017.

4. Agricultural Support Needs

Agricultural Facilities and Infrastructure

The County lacks permanent suppliers of items such as seeds, feed, and chemicals required to keep farms productive. Most of these services involve local farmers selling these items to one another, hampering the stability of these support services. An increase in permanent agricultural suppliers would work to guarantee the stability of these services, and in turn, the agricultural industry.

Ultimately, it comes down to whether there are enough opportunities to make money in supporting the County and region's agricultural industry. If those outside the farming community see ways to make profits doing so, then they will feel much more confident in setting up operations, whether they be cattle and equine veterinarians, feed and fertilizer suppliers, or machinery sales and repairs.¹²⁵

The Foodshed Alliance released a report in 2018 titled, "*The Foodhub Feasibility Study*," which analyzes the benefit of having a food-hub (an aggregation and distribution facility). The report found that a food hub "could help strengthen the farm industry in New Jersey by giving farmers easy access to institutional buyers to fill the need for locally grown, fresh healthy food."¹²⁶

Flexible Land Use Regulations

State Level – Examples where regulatory flexibility is important are the NJDEP's "Freshwater Wetlands Protection Act Rules" (N.J.A.C. 7:13-et. seq.), which grants exemptions for agricultural activities, and the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13). The latter was adopted in 2007 and amended last in June 2019, with amendments for agriculture effective June 2016, including numerous agricultural permits.¹²⁷

Municipal level – Building an awareness of and provisions supportive of agriculture into municipal master plans and zoning ordinances can go a long way towards the kind of support agriculture needs to be an economically viable sector. Knowlton farmers benefit from having a Right to Farm ordinance enacted in their township.

Other areas where municipal sensitivity to the land use needs of agriculture can be helpful include consideration of the following issues when creating municipal regulations:

- Setting specific buffer standards for non-farm development adjacent to working farms that help to limit trespassing and littering and protect the residential landowner from dust and spray materials spread during farm activities, thus minimizing potential Right to Farm conflicts.
- Code or ordinance provisions requiring developers to notify purchasers of the proximate existence of active agriculture.
- Exemptions for certain farm structures from building height restrictions.

- Allowing additional principal dwelling units on farms to meet the needs of farmers for additional housing for their children or for farm managers.
- Exemptions from setback requirements when farmers seek to expand an existing nonconforming structure.
- Flexible fencing ordinances that make allowances for types of fencing on farms that might not be desirable in residential zones, in consideration of the farmers' needs to prevent wildlife damage.
- Construction fee reduction for agricultural buildings.

Incorporating agriculture into local planning and zoning documents will help the Township protect its farmlands and rural character in the face of development pressure. Knowlton passed a Right to Farm ordinance in 1997 to ensure farmers can practice accepted agricultural operations. Knowlton supports farms, farm stands, agricultural tourism, and housing for seasonal agricultural workers. As such, the Township's zoning is supportive of agriculture.

Agriculture Representation in Economic Development

The Warren County Economic Development Committee (EDC) was created in January 2016 to serve in an advisory capacity to the Board of Commissioners, to assist the County in promoting economic development, including an increased focus on tourism and agritourism. An established framework will be used in coordinating local, state, and federal efforts towards this end, including a major emphasis in laying the basic groundwork necessary for attracting and encouraging sound economic growth within the County.¹²⁸ A list of business resources within Warren County is available on the EDC website at <http://warrencdev.com/business-resources>.

5. Agricultural Support Implementation

The NJAES-RCE of Warren County has always been a source of support to local farmers, helping them adapt to new technologies, introducing new farming practices to improve efficiency, and keeping farmers up to date with market trends. With the rise of online shopping, more people are choosing to order products, including agricultural products, from the comfort of their own homes. The NJAES-RCE can work with local farmers in expanding their presence to the web in addition to traditional advertising such as signage and roadside stands.

The average age of farmers is increasing as well, with a large need for new generations of farmers to come in and take over agricultural operations in the years to come; the NJAES-RCE can reach out to those interested in or just beginning their own farming operations, assisting them in reaching the point where their operations become profitable.

The Township, as well as the County and other relevant parties, can also continue to promote agritourism, helping to boost farm revenues and raise local awareness of, and support for, farming operations. This can be done in conjunction with the non-farming community, such as local artists, who can help in attracting people who may primarily be more interested in artwork or music than agriculture and end up gaining exposure to farming activities and products when visiting art exhibits or concerts.

Federal agriculture support can be found through the USDA's Grants and Loans webpage¹²⁹ including grant and loan programs ranging from farm loans, housing assistance, rural development loan and grant assistance, beginning farmers and ranchers, livestock insurance, specialty crop block grant program, the farmers market promotion program, and the organic cost share program.

Sustainable Agriculture Research and Education (SARE) is a USDA competitive grants program that helps build the future economic viability of agriculture in the United States.¹³⁰ SARE funds are used for:

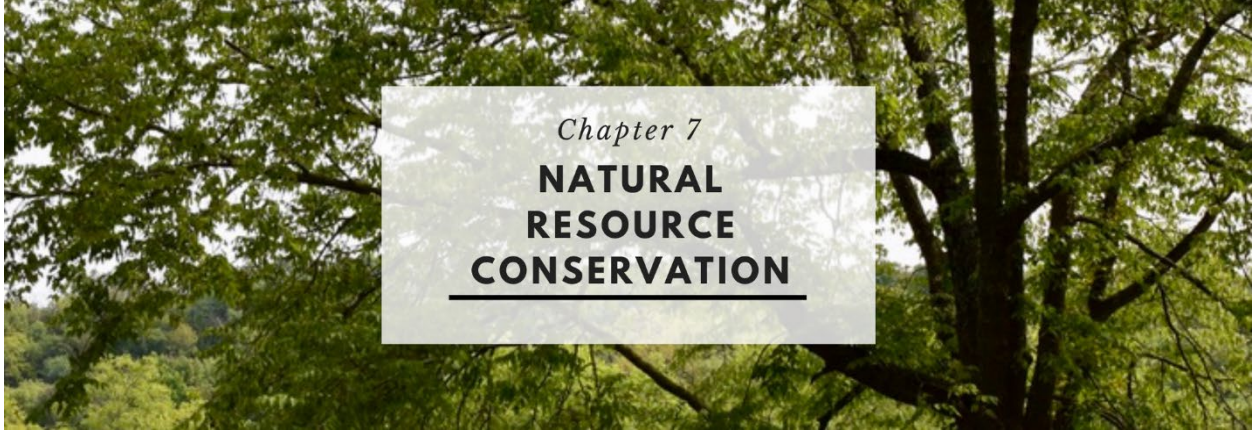
- *Farmer & Rancher Grants*: These grants have the goal of helping farmers shift to practices that are environmentally sound, profitable, and beneficial to the wider farm community.
- *Partnership grants*: These grants are for RCE and NRCS personnel, non-profits, and agricultural consultants who work directly with farmers. Grants are used for on-farm research and demonstration projects that address sustainability.
- *Sustainable Community Grants*: These grants allow for key issues to be addressed which connect farming with community prosperity and revitalization.
- *Professional Development Grants*: These grants fund professional development projects that help RCE educators and other agricultural professionals learn and transmit the knowledge needed to help farmers move toward greater sustainability.
- *Research and Education Grants*: These grants fund research and education projects that lead to farmers adopting sustainable practices. The emphasis is on improved farming practices and an enhanced quality of life for farmers and rural communities.

State agriculture support includes the 2020 Specialty Crop Block Grants, New Jersey Wine Industry Project Grants, Soil and Water Conservation Grants, New Jersey Risk Management and Crop Insurance Education, New Jersey Junior Breeder Loan Fund, Organic Cost Share, and Farm to School Mini Grants. More information can be found on the NJDA Grants webpage,¹³¹ accessed through the following link: <https://www.nj.gov/agriculture/grants/>.

Farmland Preservation Programs support include State Acquisition, County Planning Incentive Grants, Municipal Planning Incentive Grants, and Grants to Non-Profits. More information can be found through the SADC webpage,¹³² accessed through the following link: <https://www.nj.gov/agriculture/sadc/farmpreserve/programs/>.

New Jersey Farm Bureau

The NJFB is a private, non-profit membership organization that represents the agricultural producers and enterprises in New Jersey at all levels of government. The NJFB advocates for farmland preservation, environmental regulations, wildlife and water issues, and legislation relating to agricultural labor and the Right to Farm. Through grants, initiatives, and partnerships, the NJFB educates the public about the agricultural industry and participates in farmer training and education programs.¹³³



Chapter 7. Natural Resource Conservation

A. Natural Resource Protection Coordination

1. Natural Resources Conservation Service

There are numerous public and private entities, which administer, fund, and provide technical guidance for Knowlton farmers relative to natural resource conservation. An important partner in support of natural resource conservation for the agricultural community is the USDA NRCS. The NRCS “*provides assistance to private land owners [including farmers] in the conservation and management of their soil, water, and other natural resources.*” The NRCS provides technical assistance suited to the natural resource issues that are specific to a farmer’s needs, with ample opportunities for cost-shares and financial incentives.¹³⁴

Knowlton farmers may utilize this local NRCS office for assistance. NRCS also will reach out directly to landowners if they know of a farmer who needs technical assistance or could use the guidance of the NRCS staff. The local NRCS office serving Knowlton Township:

Address: Building 1, 101 Bilby Road, in Hackettstown Commerce Park.

Phone and Website: 908-852-2576, www.nj.nrcs.usda.gov

Staff: Dan Mull, District Conservationist, 908-441-7518, dan.mull@nj.usda.gov¹³⁵

Within one year of selling their development easement, owners of preserved farms are required to develop a Conservation Plan. A Conservation Plan is also required to apply for natural resource conservation programs such as the Wildlife Habitat Incentive Program (WHIP) and the Environmental Quality Incentive Program (EQIP). The following strategies would strengthen natural resource conservation efforts for farms in Warren County and its municipalities, including Knowlton:

- Providing a mechanism and staff to ensure that Conservation Plans are prepared and implemented will guarantee that the objectives of the program are put in place, and active stewardship practices are underway.

- While NRCS services are voluntary, farmers can benefit from conservation. Conservation can help make farmers eligible for NRCS and USDA funding.¹³⁶

The NRCS “Field Office Technical Guide”¹³⁷ contains technical information about the development and implementation of soil, water, air, flora, and fauna resource conservation practices, and is used to develop conservation and resource management plans. Conservation practices discussed in the Guide that are pertinent for Knowlton include, but are not limited to:

- Riparian buffers, including necessary buffer widths and plant species.
- No till and minimum till practices.
- Prescribed grazing and pasture management.
- Nutrient management, including manure and fertilizers.

In November of 2020, the USDA NRCS completed an update to its National Conservation Practice standards. The 2018 Farm Bill required the NRCS to review these practices. They provide guidance for planning, designing, installing, operating, and maintaining conservation practices. Some of the main areas of interest they cover are:

- Irrigation water management.
- Heavy use area protection.
- Composting facilities.

Two new conservation practices which deal with wastewater treatment and wildlife habitat planning and have another 18 conservation standards which are currently being tested to establish and document natural resources benefits. This update addresses changes in technology and added criterion for soil health, water conservation, drought tolerance, and resiliency.¹³⁸

2. Upper Delaware Soil Conservation District

The NJDA Division of Agricultural and Natural Resources includes the State Soil Conservation Committee (SSCC). Among its objectives are the protection of agricultural lands through farmland retention and productivity improvements, control and prevention of soil erosion and sedimentation on agricultural land, protection of water quality and control, and prevention of storm and flood water damages.¹³⁹

The SSCC coordinates and supports the work of the state’s 14 local soil conservation districts (SCDs), one of which is the Upper Delaware SCD. The SSCC are part of the New Jersey Conservation Partnership, which also includes the USDA NRCS and NJAES-RCE. The Upper Delaware SCD is charged with implementing natural resource conservation and assistance programs and services, which include agricultural conservation planning assistance, agricultural conservation cost-sharing program grants, application of organic materials on agricultural land, agricultural water supply and management, soil erosion and sediment control, storm water discharge authorization, and soil surveys.

The Upper Delaware SCD works with the NRCS in providing survey assistance, engineering designs, and plans. For development easements which require a conservation plan for the farm to

be obtained within one year, the NRCS will prepare a conservation plan at no cost to the farmer. It also provides administrative support to Conservation Assistance Program (CAP) employees in support of Federal Farm Bill Conservation programs and the New Jersey Farmland Preservation Program, including the preparation and implementation of Conservation Plans. Its goal is to promote best management practices (BMPs) for soil erosion and sediment control, animal wastes, nutrient management, water quality improvement, and other natural resource management concerns.

Knowlton farmers may approach this local SCD office (as well as the local NRCS office) with a Request for Assistance (RFA) to apply for funds from the State Conservation Cost Share program and federal programs such as EQIP. If approved, the RFA is forwarded to the local NRCS office in Hackettstown for processing. The administration of the RFA includes preparation of a Conservation Plan and program contract. The Upper Delaware SCD is involved in review of Conservation Plans and program contracts and must give final approval to both.

The Upper Delaware SCD office serving Knowlton:¹⁴⁰

Address: 51 Main St., Suite B in Blirstown

Phone: 908-852-2579

District Manager: Sandra Myers, smyers@upperdelawaregcd-nj.com

Staff: Tim Matthews, District Forester; Eileen Greason, SESC Inspector Warren County

Rutgers New Jersey Agricultural Experiment Station, Cooperative Extension of Warren County (NJAES-RCE)

The NJAES-RCE of Warren County provides field and technical research on BMPs for farmers to ensure the long-term viability of both the agricultural economy and the natural resources upon which it is based.

The NJAES-RCE of Warren County offers the Agriculture and Natural Resource Management program to provide educational programs include soil testing, insect identification, plant disease diagnosis, and pest management recommendations for agricultural operations. as well as educational publications covering a range of agricultural topics.¹⁴¹ The NJAES-RCE of Warren County is:¹⁴²

Address: Warren County Administration Building, Suite 102, 165 County Route 519 South in White Township (mailing address of Belvidere)

County Extension Department Head:

Alayne Torretta, 908-475-6502, torretta@njaes.rutgers.edu

Agricultural and Natural Resources Senior Program Coordinator:

Henry Bignell Jr., hdbignell@njaes.rutgers.edu

New Jersey Department of Environmental Protection

The NJDEP Division of Parks and Forestry oversees the Private Lands Management Program for the stewardship and retention of privately owned productive forests.¹⁴³ This includes the private woodlands currently under Farmland Assessment, which totaled 228,000 acres statewide in 2020.¹⁴⁴ Many properties in Knowlton that are farmland assessed include woodland tracts, especially in the northern portion of the Township. Such tracts were added as “farm products” in

the 1970s. There are two classifications of woodlands: appurtenant (or attached) and non-appurtenant (or unattached). Requirements for non-appurtenant woodland tracts are listed in N.J.A.C. 18:15-2.7. These tracts must be utilized by the farmer as a sustainable “product,” and require Woodland Management Plans (WMPs) to receive reduced local property taxes accorded properties in the farmland tax assessment program.¹⁴⁵

The NJDEP’s Division of Parks and Forestry, Bureau of Forest Management (BFM), reviews farmland assessment applications that include WMPs prepared for farmers by private consultants. The BFM maintains a list of foresters approved for this purpose.¹⁴⁶ Once a WMP is in place, a Woodland Data Form (WD-1) must be submitted with the farmland assessment application yearly to certify compliance with the WMP.

Non-appurtenant woodlands are woodland acreage on a farm over and above total farmed acreage (tilled and pasture). For example, if 50 acres of a farm are tilled or pastured, and there are 125 acres of woodlands on the farm, 75 acres of woodlands would be non-appurtenant (125 woodland acres minus 50 farmed acres). In Knowlton for 2019, there were 2,793 acres of non-appurtenant (or unattached) woodland acres in farmland assessment.¹⁴⁷ The total of non-appurtenant woodland acres in 2019 was down from 2010 when there were 2,859 acres. The 2019 non-appurtenant acres are also up from 2000 when there were 2,610 acres, and in 1990, when there were 1,212 acres in farmland assessment in Knowlton. **(Table 24)**

Table 24. Woodlands in Knowlton Township		
Year	Non-Appurtenant Woodlands (acres)	Appurtenant Woodlands (acres)
2019	2,793	922
2010	2,859	1,324
2000	2,610	1,447
1990	1,212	1,724
<i>Source: Farmland Assessment (SADC)</i>		

Appurtenant woodlands are woodland acreage on a farm, less than or equal to, farmed acreage. In the preceding example, 50 of the 125 woodland acres would be appurtenant. Appurtenant woodland acres do not require a WMP to qualify for farmland assessment. In Knowlton for 2019, there were 922 acres of appurtenant (or attached) woodland acres in farmland assessment, down from 2010 when there were 1,324 acres, and in 2000 when there were 1,447 acres. In 1990, there were 1,724 appurtenant acres in farmland assessment in Knowlton.

The NJDEP’s Nongame and Endangered Species Program, administered the Landowner Incentive Program (LIP). This program worked to improve habitat management and protection for threatened and endangered species on private lands, some of which were agricultural lands. Since 2014, there is no expectation of congressional reapproval of LIP. While LIP is no longer available, other incentive programs through NJDEP are listed on the NJDEP, Division of Fish and Wildlife website.¹⁴⁸

USDA, Forest Service’s Forest Stewardship Program

The United States Forest Service (USFS) sponsors the Forest Stewardship Program (FSP), administered locally by the NJDEP’s State Forestry Service Bureau of Forest Management (BFM). In the summer of 2017, the Forest Stewardship Program transitioned to a new program that eliminated income requirements to qualify for the program and enhanced monitoring and management of enrolled acres.¹⁴⁹ This program supports landowners whose property has a FSP that recognizes and manages the wetlands, wildlife, aesthetics, soil, and water in addition to the woodlands on the property. This program, when fully funded, offers landowners cost-share initiatives of up to 75% of the cost of a new or revised FSP to allow the landowners to fully follow the guidelines in their plan.¹⁵⁰

As of 2020, 184 properties covering 9,891 acres in Warren County are enrolled in FSP and Knowlton contained 436 acres of farmland on 10 different properties enrolled in the Forest Stewardship Program.¹⁵¹ The New Jersey Forest Service Northern Region office is:¹⁵²

Address: 204 Main Street (Route 206 N), Andover, NJ 07821

Phone: 973-786-5035

Website: https://www.state.nj.us/dep/parksandforests/forest/stw_inc_prog.html

North Jersey Resource Conservation and Development Council (NJRC&D)

The Resource Conservation and Development Program (RC&D) began in 1962 to “help people care for and protect their natural resources to improve an area’s economy, environment, and living standards.”¹⁵³ Among other programs, the NJRC&D offers a River-Friendly Farm Certification, which is a voluntary certification program designed to provide technical assistance and recognize farms that protect natural resources through responsible management. In more recent years, the program has expanded into Warren County with the certification of two farms in the past five years. The Paulins Kill flows through the Township’s past agricultural lands, the AAC may consider taking advantage of the River Friendly Certification Program.¹⁵⁴

The NJRC&D offers no-till drill rental for cover cropping and pasture reseeding, rain garden design and rebates, and a small grant funding program to assist farmers in implementing best management practices through a Water Quality Restoration Grant from the NJDEP. NJRC&D is located at:

Address: 10 Maple Avenue in Asbury, Warren County

Phone: 908-574-5368

Executive Director: Laura Tessieri, ltessieri@northjerseyrcd.org

Private nonprofit groups and private citizens

The preservation of agriculture and agricultural resources requires not only the broad support of state, county, and local governments but also the help of private nonprofit groups and citizens. The Knowlton agriculture community has the support of a variety of committees and organizations, including the Knowlton Township AAC.

The Knowlton agriculture community has the support of a variety of organizations, including the Warren County Board of Agriculture, Warren CADB, New Jersey Farm Bureau, 4-H, Future Farmers of America, and the Warren County Farmers Fair.

Local and regional nonprofit organizations include the Ridge and Valley Conservancy, The Land Conservancy of New Jersey, The Nature Conservancy, New Jersey Conservation Foundation and New Jersey Audubon Society.

B. Natural Resource Protection Programs

1. SADC Soil and Water Conservation Grants

The types of soil and water conservation projects funded by SADC include soil erosion and sediment control systems (terrace systems), control of farmland pollution (stream protection; sediment retention, erosion or water control systems; animal waste control facilities; and agricultural handling facilities), the impoundment, storage and management of water for agricultural purposes (diversions; water impoundment reservoirs; irrigation systems; and drainage systems), and management of land to achieve maximum agricultural productivity (land shaping or grading) while conserving natural resources.¹⁵⁵

These grants fund soil and water conservation projects approved by the Upper Delaware Soil Conservation District (UDSCD), with the program administered by both the UDSCD and the local NRCS office in Hackettstown. Once the District deems the conservation project necessary and feasible, applications are forwarded to the New Jersey State Soil Conservation Committee (SCC), which recommends projects to the SADC for funding approvals. A permanent source of funding needs to be put in place to ensure that farmers can continue to participate in these beneficial programs.

2. SADC Deer Fencing Grant Program

Farmers can apply to the SADC at any time for cost-sharing grants for the installation of high-tensile woven wire deer fencing on permanently preserved farms. Farmers who are successful in their applications can cover up to 50% of the cost of materials and installation. Assistance for this program is capped at \$200/acre or a total grant amount of \$20,000.¹⁵⁶

SADC: David Clapp or David Kimmel
Phone, Email: 609-984-2504, sadc@ag.nj.gov

3. Federal Conservation Programs

Farm Bill Programs

The Farm Security and Rural Investment Act of 2002 (2002 Farm Bill) was landmark legislation, with much of its focus on conservation funding and environmental issues. Since 2002, the legislature has drafted and instituted new Farm Bill programs in 2008, 2014, and 2018. Voluntary programs relevant to New Jersey, and Warren County, included the Conservation

Reserve Enhancement Program (CREP), Conservation Innovation Grant Program (CIG), Environmental Quality Incentives Program (EQIP), Farm and Ranch Land Protection Program (FRPP), Grassland Reserve Program (GRP), Wetlands Reserve Program (WRP), and Wildlife Habitat Incentives Program (WHIP).¹⁵⁷ These programs were continued under the Food, Conservation and Energy Act of 2008 (2008 Farm Bill). These programs were renewed in 2014 and 2018, with the most recent legislation being The Agricultural Improvement Act of 2018 (2018 Farm Bill).¹⁵⁸ The 2018 Farm Bill will be active until 2023. As in the past, these programs are administered by the local NRCS office in Hackettstown, and the Upper Delaware SCD.

In 2014, the Farm Bill repealed the 2008 Average Crop Revenue Election (ACRE) program. This voluntary program provided payments when revenues fell below established levels. In 2014, the USDA Farm Service Agency (FSA) replaced the ACRE program with two new programs: Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC), which are continued through the 2018 Farm Bill.¹⁵⁹ These programs, “pay producers who have eligible historical base acres when prices and/or yields of covered commodities fall below a certain amount, regardless of their current planting decisions.”¹⁶⁰ Since a significant acreage of field crops such as corn and soybeans are grown in Knowlton, and are also covered commodities under these programs, such a revenue support system may well have a positive effect since it would help specialty crops and niche markets receive their fair share of payment support.

The 2018 Farm Bill, in effect since December 2018, made minor changes regarding conservation programs administered by the NRCS and the FSA. Some highlights include:

- Increasing mandatory funding for conservation programs by about 2% from 2019-2023.
- Increasing Conservation Reserve Program (CRP) acreage cap from 24 million acres to 27 million acres by 2023.
- Continuing the Conservation Stewardship Program (CSP), but at a reduced funding level, and replacing an acreage cap with a funding cap.
- Increasing funding for EQIP, the Agricultural Conservation Easement Program (ACEP), and direct funding for the Regional Conservation Partnership Program (RCPP).¹⁶¹

Conservation Reserve Program (CRP)

The CRP is a land conservation program where farmers enroll on a volunteer basis to remove environmentally sensitive land from agricultural production. In exchange, participating farmers plant species that improve the environmental health of the land and receive a yearly rental payment. The contract period is between 10-15 years.”¹⁶²

Conservation Reserve Enhancement Program (CREP)

The NJ CREP program is an offshoot of the CRP and establishes a partnership between the USDA and the state to address environmental impacts related to agricultural practices. The program’s goals are, “to maintain and improve water quality by reducing agricultural pollutants into streams, enhance farm viability, and to contribute to the State’s open space goals.” In exchange for removing environmentally sensitive lands from production, and introducing conservation practices, agricultural landowners are paid an annual rental rate. Like CRP, farmers enter in a voluntary contract for 10-15 years. This program targets 30,000 acres of agricultural lands throughout the state, requesting \$100 million in federal funds and a state match of \$23

million over the life of the program. 100% of the cost is paid to establish the conservation practices and annual rental and incentive payments to the landowner.¹⁶³

Environmental Quality Incentive Program (EQIP)

EQIP is a voluntary conservation program that offers financial and technical assistance to implement conservation practices on eligible agricultural land.¹⁶⁴ Opportunities include:

- Funding opportunities for beginning farmers.
- Financial assistance to help agricultural producers and forest owners address specific natural resource concerns.
- Financial assistance to install high tunnels (similar to hoop houses) to protect high-value crops.
- Soil health initiative to provide technical and financial assistance for soil conservation practices.¹⁶⁵

As of 2014, portions of the Wildlife Habitat Incentives Program (WHIP), which was not reauthorized in the 2014 Farm Bill, have been folded into the EQIP program; anyone interested in applying for wildlife projects should apply through the Working Lands for Wildlife (WLFW) initiative through EQIP.

EQIP is the most popular and widely used conservation program in Warren County. In Warren County, there were 1,286 contracted acres, with 16 contracts in 2019. These contracts totaled \$141,205 (amount available, not paid out). While some farms in Knowlton may be assisted through EQIP, the number of farms enrolled is not tracked on a municipal level.¹⁶⁶

Conservation Innovation Grants (CIG)

Funded by EQIP, the aim of the CIG is to stimulate the development and adoption of innovative conservation approaches and technologies in conjunction with agricultural production. Funds are awarded as competitive 50-50 matching grants to non-governmental organizations, tribes, or individuals for projects with a one- to three-year duration. Each year, the NRCS announces a new round of competitive grants; NJRC&D was the most recent Warren County recipient of such a grant in 2019 worth \$74,995 to assess the use of short season variety corn and soybeans to facilitate adoption of multi-species cover crop.¹⁶⁷

Conservation Stewardship Program (CSP)

The CSP, initiated in 2007, is a voluntary conservation program that provides technical and financial assistance to manage and maintain existing conservation systems, implementing additional conservation activities on land currently under production. CSP Provides two types of payments through five-year contracts: annual payments for installing new conservation activities and maintaining existing practices; and supplemental payments for adopting a resource-conserving crop rotation. Participants earn payments for conservation performance – the higher the performance, the higher the payment. Minimum annual payments amount to \$1,500. Participants can apply for renewal at the end of the five-year contract. The local NRCS administers this program.¹⁶⁸

Working Lands for Wildlife (WLFW) Program

Administered by the local NRCS, WLFW provides technical and financial assistance to agricultural producers to assist the implementation of conservation practices that benefit target species and priority landscapes. Knowlton is situated in focal areas for two out of three target species in New Jersey, the Golden Winged Warbler, and the American Black Duck.¹⁶⁹

Agricultural Conservation Easement Program (ACEP)

In 2014, the Farm and Ranch Land Protection Program (FRPP) was repealed and consolidated into the ACEP. Administered by the local NRCS, the ACEP merges three former programs: Wetlands Reserve Program (WRP), Grassland Reserve Program (GRP), and Farm and Ranch Land Protection Program (FRPP). It has two components:

- Agricultural Land Easements – prevents the loss of working agricultural lands to non-agricultural uses. NRCS may contribute up to 50% of the fair market value of the easement.
- Wetland Reserve Easements – provides habitat for fish and wildlife and improves water quality through restoration and enhancement and may provide opportunities for limited recreational activities. There are two types available in New Jersey: permanent (100% of the value and 50-75% of restoration costs) and 30-year easements (50-75% of the value and of the restoration costs).¹⁷⁰

In February 2021, the USDA released a final rule to update ACEP as directed by the 2018 Farm Bill. This update incorporates public comments and makes minor changes improving the processes in place to protect ecologically important lands.¹⁷¹

Regional Conservation Partnership Program (RCPP)

RCPP was introduced in the 2014 Farm Bill, and significant changes were made in the 2018 Farm Bill. This program encourages partnerships to implement solutions to conservation challenges. Partnerships can be formed by agricultural producer associations, farmer cooperatives, municipal entities, and non-government organizations. Significant changes that were made in 2018 to RCPP are:

- RCPP is now a standalone program with its own funding of \$300 million annually. Moving forward, landowners and ag producers will enter RCPP contracts and RCPP easements.
- Enhanced Alternative Funding Arrangement provision – NRCS may award up to 15 AFA projects, which are more grant-like and rely more on partner capacity to implement conservation activities.
- Three funding pools reduced to two – the National pool was eliminated. Partners must apply to either the Critical Conservation Area (CCA) or State/Multistate funding pool.
- Emphasis on project outcomes – all RCPP projects must now develop and report on their environmental outcomes.¹⁷²

Partnerships must apply for a project grant on a competitive basis during the grant applications period. There are two funding categories: critical conservation areas (CCA) (New Jersey does not fall within one of these eight areas) and state/multi-state. To apply for state funding, the

project must address at least one of the national or state priorities of soil erosion, soil quality, water quality, and wildlife habitat. In April 2020, the NRCS announced investment in 48 projects totaling \$206 million; none of these projects reside in New Jersey. The most recent New Jersey projects that were awarded funding were in 2018:

- Columbia Dam Removal and Restoration on Paulins Kill (\$567,000) – Plan to remove the Columbia Dam and a downstream remnant dam to restore and reconnect habitat for diadromous fish species.
- Black River Gateway – Soil and Water Protection (\$922,000) – Plan to preserve farms in the Black River.¹⁷³

C. Water Resources

1. Supply Characteristics¹

The Township falls within the Valley and Ridge Physiographic Province. The Valley and Ridge Province contains a series of northeast-to-southwest running sandstone ridgelines with limestone valleys in-between.

The major planning implication of geology is the ability of various formations to produce potable water supplies. Some of the Township's geologic formations are better suited for groundwater production than others. The most favorable geologic aquifers in Knowlton are the unconsolidated deposits followed by the Kittatinny, the Jacksonburg, the Shawangunk, and the Martinsburg. Carrying capacity from a groundwater perspective is limited. The Township also contains a mix of soils. The Class 1 soils are generally located along the Delaware River and along some of the tributary stream corridors. Most of the Township's land is a mix of Class 2, 3, and 4 soils. The remainder of the Township is classified as 4 and 5 soils. These areas generally correspond with steep, rocky or wet areas which are generally unsuitable for agriculture.

There are several soil conditions which affect the suitability of on-site wastewater disposal systems. In Knowlton Township there are no large areas of soils which are only slightly constrained for septic use. The moderately constrained areas of the Township closely pattern the existing developed areas around Columbia, Delaware and Hainesburg. These soils are located along the Delaware River and in the Route 94 corridor. The remaining area of the Township (more than 85%) is severely constrained for on-site septic use.

The entire Township drains either directly or indirectly into the Delaware River. The general pattern of drainage is from northeast to southwest. It is one of the objectives of the township to retain the existing surface water drainage patterns to the maximum extent possible.

The 2018 *Warren County Open Space Plan* indicates the importance of agriculture to the water resource by stating,

¹ The information for this section of the *Plan Update* is taken from the *1991 Environmental Resource Inventory* for Knowlton Township.

“Sixty percent of Warren County is deep, non-stony soil, well suited for farming and community development etc. These areas also provide scenic vistas and watershed protection. Agricultural landowners should be encouraged to participate in the Farmland Preservation Program, to help ensure the viability of agriculture as a land use and economic activity while preserving them as open or undeveloped land areas. The remaining 40 percent is soil so stony, steep, shallow or wet that it is not suited for development.” The Plan also states that *“Areas designated for open space can protect many natural resources, such as the quality and quantity of surface and groundwater, cultural and historic areas, and view sheds associated with ridge tops.”*¹⁷⁴

2. Agricultural Demand & Supply Limitations

Agricultural lands are identified as cropland harvested, cropland pastured, woodland, equine, and permanent pasture. The most recent farmland assessment identifies 8,274 acres of agricultural land in the township. About 37% of this total is harvested cropland, land that requires the most amount of water for production. This comprises about 7% of Warren County’s total harvested acres.

Knowlton’s water demand for agricultural use stems primarily from the production of water-intensive crops such as alfalfa, corn, and soybeans, which comprise about 90% of the field crops grown in the township. However, because of the region’s climate, only one acre of the township’s field crops is designated in the data as irrigated.

Both population increases and agricultural irrigation can affect Knowlton’s water supply. From 2015 to 2017, Knowlton held steady with 11 and 13 total irrigated acres, respectively.¹⁷⁵ Climate conditions or shifts in production could contribute to the decline in irrigation, reducing the pressures on water sources caused by this activity. The rate of permits, while slowing, are still increasing in Knowlton. Increased development exacerbates water supply concerns, not only by increased water usage from occupants of the units, but also by creating more impervious surface, causing more stormwater runoff (which often washes pollutants into waterways) and less opportunity for aquifer recharge. Lack of sufficient water recharge areas can compromise soil conditions and means less water stays in the area and flows away to other areas. Disturbing the balance of water distribution can adversely impact the region and all other areas that may be disturbed by the fluctuations in natural water distribution.

3. Water Conservation and Allocation Strategies

Droughts in recent years have highlighted the precarious nature of the agriculture (and general) water supply, and the need for water conservation systems and regimens. Historically, from 2008 to 2018, dry conditions occurred with greater frequencies than in years prior.¹⁷⁶ The dominant crops in Knowlton are hay, corn, and soybeans. These crops rely on rain and some groundwater for water needs, making water conservation strategies difficult to implement. For the more water intensive nursery, greenhouse and produce farming, it is possible to implement conservation strategies such as drip irrigation, water reuse, or watering crops in the cooler parts of the day. Total irrigated acres in Knowlton decreased about 72% from 46 acres in 2006, to 13 acres in 2017. Field-crop irrigation comprises only 7.7% of irrigated acres in the township.¹⁷⁷

The NJDA encourages farmers to implement water-management practices as a routine part of their conservationist approach. The faculty of NJAES-RCE publishes annual crop production recommendation guides for multiple crop groups that include irrigation guidelines and recommendations. These guides include tips for maximizing irrigation efficiency, such as optimizing irrigation scheduling, selecting appropriate growing mediums, planning, and installing irrigation systems that provide efficient water use, managing stormwater runoff, and collecting and recycling irrigation water.¹⁷⁸ Farmers can use floats and timers to eliminate the needs for constantly running water to keep troughs full for livestock.

The Office of the New Jersey Climatologist at Rutgers University, School of Environmental and Biological Sciences, operates the NJ Weather and Climate Network of weather monitoring stations. Farmers can use the information from stations near them to assist with irrigation scheduling, as well as pest management and other conservation issues, temperature, precipitation, wind speed and gusts. Other stations measure barometric pressure and New Brunswick measures soil temperatures as well. Farmers can set favorite locales and view charts and tabular data.¹⁷⁹

D. Waste Management Planning

Livestock farmers in Knowlton may opt to participate in SCD/NRCS conservation programs that cost share the creation of animal waste facilities on their farms. By building these temporary holding tanks, usually concrete, the farmer accomplishes two purposes: preventing the waste from mixing with runoff and polluting streams and other water bodies and providing a ready source of manure or fertilizer for farm fields. When convenient, farmers can remove the waste from the temporary storage facilities and apply it to the fields, following BMPs.¹⁸⁰

Animal Waste

Waste production from horses and cows is a continuous focal point of conservation practice in the Township.¹⁸¹ Horse waste on farms can be a problem due in part to the relatively small land area of horse farms, making the manure more difficult to distribute on fields effectively and safely. This can contribute to the spread of disease from the manure if not controlled. For dairy farms, however, manure concentration and distribution are less of a concern because of the relatively large land area dedicated to those operations assuming that manure is managed and applied in an appropriate manner and in accordance with New Jersey state regulations.¹⁸²

Many farmers have “Nutrient Management Plans” to manage the manure generated on their farms.¹⁸³ For livestock waste disposal services, Ag Choice LLC in Andover, Sussex County, picks up, accepts, and composts food and livestock waste on a commercial scale. It is then available as bulk pickup, sold to landscapers and garden centers, or bagged and sold at retail outlets. This type of operation not only helps control the problem of livestock waste on farms but is also a good revenue source for the owners.¹⁸⁴

Animal feeding operations (AFOs) have the potential to cause water pollution since mismanagement of the animal waste can lead to soil and groundwater contamination via introduction of organic matter, nitrogen, phosphorus, and bacterial pathogens into nearby surface

waters.¹⁸⁵ The Criteria and Standards for Animal Waste Management (N.J.A.C. 2:91), which went into effect on March 16, 2009, set forth requirements for the development and implementation of self-certified Animal Waste Management Plans (AWMPs), high-density AWMPs and Comprehensive Nutrient Management Plans (CNMPs) for farms that generate, handle, or receive animal waste.

In general, self-certified waste management plans will be coordinated through the Rutgers New Jersey Agricultural Experiment Station Cooperative Extension (NJAES-RCE), which continues to aid farmers who have not yet completed AWMPs or implemented environmental BMPs on their farms. Farmers can apply for funding through Environmental Quality Incentive Program (EQIP) to obtain a CNMP for their operation. Any livestock operation receiving EQIP funds for waste management practices such as a Heavy Use Area Protection (HUAP) site or waste storage facility must have a Comprehensive Nutrient Management Plan (CNMP). NRCS can assist producers with the development of a CNMP which in turn can be used as guide for implementing waste management practices in the future. These plans are developed with the assistance of a Technical Service Provider (TSP).¹⁸⁶

Recycling

Recycling is an important part of natural resource conservation for the agriculture industry. Hay, corn and soybeans, the dominant farm products by acreage in Knowlton, use limited products that can be recycled, and as such limit recycling opportunities. Although nursery and produce make up a small part of Knowlton's agricultural operations, there still is a need to provide outlets for recyclable waste from these operations. The following are the recycling facilities available to Knowlton farmers:

- Warren County Recycling Center – 500 Mt. Pisgah Avenue, Oxford, 908-453-2174. This facility is open to all Warren County residents and accepts #1-#7 plastics in addition to glass bottles and jars and aluminum, tin, steel, and bimetal cans.¹⁸⁷
- The Recycling Center of North Jersey – 48 Hope Road, Blairstown, 908-362-1255. This facility accepts comingled glass and plastics, all types of metal, aluminum, and more.¹⁸⁸
- Warren County District Landfill – 500 Mt. Pisgah Avenue, Oxford, 908-453-2174. This facility accepts tires daily between 8:00 am – 3:30 pm. Proof of Warren County residency is required. Charges range from \$2.50 for each automobile tire up to 22” to \$10.00 for each farm equipment tire up to 50.”¹⁸⁹

In the past, Warren County has organized “Tire Amnesty Day,” which provided opportunities for farmers to dispose of their used tractor tires for free.¹⁹⁰ For other farm-oriented recyclables, the NJDA website lists resources for agricultural recycling. Programs listed include options for nursery and greenhouse film, pesticide containers, nursery pots, plug trays, and flats, and mulch film and irrigation tape. Some of these services are free, and others come at a cost to the farmer.¹⁹¹

E. Energy Conservation Planning

In January 2010 (P.L. 2009, c.213) allows for the construction, installation, and operation of biomass, solar, or wind energy generation facilities, structures, and equipment on commercial

farms, including preserved farms, with certain caveats regarding interference with agricultural productivity, valuation for farmland assessment, amount of farm acreage that can be devoted to such facilities, local and State approvals.¹⁹²

In 2019, Governor Phil Murphy signed the Updated Global Warming Response Act seeking to reduce greenhouse emissions 80% by 2050. Green energy policy is also echoed in Governor Murphy's *Energy Master Plan*, in which, the state seeks to transition to 100% clean energy by 2050.¹⁹³ Knowlton farmers can take advantage of this initiative by applying for the financial incentives to implement energy efficient improvements to their farms and operations. The Rural Energy for America Program (REAP) which funds grant and loan guarantees to agricultural producers for assistance in purchasing renewable energy systems. Renewable energy systems include generation from: biomass, geothermal, hydropower, hydrogen, wind, and solar.¹⁹⁴

The NRCS also has the authority to use EQIP to implement Agricultural Energy Management Plans (AgEMP) to address concerns of energy conservation. As a part of the EQIP On-Farm Energy Initiative, these plans are designed to evaluate energy use and efficiency within farming operations. These energy audits can qualify a farmer for financial assistance to implement recommendations of the process if the audit meets the proper time and standard requirements. This plan is implemented to assist the landowner's goals of achieving cheaper and more efficient energy consumption.¹⁹⁵

The EQIP natural resource conservation program pays for some energy production programs, such as replacement of older, dirty polluting working diesel engines, with newer, more efficient, cleaner burning diesel engines that will meet EPA Tier requirements for the program year.¹⁹⁶ The New Jersey Board of Public Utilities offers rebates for solar electric, wind, and sustainable biomass systems if funding is available.

Solar Energy

The SADC does allow solar generating facilities on preserved farms, and rules for these installations are contained in Subchapter 24 of Chapter 76.¹⁹⁷ Solar generating facilities are also allowed on unpreserved farms and the SADC has provided AMP (agricultural management practices) for these facilities.¹⁹⁸ A summary of the policies aligned by both the subchapter and the AMP is given below:

- Solar panels (solar energy general facilities) are allowed on commercial farms (preserved and unpreserved).
- Panels cannot be constructed/installed on prime farmlands (to the maximum extent practicable).
- The SADC prefers they be constructed on buildings or facilities; if on the ground, they are to be installed without concrete footing or permanent mounting.
- Solar facilities are limited to 110% of the previous calendar year's energy demand or cannot exceed more than 1% of the total farm area.
- Purpose of the facilities must be to provide energy for the farm, with an allowance for income opportunity for farmers.
- System cannot exceed height of 20 feet.
- Must minimize views from public roadways and neighboring residences.

- Facilities must use existing roadways to provide access to facilities to avoid construction of new roadways.

EQIP provides cost-share funding for solar livestock watering facility as part of a grazing system. Special rates are available to qualified farmers. In 2018, two contracts were planned and applied, but in 2019 no contracts were developed.¹⁹⁹

Wind Energy

According to the NJDA, the northwest part of New Jersey, which includes Warren County, has ample and consistent enough wind power to make turbine energy feasible. Knowlton’s zoning regulations do not currently address wind turbines.

Biopower

Starting in 2017, biopower projects are incentivized through the Combined Heat and Power Program (CHP). Program participants are eligible to receive financial incentives for CHP installations to further enhance energy efficiency in their buildings through on-site power generation and using distributed generation to provide reliability solutions for New Jersey while supporting the state’s Energy Master Plan. Knowlton farmers can find the program eligibility requirements and the program’s financial incentives in the CHP-FC Program Guide.²⁰⁰

Ethanol and Pelletized Switchgrass

Corn, the second most dominant field crop in Knowlton, could position the Township’s farmers to financially capitalize on the spreading movement towards ethanol-blended fuels. Interest has been shown in utilizing switchgrass to make energy producing pellets. This could add an additional market for Knowlton farmers, and another source of clean energy.²⁰¹

Biodiesel

Biodiesel, made from the oils of soybeans, is an alternative to petroleum diesel. The Environmental Protection Agency reported a record 2.1 billion gallons of biofuel were consumed in 2015. Countywide, soybean production has nearly doubled since 2011, from 221,000 bushels to 430,000 bushels in 2015. Warren County leads northern New Jersey in soybean production. Knowlton can utilize its soybean production to maximize the benefits of its third largest field crop. While no bio-diesel producers are available nearby, several retailers operate within the region, including:

- Dixon Energy – 99 Cobb Street, Rockaway, 973-334-1000
- Wooley Fuel Co. – 12 Burnett Avenue, Maplewood, 973-762-7400
- Quarles – 1046 North Godfrey Street, Allentown, PA, 877-444-3835²⁰²

Biogas

In 2020, New Jersey ranked 30th nationwide in biogas production. Out of 59 operational systems, down from 62 in 2015, 22 are landfill systems and 32 are wastewater systems, and five are food waste systems. Increasing biogas operations can lead to economic opportunity through job creation and environmental benefits through reducing greenhouse gasses.²⁰³

Renewable Energy Grant Programs

New Jersey's Clean Energy Program: Administered by the New Jersey Board of Public Utilities, this program provides financial incentives to install clean energy systems, including fuel cells, solar energy, small wind, and sustainable biomass equipment. Financial incentives are in the form of rebates, grants, energy certificates, and loans.

Renewable Energy Incentive Program (REIP): This program previously offered funding assistance for solar, wind, and sustainable biomass installations. Currently, this program is on hold for wind systems. Solar projects are no longer eligible for REIP incentives. Those who sought assistance for solar projects used to register for Solar Renewable Energy Certificates (SREC) through the SREC Registration program (SRP).²⁰⁴ Since the Spring of 2020, those who seek to register solar projects do so through the Transition Incentive Program (TI).²⁰⁵

Anemometer Loan Program: administered by five New Jersey universities, provides a way for prospective locations to test the potential for wind power production and assess its economic feasibility.²⁰⁶

New Jersey Smart Start Buildings: Operated by the New Jersey Board of Public Utilities, this program is a statewide energy efficiency program available to qualified commercial, industrial, institutional, governmental, or agricultural customers that seek to change their electric or gas equipment.²⁰⁷

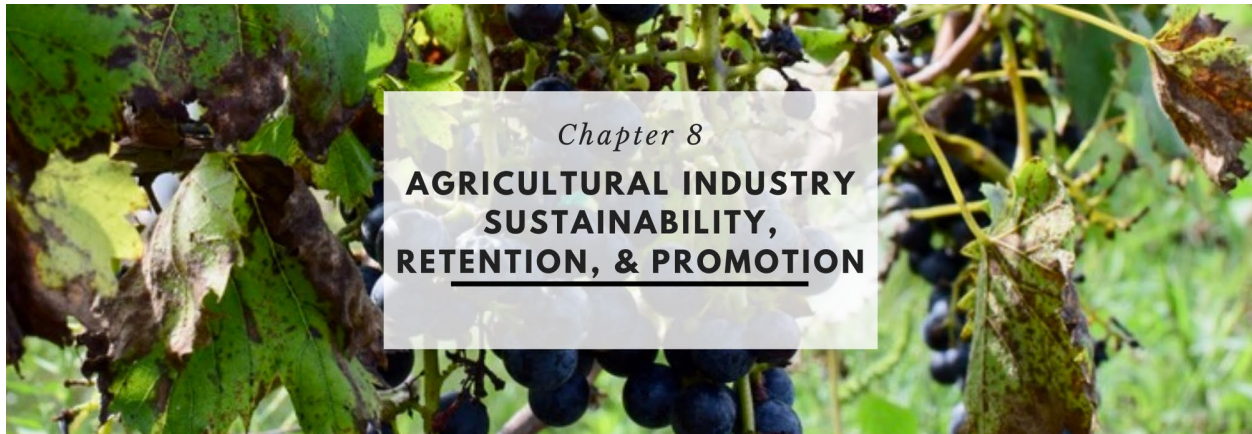
USDA Rural Energy for America Program (REAP): Reauthorized under the Agricultural Improvement Act of 2018 (2018 Farm Bill), the REAP program provides guaranteed loan financing to agricultural producers and rural small businesses for renewable energy systems or to make energy efficiency improvements.²⁰⁸ For agricultural producers, a guaranteed loan and grant program can provide financial assistance with the installation of renewable energy systems.

Advanced Biofuel Payment Program: This program is to increase the production of advance biofuels. Quarterly payments are distributed to participants for actual quantity of eligible advance biofuel production. An advanced biofuel is a fuel that is derived from renewable biomass, other than corn kernel starch. Biofuels that may be specific to Knowlton farmers are those derived from waste material such as crop and animal wastes.²⁰⁹

Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program: This program provides loan guarantees up to \$250 million to assist the development of new and emerging technologies. These technologies include advanced biofuels, renewable chemicals, and biobased products.²¹⁰

F. Outreach and Incentives

The AAC is committed to working with the Warren CADB, the State, and regional agencies to assist in outreach and education to farmers and landowners regarding natural resource conservation and agricultural productivity. The Knowlton AAC will continue to work with the CADB to implement programs to aid in natural resource conservation on farms in the Township.



Chapter 8. Agricultural Industry, Sustainability, Retention, & Promotion

A. Existing Agricultural Industry Support

1. Right to Farm

In 1983 the State Legislature enacted the Right to Farm Act (RFA) and amended it in 1998, ensuring that farmers can continue accepted agricultural operations. Another critical piece of legislation in support of agriculture was the 1983 Agriculture Retention and Development Act. This Act created the SADC, and authorized counties to create CADBs.²¹¹

The SADC works to maximize protection for commercial farmers under the RFA by developing AMPs (agricultural management practices), tracking right-to-farm cases, offering a conflict resolution process, and reviewing rules proposed by other state agencies for the impact they may have on agriculture. To qualify for right-to-farm protection a farm must meet the definition of a “commercial farm” in the RFA; be operated in conformance with federal and state law; and comply with AMPs recommended by the SADC, or site-specific AMPs developed by the Warren County CADB at the request of a commercial farmer.²¹²

As of 2021, the SADC had 12 AMPs in place, the latest, an AMP for On-Farm Direct Marketing Facilities, Activities and Events, adopted April 7, 2014. The SADC lists 19 site-specific AMPs for Warren County, all of which the Warren CADB resolved.²¹³

All right to farm complaints or issues that are brought before the Warren CADB are first handled with fact finding and efforts to resolve differences between the parties. The mediation can be informal, or, if the parties agree, the SADC will provide mediation or conflict resolution at no cost to the participants through its Agricultural Mediation Program. If a formal complaint is filed with the Warren CADB, it is sent to the SADC for a determination as to whether the farm qualifies as a commercial farm (N.J.S.A. 4:1C-3) and whether the operation or activity is eligible for right-to-farm protection. The CADB and/or SADC typically conducts a site visit for additional fact finding, sometimes consulting with agricultural experts and municipalities (in cases where municipal regulations are involved in right-to-farm disputes.) Depending on the nature of the issues, either the CADB or SADC (or both in some cases) holds a public hearing at

the county level. Decisions made by the Warren CADB may be appealed to the SADC, and final SADC determinations may be appealed to the New Jersey Superior Court, Appellate Division.²¹⁴

Municipalities can and should limit the number of right-to-farm complaints and encourage farming as an industry by:

- Working to better understand the Right to Farm process to adopt or update comprehensive Right to Farm ordinances as outlined by the SADC.
- Making agriculture a permitted use in all appropriate zones.
- Requiring buffers between new non-agricultural development and adjacent existing farmlands.
- Requiring notification to homeowners purchasing a home in a new subdivision where active agriculture occurs on adjacent property.

Right to Farm ordinances are a necessary item for municipalities that enter the Farmland Preservation Program. Knowlton established its Right-to-Farm Ordinance (Ord. No. 97-13) in 1997. (**Appendix C**)

The Ordinance states that “*the right to farm the land is recognized to exist in Knowlton Township and has existed herein for hundreds of years. The Township Committee finds and determines that farmers must be secure in their ability to earn a livelihood and...that whatever nuisance may be caused to others by farm uses is more than offset by the benefits from farming to the neighborhood, community and society in general.*”²¹⁵

The Township found the application and enforcement of Section 11-369 of the Code of the Township of Knowlton extremely difficult and impractical, and therefore repealed this section in 2021.²¹⁶

The Knowlton Right-to-Farm Ordinance recognizes the right of a farmer to:

- Use irrigation pumps and equipment, tillage, seeding and harvesting equipment and activities, spraying of crops by conventional or aerial applications, and any mechanical equipment necessary for the type of agriculture being practiced.
- Use and house of necessary farm labor.
- Apply chemical fertilizers, insecticides and herbicides.
- Apply manure.
- Graze animals and the use of range for grazing animals.
- Produce agricultural products.
- Construct fences for farm animals and livestock.
- Travel and transport large, slow-moving equipment over local roads.
- Control vermin and pests according to applicable state laws.
- Market produce from the farm either in a farm market or by trucking the produce out of the farm to market.
- Conduct agricultural operations on holidays, Sundays, and in the evenings.
- Produce noise, odor, dust, and fumes that are caused by agricultural activities.

Knowlton's Right to Farm Ordinance does not specifically list some of the suggested activity rights in the SADC Model Right to Farm Ordinance. These include:

- Erection of essential agricultural buildings.
- Conduction of agriculture-related education.
- Processing and packaging of agricultural output of a commercial farm.
- Farm-market and pick-your-own signage.
- Replenishment of soil nutrients and improvement of soil tilth.
- Clearing of woodlands using open burning and other techniques; installation and maintenance of vegetative and terrain alterations for water and soil conservation and surface water control in wetland areas.
- On-site disposal of organic agricultural wastes.
- Installation of wells, ponds, and other water resources.
- Engage in renewable energy (biomass, solar, wind).²¹⁷

Nor does it include mention of the Agricultural Mediation Program, which is a process where an impartial mediator can help disputing parties solve issues. This program was established by the State Agricultural Development Committee as a voluntary process to examine mutual problems, identify and consider options, and come to a solution.

The Ordinance prohibits the stacking or piling of manure in areas where the manure may discharge into surface waters or abutting properties. Manure piles also may not be piled within any municipal or state conservation easement or within 100 feet of any property line. The Ordinance also notes that the use of farmland for recreation purposes should be done only with the permission of the farm owner or lessee, and if the recreational activity changes the agricultural use, it will be subject to site plan review and permits.

2. Farmland Assessment

The Farmland Assessment program is a tax incentive that reduces property taxes on active commercial farmed land, thereby assisting farmers with a critical financial aspect in helping to keep land in farms. This tax incentive is made possible by the Farmland Assessment Act of 1964, N.J.S.A. 54:4-23.1 et seq. Its provisions were recently updated by legislation that was signed into law in 2013, becoming effective in tax year 2015. Basic eligibility requirements include:

- The applicant must own the land.
- The property owner must apply annually for Farmland Assessment on or before August 1 of the year immediately preceding the tax year, and effective as of tax year 2015, must submit proof of sales or clear evidence of anticipated gross sales along with the FA-1 application form.
- Land must be devoted to agricultural and/or horticultural uses for at least two years prior to the tax year.

- Land must consist of at least five contiguous farmed and/or woodland management plan acres. Land under or adjoining a farmhouse is not counted towards the minimum five acres.
- Effective as of tax year 2015, gross sales of products from the land must average at least \$1,000 per year for the first five acres, plus an average of \$5.00 per acre for each acre over five. In the case of woodland or wetland, the income requirement is \$500 for the first five acres and \$.50 per acre for any acreage over five. Dependent on the agricultural or horticultural products being produced, the farmer can also offer clear evidence of anticipated yearly gross sales, payments, or fees within a reasonable period.
- The property owner must represent that the land will continue in agricultural or horticultural use to the end of the tax year.²¹⁸

The Farmland Assessment program does not apply to farm structures, such as barns and storage facilities.

There are 8,274 acres in Knowlton devoted to agricultural and horticultural usage. Within these 8,274 acres, 4,495 acres are used as either cropland or pasture. The remaining 3,779 acres are woodland/wetland areas or equine boarding rehabilitation or training operations.²¹⁹ According to New Jersey Farmland Assessment data from 2009 to 2019, general trends indicate:

- From 2009 to 2019 total farmland assessed acreage decreased 5% from 8,699 acres to 8,274 acres.
- Harvested cropland increased 6% from 2009 (2,891 acres) to 2019 (3,062 acres).
- Pastured cropland decreased 12% from 2009 (449 acres) to 2019 (394 acres).
- Permanent pasture decreased 21% from 2009 (1,315 acres) to 2019 (1,039 acres).
- Total acreage in active agricultural use (cropland harvested, cropland pastured, and permanent pasture) decreased 3% from 2009 (4,655 acres) to 2019 (4,495 acres).
- Woodland/wetland acreage decreased 3% from 2009 (3,823 acres) to 2019 (3,715 acres).
- Equine acreage decreased 71% from 2009 (221 acres) to 2019 (64 acres).²²⁰

By making agriculture more profitable and viable, tax incentives will help to ensure a steady, permanent source of agricultural lands for the Township's farmland preservation efforts. The Township considers the assessment procedure as essential to continued agricultural success and supports the law in its current form.

B. Additional Strategies to Sustain, Retain, and Promote Agriculture

1. Permit Streamlining

Municipalities play a key role in the preservation of farming as an industry. Without strong and active support from municipal governments, farming can be too costly and burdensome to be profitable or worthwhile. The viability of farming in New Jersey is impacted by many issues, including government regulation, development pressures, and the economics of the marketplace. While land preservation is vital for maintaining a sufficient land base suitable for farming,

sustaining Knowlton’s strong agricultural base requires support on many fronts, one of which is flexibility in government regulation.²²¹

- *Positive and Supportive Public Policy*: This includes legal protection (right to farm), priority in decisions on taxation (farmland assessment), regulation exemptions, and financial incentives (planning incentive grants).
- *Flexibility*: State agencies should consider the *NJDA Agricultural Smart Growth Plan* when making decisions regarding existing and proposed infrastructure, developing and amending regulations and programs, and protecting environmental and historical resources. These agencies should coordinate with NJDA to ensure that regulations and programs are attuned to the needs of Warren County and Knowlton Township farmers.
- *Agriculture-Friendly Zoning*: This refers to a comprehensive land use practice that coordinates zoning and land use policy in a proactive way which encourages agribusiness, while at the same time reducing the incidence of farmer-homeowner nuisance issues.

2. Agriculture Vehicle Movement

Knowlton farmers need to move heavy, slow-moving agricultural equipment over local, county, and sometimes state roads to access unconnected fields and barns. The township’s residents also need to commute to workplaces, or drive to area destinations for shopping, sports and social activities, at a pace much faster than the slow-moving agricultural equipment.

Since many farm vehicles travel over local municipal roads, municipalities should continue to support local agricultural business’ right to do so. The SADC model Right to Farm ordinance recognizes, as a specific right, the operation and transportation of large, slow-moving farm equipment over roads. Knowlton Township does include slow-moving equipment as a protected farming activity in their Right-to-Farm ordinance.

Signage alerting fast-moving cars to possible movement, and road crossing, of slow-moving farm vehicles is an additional, effective tool to protect farmer (and automobile passenger) safety. Signage also informs the public at large that agriculture is an important, equal, and permanent fixture of Knowlton life. Where absent or inadequate, appropriate signage can be posted. Township officials may consult with farmers as to what adequate signage is and where it should be posted.²²²

3. Agricultural Labor Housing/Training

An adequate labor supply is integral to harvesting vegetables, fruits, and berries. Measured in farmed acreage, Knowlton has a relatively small industry for these products compared with field crops such as hay, corn, and soybean. Harvesting of the latter farm products is more mechanized, and/or not as labor intensive as produce, with most work being done by farm family members.²²³ As of 2017, only 106 acres in Knowlton Township were devoted to fruits, berries, and vegetables. Most of Knowlton Township’s agricultural output comes from its field crops (2,884

acres). Since the overall acreage of labor-intensive farming is small in Knowlton Township, farm labor housing, a large issue in towns and counties with high farm labor populations is, for the most part, not of high concern in the Township.

In recent years, problems that face New Jersey Employers persist as the wage (\$10.30/hour) for agricultural employers as of January 1, 2020. It is expected to increase to \$15.00/hour by 2027.²²⁴ The cost of labor in New Jersey is a significant issue for some farming sectors such as produce, and one that needs further consideration for its effect on agriculture in New Jersey, Warren County, and Knowlton.

Agricultural Labor Housing

Since the overall acreage in Knowlton dedicated to the intensive labor is few, likewise, the demand for agricultural labor housing is scarce. There are no seasonal labor housing structures in the Township.

Farmer Education and Training

To sustain a modern, diverse, and stable food and agricultural industry, education and progressive ongoing training for farmers promotes a more efficient and productive business environment.

The **NJAES-RCE** (Rutgers New Jersey Agricultural Experiment Station Cooperative Extension) of Warren County provides one-on-one, on-site consultations with farmers to assist with control of insect infestations and plant diseases for fruits. NJAES of Warren County also provides practical assistance to farmers, such as assistance with obtaining pesticide application licenses and water certification and registration permits from the NJDEP.

The **Warren County Community College** teaches crop monitoring for precision agriculture techniques in their photogrammetry class. The College would be willing to explore the possibility of setting up college-level or continuing education courses if requested to so by the Warren CADB (County Agricultural Development Board), or the wider agriculture community.²²⁵

NOFA-NJ (Northeast Organic Farming Association of New Jersey) offers educational programs for farmers of all ages and skill sets, including a Beginning Farmer Program. Other educational programming includes organic gardening, permaculture design certification, business courses, technical assistance, and farm-to-table workshops.²²⁶

Through its **Division of Agriculture and Natural Resources**, Natural Resource Conservation Program, the NJDA offers technical, financial, and regulatory assistance, and provides educational outreach to landowners throughout the state.²²⁷

Agriculture labor education and training funding may be available through the New Jersey Department of Labor and Workforce Development Programs. These programs can help assist in upgrading the skills and productivity of the agricultural workforce.²²⁸ The NJDA hosts a web page with links and information on Agricultural Education, geared mostly toward teachers but also listing conferences and other educational information of potential interest to farmers.²²⁹

The NJFB (New Jersey Farm Bureau) also hosts educational meetings and provides educational information for farmers on its website about legislative issues, farmland preservation, and labor resources.²³⁰

Youth Farmer Education Programs

According to the *Census of Agriculture*, the farmer population in Warren County is getting older, with an increase of 1.2 years of an average age of 58.4 in 2017 versus 57.2 in 2007.²³¹ The nationwide average age of operators in 2017 was 58.6, less than a half year difference compared to Warren County.²³² In 2017, there were 44 farmers (3.6%) out of 1,233 farmers in Warren County who were under the age of 35.²³³

Due to the aging farmer population, the next generation of the county's farmers needs to become interested in, and exposed to the business of agriculture, and prepared to enter the industry. At the post-secondary level, neither Centenary University nor Warren County Community College offer agriculture education courses, but Centenary University does offer programs in Equine Sciences and Equine Studies.²³⁴ Typically, students who enter programs in natural sciences (biology, chemistry, etc.) at these schools can also adapt their degree plan to include elements of business, economics, and resource management to receive a well-rounded education that can translate to practical use on Knowlton farms.²³⁵

The closest post-secondary institutions to Knowlton Township that offer programs relating to agriculture and horticulture are:

- 13 miles – East Stroudsburg University of Pennsylvania, 200 Prospect St., East Stroudsburg, PA.
- 20 miles – Sussex County Community College, One College Hill Road, Newton.
- 22 miles – Lafayette College, 730 High Street, Easton, PA.
- 27 miles – County College of Morris, 214 Center Grove Road, Randolph.
- 31 miles – Northampton Community College, 3835 Green Pond Road, Bethlehem, PA.

Changes in the cost of attendance/financial assistance for college education in New Jersey may offer incentives for young farmers to seek enrollment in higher education. In the Spring of 2019, the state piloted the New Jersey Community College Opportunity Grant, where students may be eligible for tuition-free college.²³⁶

Future Farmers of America (FFA) is a national educational organization that helps prepare youth for careers and leadership in agriculture by aiding students in the development of agricultural skills.²³⁷ The National FFA has 8,612 chapters and 700,170 members aged 12-21 in all 50 states.²³⁸ In 2020, there were 36 chapters in New Jersey with more than 2,400 members.²³⁹ North Warren Regional High School in Blairstown offers Applied Horticulture/Horticultural Operations²⁴⁰ and has a local FFA Chapter. North Warren Regional High School in Blairstown also offers courses in animal science/wildlife management. Based on student interest, the school could consider offering other related courses such as environmental science or agriculture business management.²⁴¹

4-H is an informal, practical educational program for youth, which assists young people interested in farm animals through livestock projects. The 4-H Youth Development Program is overseen by the Warren County NJAES-RCE.²⁴² Within Warren County, all 4-H club members are active in County events such as the Warren County Farmers Fair.²⁴³

There are two local non-profit groups that focus on agricultural issues, the **Foodshed Alliance** in Hope and **Genesis Farm** in Frelinghuysen. These organizations are concerned with supporting and promoting sustainable agricultural practices and connecting farming with the community at-large. They also work to foster and train the next generation of farmers in the county.

NJ Farm Link is a program for farmers, new and established, and assists:

- New farmers looking for opportunities to gain experience.
- New farmers looking for land to get started.
- Established farmers looking for land to expand.
- Farm owners looking to lease, sell, or make land available for farming.
- Retiring farmers who would like to ensure their land stays in agricultural production but have no family members who want to continue to farm.
- Farmers looking to hire farm managers, fill apprenticeship positions, or mentor a new farmer.
- Non-profits, municipalities, and counties looking for farmers for farmland they own or manage.
- Farmers and landowners working on farm transfer plans.²⁴⁴

Farmers interested in land or partnership/job opportunities, as well as those wanting to advertise available land and opportunities, can sign up and create and manage their own listings through the interactive NJ Land Link website. In 2020 there are 14 farmland listings in Warren County.²⁴⁵

4. Wildlife Management Strategies

Crop damage from wildlife leads to economic loss for the farmer and is a serious problem throughout Warren County. At present, hunting is about the only effective method available to farmers. Although many farmers are avid hunters and do apply for depredation permits that allow them to hunt out of season, even hunting is becoming a less viable solution. Encroaching development that takes away territory from these animals also limits the farmers ability to hunt. As farms become smaller and more developments are built adjacent to farms, areas can no longer be hunted, even by the farmers who own the land, because they would be hunting too close to a neighborhood dwelling. In many instances, this is the only short-term solution to control crop damage. Special hunting options include:

- License exemptions for farm families.
- Special farmer black bear permit.
- Farmer Depredation Permit.
- Deer Management Assistance Program.

Insects are also causing crop damage. The pesticides used to control them can cause other kinds of damage, possible health concerns for the end user of the product, and pollution of the County's water supply. At the county level, studies undertaken by the NJAES-RCE, such as the perimeter trap study on insects and pumpkins undertaken several years ago and the integrated pest management resources available through the NJAES-RCE, are attempts to help solve these problems in ways that work for both the farmer and the environment.²⁴⁶

Warren County has also been placed on quarantine by the NJDA, due to an outbreak of the spotted lanternfly. This insect has the potential to damage crop output and has been a concern since at least 2018.²⁴⁷

The NJDA's Division of Plant Industry works to safeguard the state's plant resources from injurious insect and disease pests. The Division implements several programs for detection, inspection, eradication, and control of insect pests, which helps to ensure that the public can enjoy high quality, pest-free agricultural products.²⁴⁸ The Division's Gypsy Moth Suppression Program is a voluntary cooperative program involving local governments, county and state agencies, as well as the USDA Forest Service. Aerial spray treatments of *Bacillus thuringiensis* are utilized when gypsy moth cycles are at a peak and natural controls are not sufficient to control defoliation. The gypsy moth, responsible for defoliation, which causes environmental and economic damage to woodlands, has not been reported to be a severe problem in Knowlton since 2015 and has not been reported as present since then.²⁴⁹

5. Agricultural Education and Promotion

The USDA has an array of loans and grants, known as the **Rural Development Program**, to assist residents in rural areas of the country to support essential public facilities and services such as water and sewer systems, housing, health clinics, emergency service facilities, and electric and telephone service. The Agricultural Act of 2018 (Farm Bill) updates the Rural Development Program in several ways, including:

- Amends the definition of rural to exclude from population thresholds individuals incarcerated on a long-term or regional basis and excludes the first 1,500 individuals residing in on-base military housing.
- Increases annual appropriated funding for broadband deployment from \$25 million in FY2019 to \$350 million in FY2023.
- The 2018 Farm Bill redirects program funds of existing rural development programs to target a range of rural health issues.
- The 2018 Farm Bill also includes other provisions to reauthorize and/or amend loan and grant programs that help with rural water and wastewater infrastructure, business development and retention, and community and regional development.²⁵⁰

Grants and loans are available in three key areas: Business-Cooperative, Housing and Community Facilities (including farm labor housing), and Utilities (including Broadband).²⁵¹ To qualify for some of the program's loans and grants, municipalities must have less than 10,000

residents, other program thresholds have increased. At a population of approximately 2,946 as of 2019,²⁵² Knowlton may qualify for these loans and grants.

The U.S. Taxpayer Relief Act of 1997, administered by the U.S. Department of Treasury's Internal Revenue Service, is meant to smooth out economic disparities that farmers experience from year to year due to the cyclical nature of agriculture. Known as **Farm Income Averaging**, qualified farmers can average all or part of their current year farm income over the previous three years. Substantial tax dollars can be saved by income averaging.²⁵³

The New Jersey Legislature has considered bills that would provide income averaging similar to the federal program. In the 2018-2019 Regular Session, Bill NJ A236 was introduced and has since been referred to the Assembly Agriculture and Natural Resource Committee. The NJDA, SADC, Warren County Commissioners, and Warren County CADB can work with, and encourage, the New Jersey Legislature to continue to introduce bills that would assist Warren County and Knowlton farmers to remain economically viable.

The New Jersey FSA has both **Direct and Guaranteed Farm Ownership** loans available for farmers, including those in Warren County. Direct Farm Ownership Loans are available up to \$600,000, and guaranteed loans can go up to \$1,776,000. Down Payment loan funds may be used to partially finance the purchase of a family farm. Loan applicants must contribute a minimum down payment of 5% of the purchase price of the farm and the Agency will finance 45% to a maximum loan amount of \$300,015.²⁵⁴ The Hackettstown Service Center handles loans for Warren County.²⁵⁵

FSA loans can be used for most agriculture necessities such as purchasing land, livestock, equipment, feed, seed, supplies, and for construction of buildings, or to make farm improvements.²⁵⁶

Maps

Map 1. Farmland

Map 2. Preserved and Public Lands

Map 3. Agricultural Soil Categories

Map 4. Agricultural Development Area

Map 5. Project Area Map

Target Farm Analysis Maps:

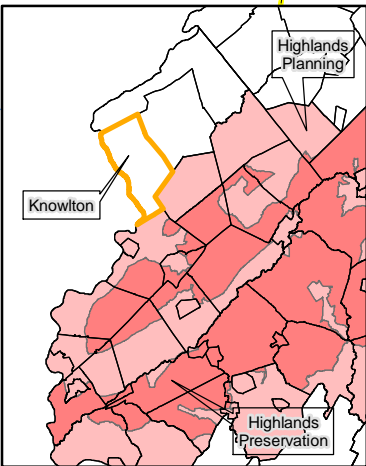
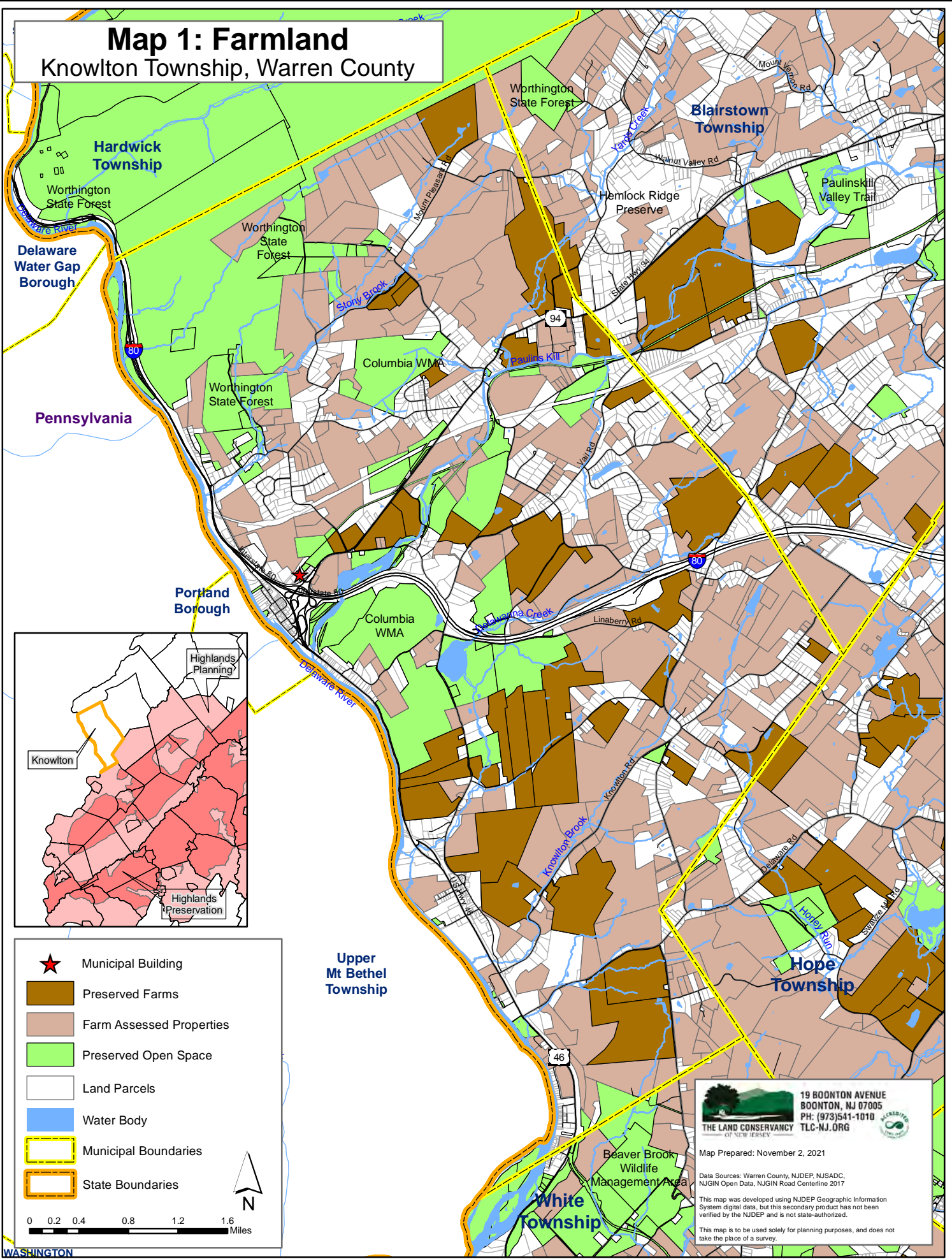
Map A. Single and Multiple Lot Farms that meet the SADC Minimum Eligibility Criteria for Tillable Land

Map B. Single and Multiple Lot Farms that meet the SADC Minimum Eligibility Criteria for Agricultural Soils

Map C. Targeted Farms in Knowlton Township

Map 1: Farmland

Knowlton Township, Warren County



- Municipal Building
- Preserved Farms
- Farm Assessed Properties
- Preserved Open Space
- Land Parcels
- Water Body
- Municipal Boundaries
- State Boundaries

0 0.2 0.4 0.8 1.2 1.6 Miles

N

19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010
THE LAND CONSERVANCY OF NEW JERSEY
TLC-NJ.ORG

Map Prepared: November 2, 2021

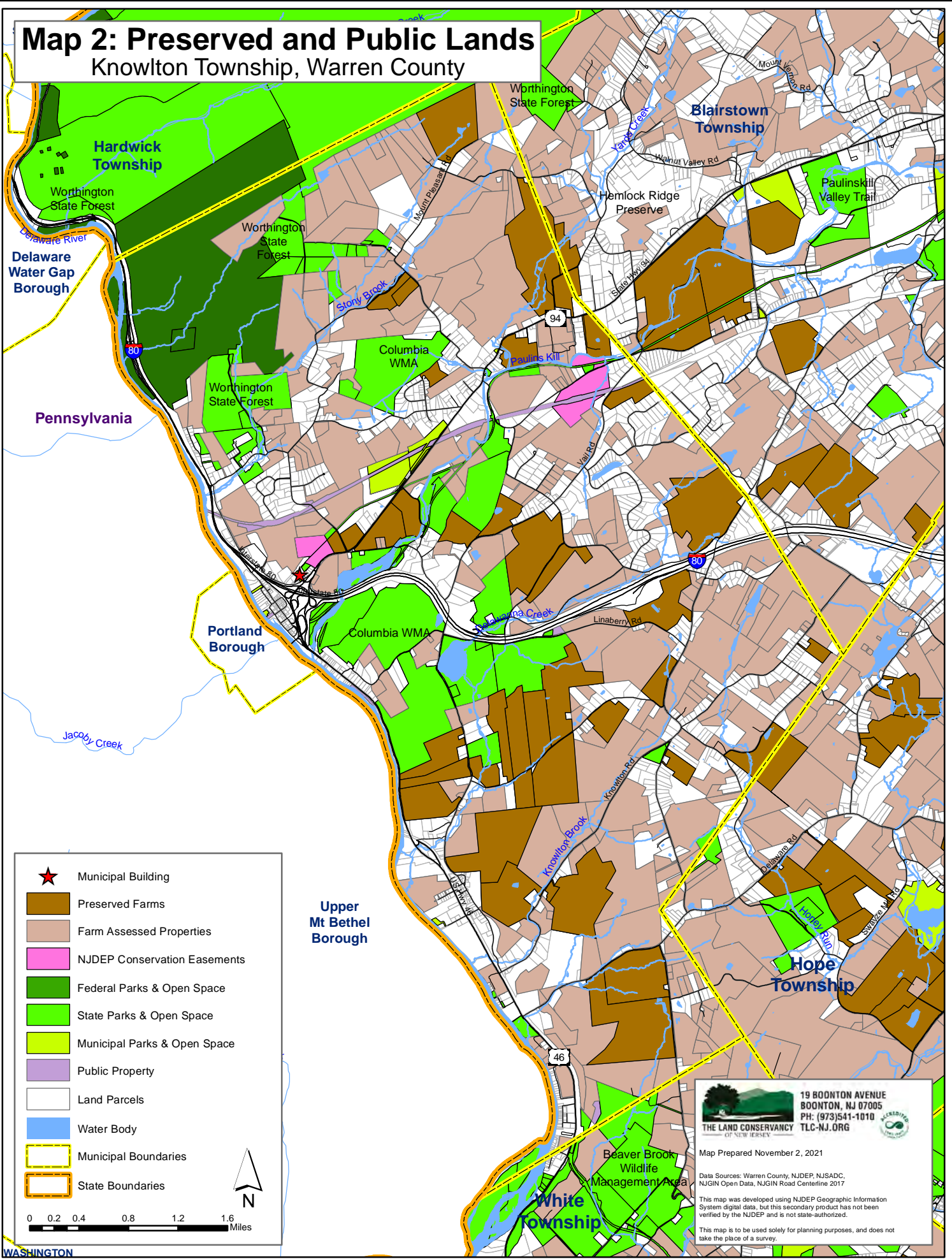
Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centrefline 2017

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map 2: Preserved and Public Lands

Knowlton Township, Warren County



- Municipal Building
- Preserved Farms
- Farm Assessed Properties
- NJDEP Conservation Easements
- Federal Parks & Open Space
- State Parks & Open Space
- Municipal Parks & Open Space
- Public Property
- Land Parcels
- Water Body
- Municipal Boundaries
- State Boundaries

0 0.2 0.4 0.8 1.2 1.6 Miles

N

19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010
TLC-NJ.ORG

THE LAND CONSERVANCY
 OF NEW JERSEY

Map Prepared November 2, 2021

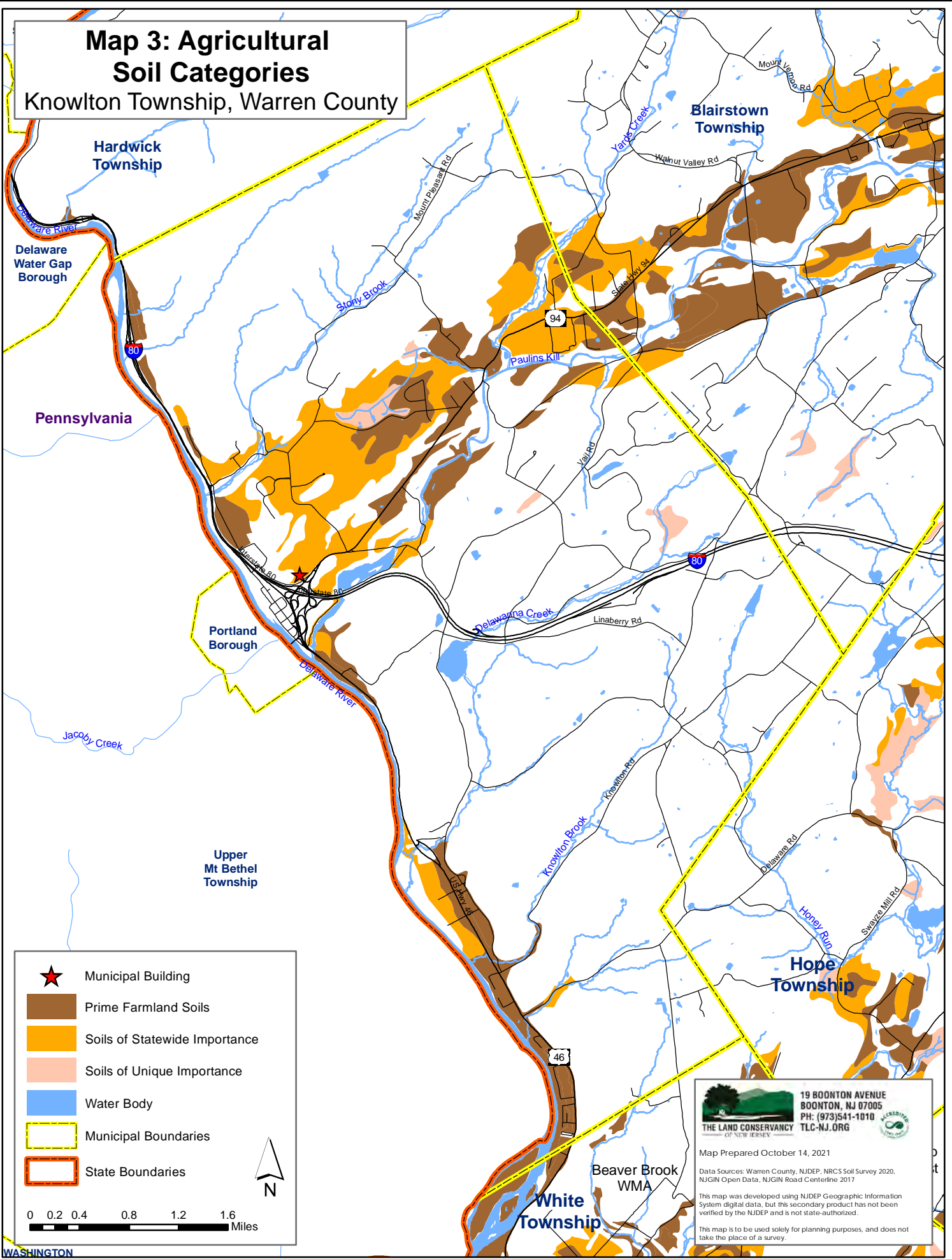
Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centerline 2017

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map 3: Agricultural Soil Categories

Knowlton Township, Warren County



	Municipal Building
	Prime Farmland Soils
	Soils of Statewide Importance
	Soils of Unique Importance
	Water Body
	Municipal Boundaries
	State Boundaries

0 0.2 0.4 0.8 1.2 1.6 Miles

WASHINGTON

19 BOONTON AVENUE
BOONTON, NJ 07005
 PH: (973)541-1010
THE LAND CONSERVANCY **TLC-NJ.ORG**

Map Prepared October 14, 2021

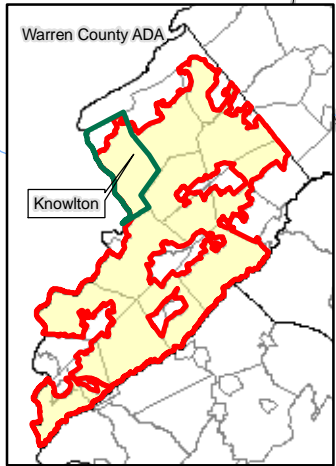
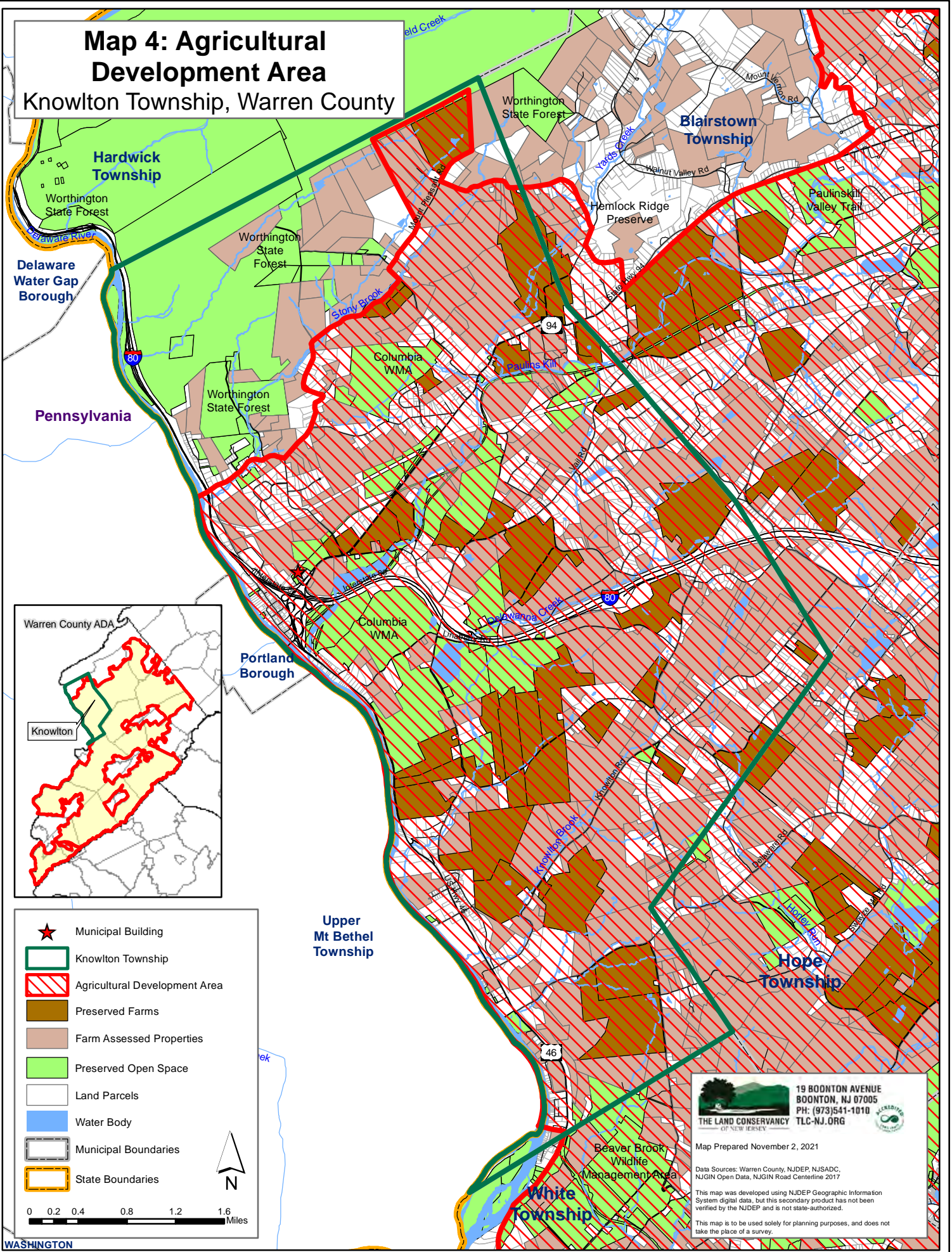
Data Sources: Warren County, NJDEP, NRCS Soil Survey 2020, NJGIN Open Data, NJGIN Road Centerline 2017

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map 4: Agricultural Development Area

Knowlton Township, Warren County



- Municipal Building
- Knowlton Township
- Agricultural Development Area
- Preserved Farms
- Farm Assessed Properties
- Preserved Open Space
- Land Parcels
- Water Body
- Municipal Boundaries
- State Boundaries

0 0.2 0.4 0.8 1.2 1.6 Miles

19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010
TLC-NJ.ORG

Map Prepared November 2, 2021

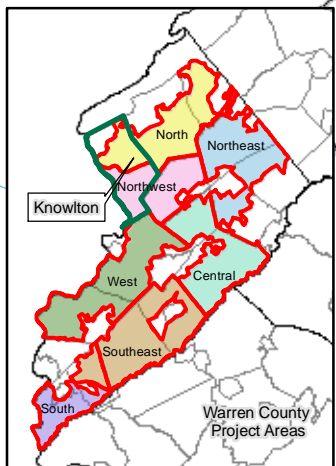
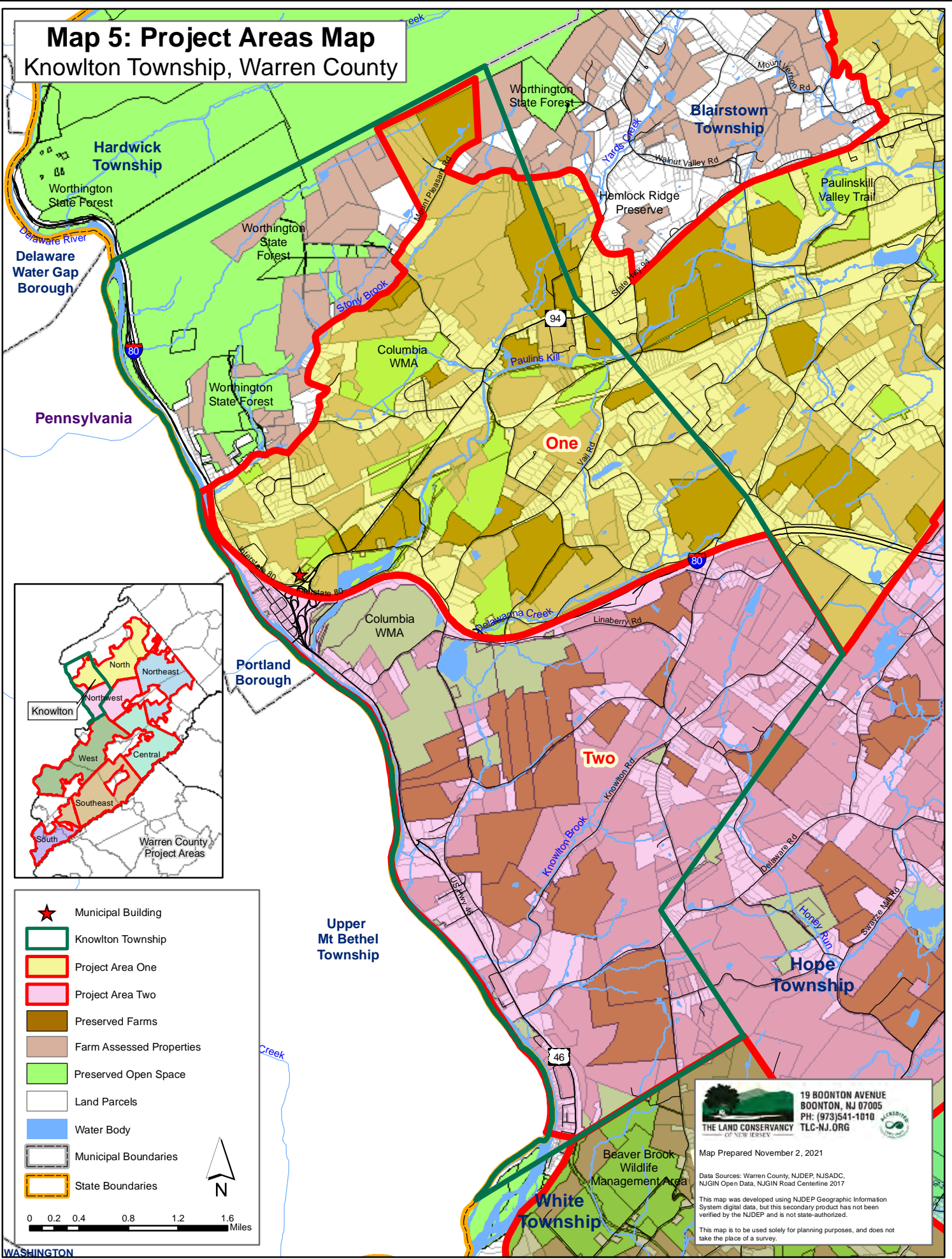
Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centerline 2017

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map 5: Project Areas Map

Knowlton Township, Warren County



- Municipal Building
- Knowlton Township
- Project Area One
- Project Area Two
- Preserved Farms
- Farm Assessed Properties
- Preserved Open Space
- Land Parcels
- Water Body
- Municipal Boundaries
- State Boundaries

Scale: 0 0.2 0.4 0.8 1.2 1.6 Miles

North Arrow

19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010

THE LAND CONSERVANCY
 OF NEW JERSEY

TLC-NJ.ORG

Map Prepared November 2, 2021

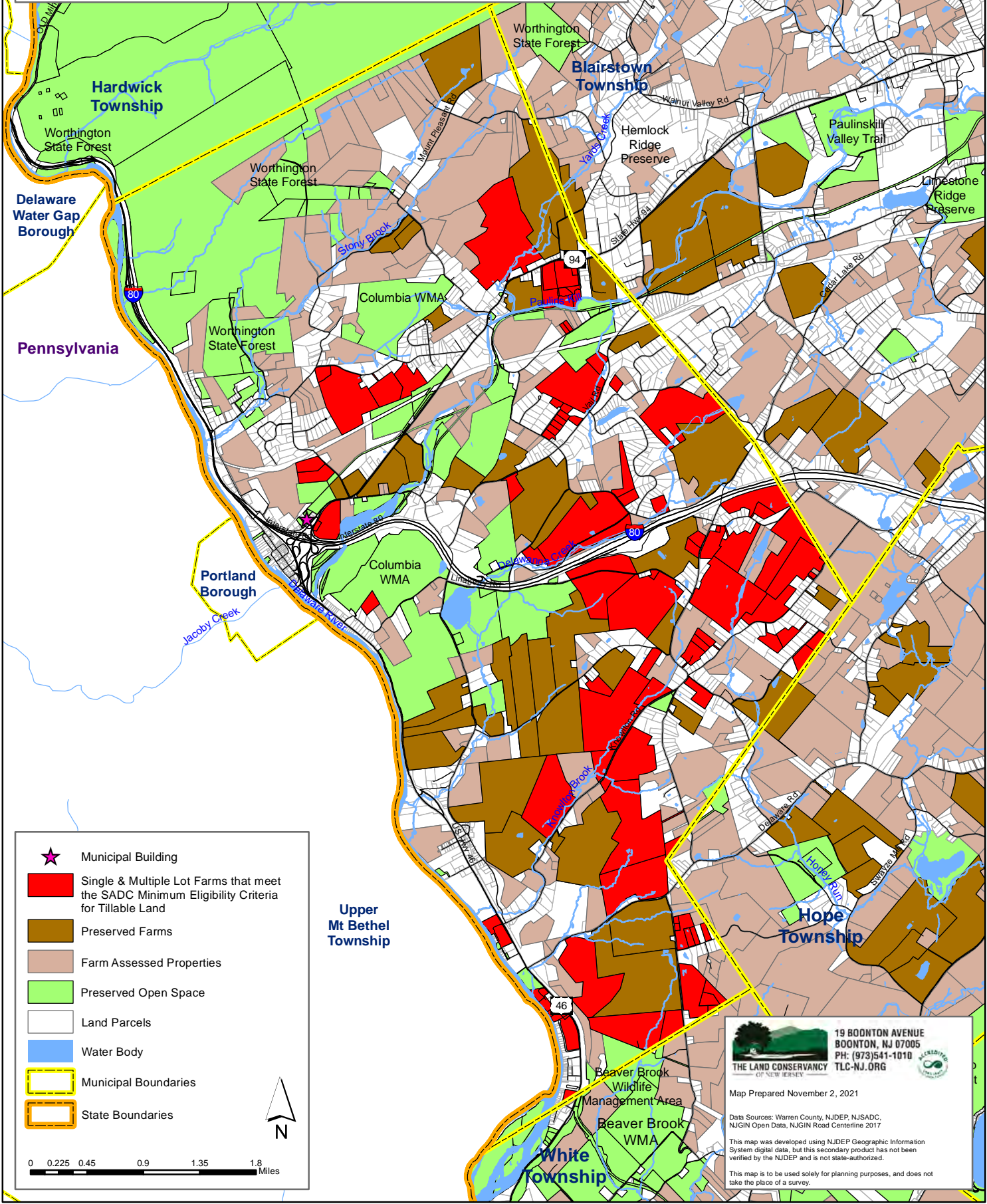
Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centerline 2017










This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map A: Single & Multiple Lot Farms that meet the SADC Minimum Eligibility Criteria for Tillable Land


Knowlton Township, Warren County



-  Municipal Building
-  Single & Multiple Lot Farms that meet the SADC Minimum Eligibility Criteria for Tillable Land
-  Preserved Farms
-  Farm Assessed Properties
-  Preserved Open Space
-  Land Parcels
-  Water Body
-  Municipal Boundaries
-  State Boundaries

N


0 0.225 0.45 0.9 1.35 1.8 Miles



19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010

THE LAND CONSERVANCY
OF NEW JERSEY

TLC-NJ.ORG



Map Prepared November 2, 2021

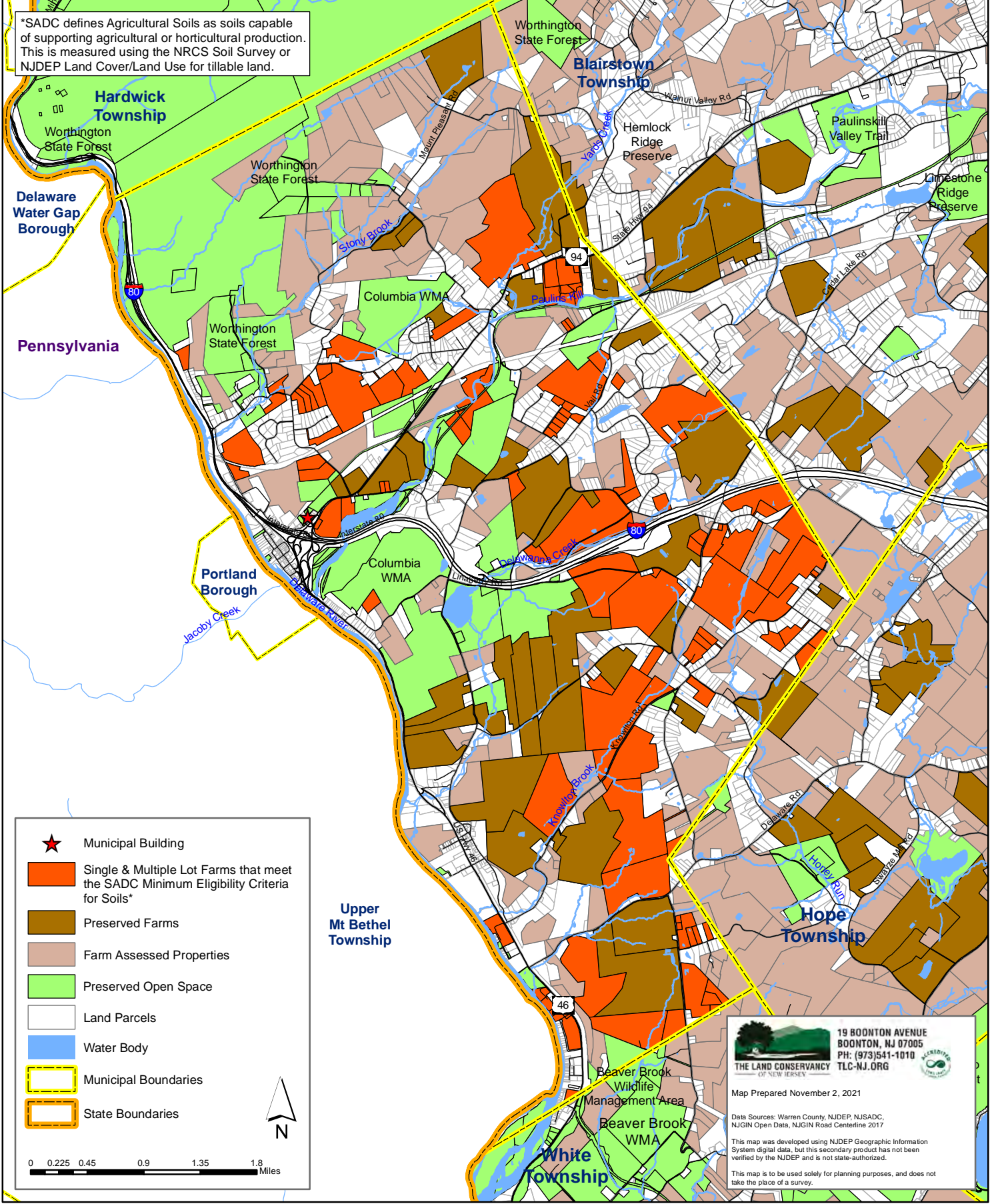
Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centreline 2017

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map B: Single & Multiple Lot Farms that meet the SADC Minimum Eligibility Criteria for Agricultural Soils* Knowlton Township, Warren County

*SADC defines Agricultural Soils as soils capable of supporting agricultural or horticultural production. This is measured using the NRCS Soil Survey or NJDEP Land Cover/Land Use for tillable land.



- Municipal Building
- Single & Multiple Lot Farms that meet the SADC Minimum Eligibility Criteria for Soils*
- Preserved Farms
- Farm Assessed Properties
- Preserved Open Space
- Land Parcels
- Water Body
- Municipal Boundaries
- State Boundaries

Upper Mt Bethel Township

Hope Township

White Township

Beaver Brook Wildlife Management Area
Beaver Brook WMA

Paulinsville
Columbia WMA

Stony Brook
Delaware Creek
Knowlton Brook
Honey Run

Worthington State Forest
Hemlock Ridge Preserve
Paulinskill Valley Trail
Limestone Ridge Preserve

Hardwick Township
Delaware Water Gap Borough
Portland Borough

Blairstown Township

Worthington State Forest

Paulinsville

State Hwy 94
State Hwy 84
State Hwy 80
State Hwy 46

Delaware River
Jacobys Creek

0 0.225 0.45 0.9 1.35 1.8 Miles

N

19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010
TLC-NJ.ORG

Map Prepared November 2, 2021

Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centreline 2017

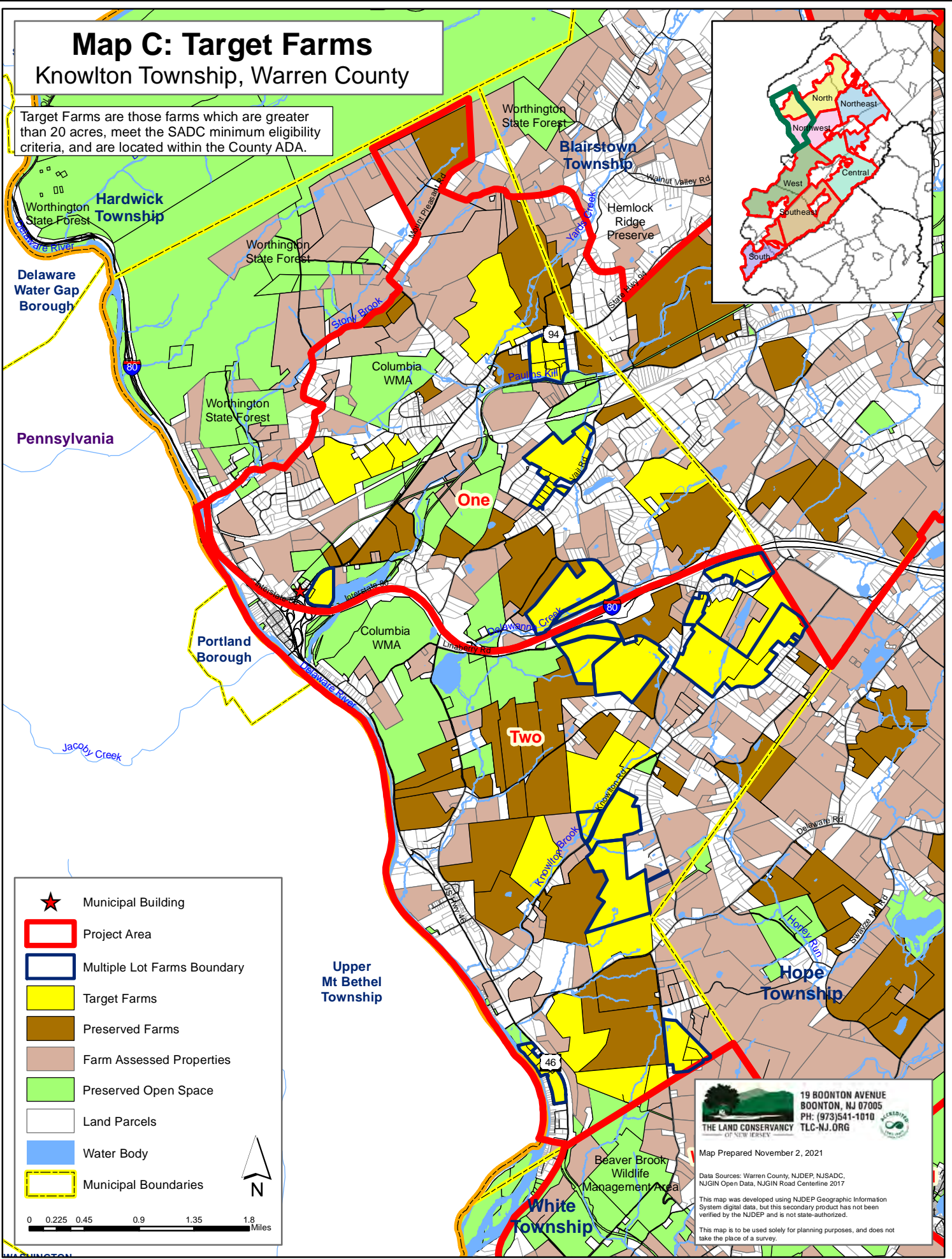
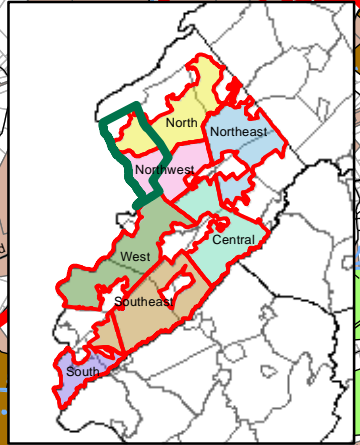
This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Map C: Target Farms

Knowlton Township, Warren County

Target Farms are those farms which are greater than 20 acres, meet the SADC minimum eligibility criteria, and are located within the County ADA.



- Municipal Building
- Project Area
- Multiple Lot Farms Boundary
- Target Farms
- Preserved Farms
- Farm Assessed Properties
- Preserved Open Space
- Land Parcels
- Water Body
- Municipal Boundaries

N

0 0.225 0.45 0.9 1.35 1.8 Miles

19 BOONTON AVENUE
BOONTON, NJ 07005
PH: (973)541-1010
TLC-NJ.ORG

THE LAND CONSERVANCY
OF NEW JERSEY

Map Prepared November 2, 2021

Data Sources: Warren County, NJDEP, NJSADC, NJGIN Open Data, NJGIN Road Centerline 2017

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

This map is to be used solely for planning purposes, and does not take the place of a survey.

Appendix

Appendix A. Public Meeting Materials

Knowlton Township held two public meetings on the *Plan Update*. The purpose of these meetings is to provide an opportunity for residents and community stakeholders to listen and provide recommendations regarding farmland preservation. The first public meeting was held on September 24, 2020, as part of the regularly scheduled governing body meeting. The second public meeting was held on October 26, 2021 by the Planning Board to review the final draft of the *Plan Update* prior to adoption as an Element of the Master Plan. (**Appendix A.**) The Agricultural Advisory Committee was involved in the development of the *Plan Update* and reviewed and approved the *Update* for the Township.

Appendix B. Agricultural Businesses Servicing Knowlton Township

Appendix C. Knowlton Township Right to Farm Ordinance (1997) and Repeal of Section 11-369 (2021)



Comprehensive Farmland Preservation Plan 2020 Update

Township of Knowlton

Presentation:
Township Committee
September 24, 2020

1



What is the Farmland Preservation Program?

- Purpose: Protection of farmland and agriculture as a business in New Jersey
- How is farmland preserved?
 - Sale of Development Easements
 - Donation of Development Easements
 - Sale of Entire Property
- Farmland Preservation can be done at the state, county, or municipal level

2



SADC Guidelines for Developing and Updating Municipal Comprehensive Farmland Preservation Plan

SADC Rules Adopted May 24, 2007
Amended July 25, 2019:

- Provides uniform standards for municipal farmland preservation plans
- Requires the latest data: agricultural statistics, economic development, land use and resource conservation

*SADC providing 50% grant to Knowlton Township to complete Plan Update

3



KNOWLTON TOWNSHIP: AGRICULTURAL OVERVIEW

- 2005 Farm Assessment Data reported 9,193 acres of land in Knowlton Township in agricultural use (farmland and/or woodland assessed)
- 2008 Farm Plan included 8,120 acres in Warren County's Agricultural Development Area
- As of 2008, there were 1,596 acres of preserved farmland
- 2008 Farm Plan identified 2,447 acres as potentially eligible for farmland preservation
- As of June 2020, an additional 805 acres for a total of 2,401 acres have been permanently preserved through the farmland preservation program

4



Benefits of Farmland Preservation in Knowlton Township

- Maintains the rural nature of the Township.
- Voluntary program for landowners and Township Committee approves what farmland is preserved.
- Permanently preserves cropland, pasture and woodland and protects from subdivision development.
- Protects Knowlton Township's groundwater, source of drinking water for residents.
- Protects Knowlton Township's forest and wildlife habitat.
- No reduction in property taxes when land is preserved through the farmland program.
- Preserved farmland continues to pay property taxes unlike public lands owned by State and Federal government.
- Injects significant State and County funds (\$8.5 million to date) directly to Knowlton property owners.
- Improves the overall economy of the Township.
- Improves the land value for neighboring property owners.
- Enables the viability of farm businesses, which in turn provides good local jobs.

5



Elements of the Farmland Plan

- I. Agricultural Land Base
- II. Agricultural Industry
- III. Land Use Planning
- IV. Farmland Preservation Program
- V. Future Farmland Preservation Program
- VI. Agricultural Economic Development
- VII. Natural Resource Conservation
- VIII. Sustainability, Retention, and Promotion

6

I. Agricultural Land Base

- Inventory and mapping of farm properties
- Documentation and mapping of agricultural soils
- Number of irrigated acres and available water sources.
- Assessment by average farm size and agricultural use (cropland, pasture, equine)



7

II. Agricultural Industry

- Historic crop trends
- Market value of agricultural products over the last 20 years
- Support services within the market region
- Regional agricultural trends



8

IV. Farmland Preservation Program

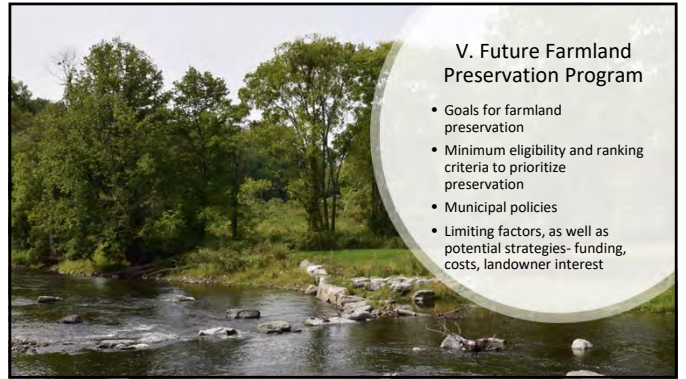
- Farmland preservation program and expenditures
- County Agricultural Development Area (ADA)
- Planning Incentive Grant Project Areas (PIGs)
- Coordination with open preservation
- Easement monitoring and enforcement



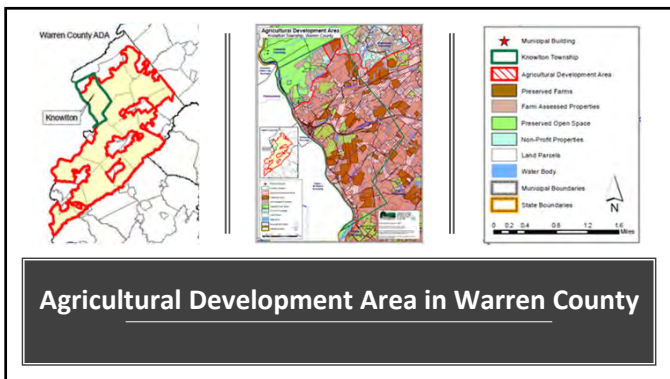
9

V. Future Farmland Preservation Program

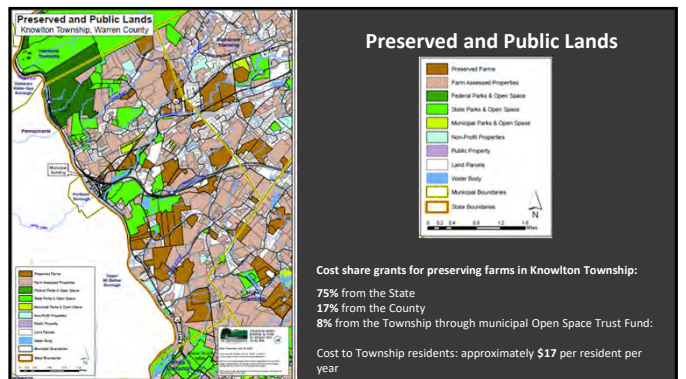
- Goals for farmland preservation
- Minimum eligibility and ranking criteria to prioritize preservation
- Municipal policies
- Limiting factors, as well as potential strategies- funding, costs, landowner interest



10



11



12

2021 Farmland Preservation Plan Update

Knowlton Township
October 26, 2021
Planning Board

1

Why update the Farm Plan?

- The Township's current Farmland Preservation Plan (2008) is out of date.
- The Update will keep the municipality current for 10 years for matching funds through the SADC PIG program.
- The cost of the Plan Update is funded through a 50% matching grant from the SADC.

2

Schedule and Deliverables

AUGUST 25 2020 Kickoff Meeting with SADC	SEPTEMBER 24 2020 First Public Meeting (Township Committee)	OCTOBER 26 2021 Second Public Meeting (Planning Board)
SEPTEMBER 17 2020 Site Visit	JUNE 16 & AUGUST 18 & OCTOBER 14, 2021 Draft Farm Plan to Knowlton Twp.	

3

Plan Update Overview

- I Agricultural Land Base
- II Agricultural Industry
- III Land Use Planning
- IV Farmland Preservation Program
- V Future Farmland Preservation Program
- VI Economic Development
- VII Natural Resource Conservation
- VIII Sustainability, Retention, and Promotion

4

2021 Farm Assessed Land

8,274 acres of farm assessed land

2,472 acres of preserved farmland on 32 farms

5

Production Trends

Knowlton Township

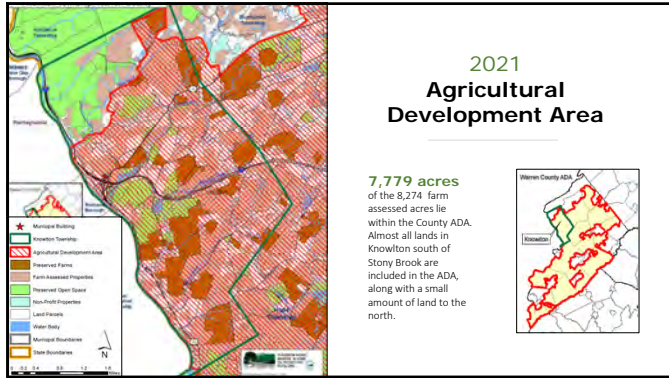
In 2017, field crops were among the most acre-dominant crops in Knowlton Township.

From 2005 to 2017, soybeans and meat chicken production increased while mature dairy, acreage in hay, and beef cattle decreased.

Corn for grain increased from 2005 to 2010 but declined afterwards.

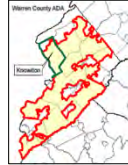
	Corn for Grain (Acres)	Hay (Acres)	Soybeans (Acres)	Mature Dairy (Head)	Beef Cattle (Head)	Meat Chickens (Number)
2005	427	1802	41	290	231	251
2010	556	1345	206	266	245	215
2015	742	1358	406	135	183	271
2017	377	1571	585	84	202	282

6

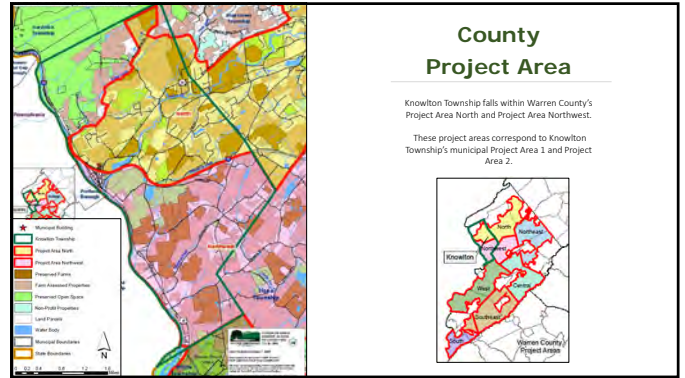


2021 Agricultural Development Area

7,779 acres of the 8,274 farm assessed acres lie within the County ADA. Almost all lands in Knowlton south of Stony Brook are included in the ADA, along with a small amount of land to the north.



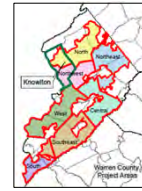
7



County Project Area

Knowlton Township falls within Warren County's Project Area North and Project Area Northwest.

These project areas correspond to Knowlton Township's municipal Project Area 1 and Project Area 2.



8

Funding

Average price per acre is **\$4,500** to purchase a development easement and the estimated municipal cost share is **15%**.

The Preserve New Jersey Act of 2014
Dedicate a portion of the Corporate Business Tax to preservation – 60% to Green Acres, 4% to Blue Acres, 31% to SADC, and 5% to historic preservation.

The Warren County Open Space Preservation Trust Fund
The Warren County OSTF currently collects a 2-cent tax per \$100 of assessed property value.

The Knowlton Open Space Trust Fund
This trust currently collects a 2-cent tax per \$100 of assessed property value and generates an annual revenue of **\$51,817**. As of June 2021, the Fund had a balance of **\$25,122**.

9

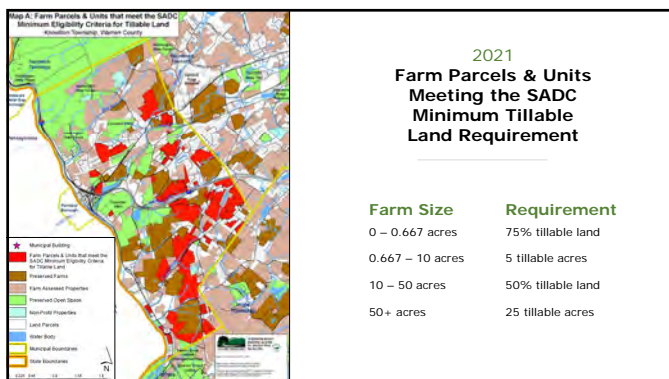
Farm Program Expenditures

As of 2021

<p>\$718,096 Knowlton Township (7% of total cost share)</p> <p>18 farms were preserved through the Muni PIG program (57% of the total preserved farmland).</p>	<p>\$1,727,489 Warren County (18% of total cost share)</p> <p>3 farms were preserved through the County PIG program, and 8 farms were preserved through the County Easement Purchase program (25% of the total farmland preserved).</p>	<p>\$7,300,236 State of New Jersey (75% of total cost share)</p> <p>3 farms have been preserved through the SADC Direct Easement Purchase program (9% of the total farmland preserved).</p>
---	--	--

As of August 2021, there are 2 farms pending preservation in Knowlton Twp.
Since the completion of the 2008 Farm Plan, **14 farms** have been preserved (**786 acres**)

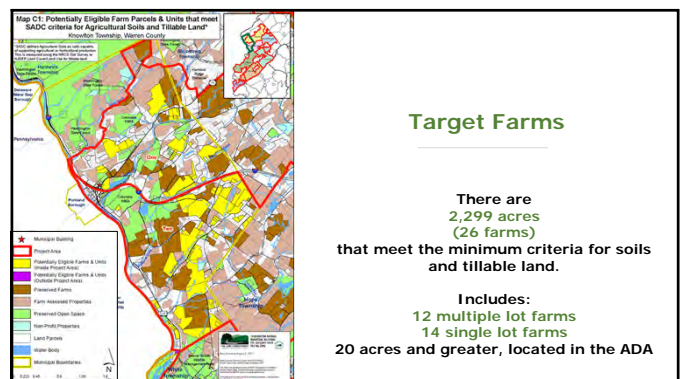
10



2021 Farm Parcels & Units Meeting the SADC Minimum Tillable Land Requirement

Farm Size	Requirement
0 – 0.667 acres	75% tillable land
0.667 – 10 acres	5 tillable acres
10 – 50 acres	50% tillable land
50+ acres	25 tillable acres

11



Target Farms

There are **2,299 acres (26 farms)** that meet the minimum criteria for soils and tillable land.

Includes:
12 multiple lot farms
14 single lot farms
20 acres and greater, located in the ADA

12



13



Thank You

Barbara Heskins Davis, PP, AICP
The Land Conservancy of New Jersey
bhdavis@tlc-nj.org
(973) 541-1010, x33

14

Agricultural Businesses Servicing Knowlton Township (Located in Warren County and Immediate Area)

Sources: SADC Green Pages

Farmers Markets and Auctions

Hackettstown Livestock Auction
225 W Stiger St
Hackettstown, NJ 07840
Warren County
(908) 852-0444
<https://www.hackettstownauction.com>

Blairstown Farmers Market
5 Stillwater Rd.
Blairstown, NJ 07825
(908) 362-7967
<https://www.blairstownfarmersmarket.com/>

Monroe Farmers Market
600 Main St.
Stroudsburg, PA 18360
<https://www.monroefarmersmarket.com/>

Equipment, Seed, Fertilizer, Chemical, and General Suppliers

Central Jersey Equipment
228 State Rt 94
Columbia, NJ 07832
Warren County
(908) 362-6916

Smith Tractor & Equipment, Inc
115 NJ-31
Washington, NJ 07882
Warren County
(908) 689-7900
<https://www.smithtractorandequipment.com/>

S&L Kubota
492 County Rd. 519
Belvidere, NJ 07823
(908) 475-8111
<https://www.slnjequipment.com/>

Growmark FS
60 Lehigh Ave
Bloomsbury, NJ 08804
Hunterdon County
(908) 479-4500

Blairstown Agway/ Ace Hardware
2 Bridge St and 3 Stillwater Rd.
Blairstown, NJ 07825
Warren County
(908) 362-6177

Tractor Supply Company
128 NJ-94 #9
Blairstown, NJ 07825
Warren County
(908) 362-0082
<https://www.tractorsupply.com/>

Tractor Supply Company
398 Rte 57 West 4
Washington, NJ 07882
Warren County
(908) 689-3202

Penwell Mills
448 Penwell Rd
Port Murray, NJ 07865
Warren County
(908) 689-3725

Johnsonville Farm & Garden, Inc
154 Johnsonville Rd.
Bangor, PA 18013
(610) 599-0683

Ord. No. 01-5]

- D. The installation of man-made adequate and reliable water supply sources and such infrastructure necessary to deliver water to the fire site from either natural or man-made adequate and reliable water supply sources shall be in accordance with NFPA 1231 Standard on Water Supplies for Suburban and Rural Fire Fighting, latest edition, and NFPA 24 Standard for the Installation of Private Fire Service Mains and Their Appurtenances, latest edition. Notwithstanding the foregoing, the installation of underground storage tanks shall be outlined in § 11-363D above.

§ 11-365. Water supply criteria for planned building groups.

For all site plans in zoning districts that authorize planned building groups, the applicant shall, at his or her expense, install adequate and reliable water supply sources in accordance with the following criteria:

- A. Each individual structure on site shall have an adequate and reliable water supply source in accordance with the terms of § 11-364 above.
- B. The site plan layout of said planned building group shall be in accordance with the standards specified in NFPA 1141 Standard for Fire Protection for Planned Group Buildings, latest edition.
- C. Planned group building shall be known as two or more structures constructed on a parcel of land which is under the ownership, control or development by one individual, corporation, partnership or firm, excluding farms.

§ 11-366. System maintenance.

- A. For all water supply sources provided under this Article, provisions shall be made by the applicant for the maintenance of this system. Said plan shall be in accordance with acceptable standards and shall be submitted to the Fire Subcode Official and the Knowlton Township Fire Department for their comments and shall be reviewed and approved by the Planning Board, which approval shall incorporate the recommendations of the Fire Subcode Official and the Knowlton Township Fire Department.
- B. In all cases where a fire protection system is required, no certificate of occupancy shall be issued for a dwelling or principal structure upon any lot within the subdivision or site plan until, to the extent necessary to afford fire protection to such dwelling or principal structure, such system is installed and its operability tested and approved by the Fire Official. [Added by Ord. No. 01-5]

ARTICLE 50

Right to Farm

[Amended 8-11-1997 by Ord. No. 97-9; 12-8-1997 by Ord. No. 97-13]

§ 11-367. Findings.

- A. The right to farm the land is recognized to exist in Knowlton Township and has existed herein for hundreds of years. The Township Committee finds and determines that farmers

must be secure in their ability to earn a livelihood and utilize customary farming procedures and techniques.

- B. The Township Committee further finds that whatever nuisance may be caused to others by farm uses is more than offset by the benefits from farming to the neighborhood, community and society in general. The preservation and continuance of farming operations in Knowlton Township provides a source of agricultural products for this and future generations and saves a nonreplenishable resource, namely the land. In addition, farming preserves open space and adds to the beauty of the countryside.
- C. Farming is a permitted use in all zones and the right to farm provisions as set forth in this article shall be accorded to all farmers in Knowlton Township, notwithstanding specified or prohibited uses set forth elsewhere in this chapter.
- D. The protections granted in this article are provided only to farm lands assessed in compliance with the Farmland Assessment Act, P.L. 1964, c. 48, as amended.⁷³

§ 11-368. Farm practices.

- A. Farming and the right to farm shall include but not be limited to the following generally recognized agricultural practices and associated agriculturally related activities:
 - (1) Use of irrigation pumps and associated irrigation equipment, tillage, seeding and harvesting equipment and activities, spraying of crops by conventional or aerial applications and the use of any or all mechanical equipment associated with and necessary to the kind and type of agriculture being practiced within the farm.
 - (2) The use and housing of necessary farm laborers.
 - (3) The application of chemical fertilizers, insecticides and herbicides in accordance with manufacturers instructions and the application of manure.
 - (4) The grazing of animals and use of range for grazing animals.
 - (5) The production of agricultural products, including but not limited to vegetables, grains, hay, fruits, fibers, wood, trees, plants, shrubs, flowers, seeds, livestock for meat or milk and fowl.
 - (6) Construction of fences for farm animals and livestock.
 - (7) The traveling and transportation of large, slow-moving equipment over roads within Knowlton Township.
 - (8) The control of vermin and pests, provided that such control is practiced under applicable state laws, including fish and game laws.
 - (9) The stacking or piling of manure may not take place in areas of the farm such that manure will discharge directly or indirectly to any stream, river, pond, lake or other surface water or abutting property. No manure may be piled or stacked within any municipally or state-created conservation easement or within 100 linear feet of any

⁷³. Editor's Note: See N.J.S.A. 54:4-23.1 et seq.

property line. For purposes of this section, land held or enrolled in any farmland preservation program shall not be liberally construed to be lands containing a conservation easement.

- (10) The right to market produce from the farm either in a farm market in accordance with the provisions of this chapter or by trucking the produce out of the farm to market.
 - (11) The use of the land for recreational purposes shall be done only with the permission of the farm owner or lessee of the farm land. Any recreational use of the farm land which changes the underlying agricultural nature of the use shall be subject to the usual site plan review and permits as otherwise required.
- B. All farming activities shall follow the agricultural standards set forth in the Best Management Practices as defined by Rutgers Agriculture Experiment Station. The Natural Resources Conservation Service and the New Jersey Department of Agriculture.
 - C. The foregoing uses, activities and rights, when reasonable and necessary for farming, livestock or fowl production and when conducted in accordance with generally accepted agricultural purposes, may occur on holidays, Sundays, weekends and weekdays by day and night and shall include attendant or incidental noise, odors, dust and fumes associated with these practices.
 - D. The use of sludge or sludge-derived materials is specifically excluded from the protection of this article.

§ 11-369. Deed conveyance.

- A. Each deed of conveyance of land, and subsequent deed or conveyance of land, in any zone prepared after the effective date of this article and each offering of sale of land shall contain a recital as follows:

"Knowlton Township acknowledges that a substantial quantity of land is devoted to active agricultural uses and a right to farm exists in the township. Therefore, the grantee, his or her heirs and assigns are hereby on notice that lands in any zone in the township may be actively farmed and that the farmer of these lands has the continued right to farm under the provisions of the land use regulations of Knowlton Township."

- B. This recital shall be included in all deeds as above-noted until such time as the lands being conveyed are no longer adjacent, abutted or reasonably contiguous to any lands which would qualify for protection under this act.

ARTICLE 51
Standards for Golf Courses
[Added 6-14-1999 by Ord. No. 99-574]

§ 11-370. Regulations governing golf courses as a conditional use in the Farmland Preservation Zone.

74. Editor's Note: This ordinance also provided for the renumbering of former Art. 51, Validity; Repealer; When Effective, consisting of §§ 11-370 through 11-372, as Art. 52, §§ 11-372 through 11-374.

**TOWNSHIP OF KNOWLTON
COUNTY OF WARREN
STATE OF NEW JERSEY
ORDINANCE NO 2021-04**

AN ORDINANCE OF THE TOWNSHIP OF KNOWLTON REPEALING SECTION 11-369 OF THE CODE OF THE TOWNSHIP OF KNOWLTON, WARREN COUNTY, NEW JERSEY

WHEREAS, pursuant to N.J.S.A.40:48-2, the governing body of a municipality may make, amend, repeal, and enforce such other ordinances, regulations, rules and by-laws not contrary to the laws of this state or of the United States, as it may deem necessary and proper for the good government, order and protection of person and property, and for the preservation of the public health, safety and welfare of the municipality and its inhabitants, and as may be necessary to carry into effect the powers and duties conferred and imposed by this subtitle, or by any law; and

WHEREAS, Section 11-369 of the Code of the Township of Knowlton is entitled “Deed Conveyance;” and

WHEREAS, Section 11-369 requires that certain language be included in the deeds for any and all properties adjacent, abutted or reasonably contiguous to properties upon which farm practices occur (as set forth in Section 11-368), upon the conveyance of said adjacent, abutted or reasonably contiguous properties; and

WHEREAS, the required language contained in Section 11-369 states “Knowlton Township acknowledges that a substantial quantity of land is devoted to active agricultural uses and a right to farm exists in the Township. Therefore, the grantee, his or her heirs and assigns are hereby on notice that lands in any zone in the township may be actively farmed and that the farmer of these lands has the continued right to farm under the provisions of the land use regulations of Knowlton Township,” and

WHEREAS, while the Township of Knowlton recognizes the importance of active agricultural uses, farm practices and the Right to Farm and continues to support and promote such practices, the Township finds the application and enforcement of Section 11-369 extremely difficult and likewise impractical given the existing protections available to said properties upon which farm practices occur regardless and independent of the existence of Section 11-369; and

WHEREAS, given the above, the Township of Knowlton desires to repeal Section 11-369 in its entirety.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Committee of the Township of Knowlton in the County of Warren, State of New Jersey, as follows:

SECTION ONE. Section 11-369 of the Code of the Township of Knowlton is repealed in its entirety.

SECTION TWO. All Ordinances of the Township of Knowlton that are inconsistent with the provisions of this Ordinance are hereby repealed as to the extent of such inconsistency.

SECTION THREE. If any section, subsection, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid by any Court of competent jurisdiction, such decision shall not affect the remaining portions of this Ordinance.

SECTION FOUR. This Ordinance shall take effect as provided by law.

Inventory Tables

Inventory Table 1. Farm Assessed Property in Knowlton Township

Table 1A. Unpreserved Farmland in Knowlton Township

Table 1B. Preserved Farmland in Knowlton Township

Inventory Table 2. Targeted Farms in Knowlton Township

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
3	59	3B	31 STAR LITE HILL RD	31 STARLITE, LLC	8.70	
7	2	3B	43 MT PLEASANT RD	ALLSOP, BARBARA	19.00	
62	6.02	3B	19 CENTERVILLE RD	ALTMAN, ERIC L & SHARI LEVOW	14.09	52.90
62	7	3B	17 CENTERVILLE RD	ALTMAN, ERIC L & SHARI LEVOW	29.79	
62	9	3B	17 CENTERVILLE RD	ALTMAN, ERIC L & SHARI LEVOW	9.02	
70	5.04	3B	33 SEREPTA RD	ALVERRA CONCEPTS	7.78	65.99
70	5	3B	29 SEREPTA RD	ALVERRA CONCEPTS INC	43.69	
70	5.03	3B	31 SEREPTA RD	ALVERRA CONCEPTS INC	9.33	
70	5.05	3B	35 SEREPTA RD	ALVERRA CONCEPTS INC	5.19	
3	5.01	3B	111 MT PLEASANT RD	ANDERSON JOHN E	17.38	92.63
3	5.02	3B	109 MT PLEASANT RD	ANDERSON, GEORGE W & JANICE S	23.53	
3	5.03	3B	107 MT PLEASANT RD	ANDERSON, STEPHEN P & GAIL E	33.14	
3	5	3B	113 MT PLEASANT RD	ANDERSON, WILLIAM E & VIRGINIA M	18.58	
4	4	3B	162 MT PLEASANT RD	BAIER,GEORGE C III&SUSAN&JEFF&CRAIG	2.10	
44.01	11	3B	156 POLKVILLE RD	BAIER,JEFFREY S JR / PUCILOWSKI,K R	9.89	
68	15.01	3B	11 RAMSEYBURG RD	BALEY, MYRON	32.11	37.06
68	16	3B	9 RAMSEYBURG RD	BALEY, MYRON	4.95	
3	28	3B	88 HAINESBURG RIVER RD	BARATTA, RICHARD J & JEANNE	15.37	
39	1.06	3B	23 IVAN RD	BATTAGLINO, NICHOLAS J & DOROTHY C	7.36	
71	2.02	3B	16 RAMSEYBURG RD	BAUMANN, CHARLES & ALICE	104.10	
4	8	3B	62 WISHING WELL RD	BECKER, RICHARD R & CLAIRE FRIEDMAN	0.10	11.12
5	7	3B	65 WISHING WELL RD	BECKER, RICHARD R & CLAIRE FRIEDMAN	11.02	
7	26.02	3B	12 HEMLOCK RD	BERGENTY, DONALD EST & NANCY H	7.58	
70	2.10	3B	OSMUN RD REAR	BICKHARDT, ALLEN P & ALLISON	5.09	
3	29	3B	102 STONY BROOK RD	BILLINGS, JEFFREY & JENNIFER	6.34	
8	1.03	3B	89 HAINESBURG RIVER RD	BILLINGS, JOYCE	5.00	31.26
8	1.04	3B	87 HAINESBURG RIVER RD	BILLINGS, JOYCE	6.12	
8	1	3B	66 STARK RD	BILLINGS, ROSE MARIE	6.04	
8	1.01	3B	83 HAINESBURG RIVER RD	BILLINGS, WILLIAM JOSEPH III	14.10	
12	2.01	3B	31 STARK RD	BILLINGS, JOYCE	12.05	
9	4	3B	38 STARK RD	BISHOP, STEVEN & CUYLETTE & SIERRA	40.97	
34	18.01	3B	425 RTE 94	BOWMAN, ERLA MAE	34.89	64.39
34	18	3B	437 RTE 94	BOWMAN, JAMES & JENNIFER	11.91	
34	18.02	3B	423 RTE 94	BOWMAN, LEWIS & ERLA MAE	3.00	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
34	18.03	3B	421 RTE 94	BOWMAN, LEWIS W & ERLA MAE	10.01	
34	18.04	3B	435 RTE 94	BOWMAN, LEWIS W & ERLA MAE	4.58	
30	4	3B	559 RTE 94	BRANDS, DAVID A JR	4.34	
30	6	3B	561 RTE 94	BRANDS, JR, DAVID A	3.40	20.74
31	5	3B	15 BRUGLER RD	BRANDS, JR, DAVID A	13.00	
30	1	3B	1 BRUGLER RD	BRANDS, JR, DAVID A	4.20	
32	1	3B	531 RTE 94	BRANDS, JR, DAVID A	38.20	43.75
33	1	3B	523 RTE 94	BRANDS, JR, DAVID A	1.35	
65	1.06	3A	93 AUBLE RD	BROOKS, DENNIS & BRENDA	1.00	
65	2.11	3B	8 CEMETERY RD	BROWN, FORREST T & JEAN M	10.11	
62	1	3B	63 KNOWLTON ROAD	BURNS, ROBERT J & LAURIE A	37.10	
8	2	3B	17 WOODRUFF WAY	CASSER, CLAUDIA	57.10	
46	3.04	3B	32 KNOWLTON RD	CASTIMORE, RICHARD & MARY BETH	5.01	
3	6	3B	101 MT PLEASANT RD	CHAMBERLAIN, ELINOR	32.24	
5	5	3B	94 MT PLEASANT RD	CHAMBERLAIN, ELINOR	65.65	97.89
61	13.07	3B	52 LIME KILN RD	CLARK, WALTER L & JEANNE P	11.00	
61	17	3B	104 KNOWLTON RD	CLIFFORD, SUSIE	19.02	
68	31	3B	117 KNOWLTON RD	CLIFFORD, SUSIE	77.24	96.26
70	2	3B	OSMUN RD REAR	COLLINS, ALICE T	5.12	
70	2.08	3B	3 COLLINSWOOD LA	COLLINS, DOUGLAS SCOTT	7.57	12.69
68	29	3B	125 KNOWLTON RD	CONNOLLY, BARBARA M	12.40	
68	30	3B	119 KNOWLTON RD	CONNOLLY, MICHAEL C & BARBARA M	6.33	18.73
7	9	3B	4A NORTH TERRACE RD	CONWAY, WILLIAM & ANNMARIE	22.37	
69	4.05	3B	OSMUN RD	CORNERSTONE FARM, LLC	6.78	
46	9	3B	30 KNOWLTON RD	COSTANTINO, CARLA E	6.74	
76	4	3B	196 RTE 46	COSTELLO FAMILY TRUST	5.78	
47	12.07	3B	51 LIME KILN RD	CULLEN EUGENE & DEBORAH	3.82	
47	12	3B	49 LIME KILN ROAD	CULLEN, EUGENE & DEBORAH	7.84	11.66
43.01	2	3A	3 BRANDS RD	D 3 FARMS, LLC	1.00	
13	8	3B	95 HAINESBURG RIVER RD	DALTON, S & BILLINGS-DALTON, ROBIN	8.49	
61	7	3B	32 DELAWARE RD	D'ANDREA, BRIAN	13.40	
61	15.03	3B	82 LIME KILN RD	DE STEFANO, DANTE	11.59	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
62	10	3B	11 CENTERVILLE RD	DEAN, IRVIN W	64.60	
69	4	3B	11 SEREPTA RD	DEBOER, ROBERT A & TRACY L	16.27	
69	4.09	3B	SEREPTA RD	DEBOER, ROBERT A & TRACY L	1.41	19.16
69	4.10	3B	SEREPTA RD	DEBOER, ROBERT A & TRACY L	1.48	
45	6	3B	26 CENTERVILLE RD	DELORENZO, JAMES A	49.43	57.86
45	7	3B	24 CENTERVILLE RD	DELORENZO, JAMES A	8.43	
63	1.18	3B	19 CEMETERY RD	DEVINCENZI RAYMOND & SARAY	9.97	12.33
63	1.20	3B	CEMETERY RD	DEVINCENZI, RAYMOND & SARAY	2.36	
44.01	6	3B	166 POLKVILLE RD	DINO, CHARLES & RACHEL	5.22	
44	5	3B	26 IVAN RD	DOYLE, WILLIAM M & JILL A	8.98	
44	8	3B	44 IVAN RD	DUCHEK, ARTHUR & ISOLDE	4.65	
12	2	3B	23 STARK RD	DUSHAJ, MEHDI & SELVIJE	15.25	
28.01	2	3B	597 RTE 94	E-4 PROPERTIES, LLC	8.94	
7	3	3A	49 MT PLEASANT RD	EFFENBERGER, ROBERT, UNMARRIED	1.00	
62	6.03	3B	37 CENTERVILLE RD	EGIDIO ANTHONY & CHRISTINE	30.30	
5	29.01	3A	44 MT PLEASANT RD	EMS PROPERTY LLC	10.01	
46	7	3A	26 KNOWLTON RD	ENGELHARDT, NEIL	1.75	
7	24.10	3B	6 HEMLOCK RD	EVANS, GERALD D & JANIS L	33.57	
48	25	3A	41 DELAWARE RD	FERRARA, JAMES V	1.26	
68	13	3B	21 RAMSEYBURG RD	FERRARA, MICHAEL & JORDAN K	26.03	
8	2.01	3B	71 HAINESBURG RIVER RD	FLANNAGAN, JAMES P & JANN	6.00	
5	33	3B	62 MT PLEASANT RD	FRIEDMAN CLAIRE / BECKER RICHARD	185.84	
62	1.15	3B	71 KNOWLTON RD	GAGLIOSTRO, DOMINICK & ANNUNZIATA	12.72	
44.01	12	3B	154 POLKVILLE RD	GALLO, MICHAEL & CONSTANCE	34.92	
3	14	3A	71 MT PLEASANT RD	GARCIA, JR, ANGEL E & DIANE	1.00	
65	1	3A	91 AUBLE RD	GELLNER, DOUGLAS	1.00	
5	31	3A	52 MT PLEASANT RD	GERARDI, ENZO & FRANCESCAS	18.11	
61	32.01	3B	34 VALLEY ST	GIAMBONA, CARMELA	20.00	
42	1.01	3B	185 VAIL RD	GLINKO, STANLEY & SYLVIA	47.06	
42	2	3B	173 VAIL RD	GLINKO, STANLEY & SYLVIA	11.71	
66	2.05	3B	32 NIGHTINGALE RD	GLYNN, B JAMES	6.96	
35	4.06	3B	KILL RD	GLYNN, FRANCIS DALE & GLORIA	3.42	25.30
35	4.07	3B	KILL RD	GLYNN, FRANCIS DALE & GLORIA	2.02	
35	4.09	3B	KILL RD	GLYNN, FRANCIS DALE & GLORIA	2.08	
35	4	3B	28 KILL RD	GLYNN, FRANCIS DALE & GLORIA E	11.60	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
35	4.05	3B	KILL RD	GLYNN, FRANCIS DALE & GLORIA E	2.75	
35	4.08	3B	KILL RD	GLYNN, FRANCIS DALE & GLORIA E	2.03	
34	23.01	3B	7 STATION RD	GLYNN, FRANCIS DALE & GLORIA E	1.40	
51	3	3B	68 RTE 46	GRAY GARY W	42.20	
41	1	3A	36 STATION RD	GROVES, COREY L & JOELENE R	1.00	13.28
41	1	3B	36 STATION RD	GROVES, COREY L & JOELENE R	12.28	
47	5	3B	107 LINABERRY RD	GUARRACI PIETRO ET AL	125.40	128.40
47	5.04	3B	111 LINABERRY RD	GUARRACI, JOSEPH & ANTOINETTE	3.00	
48	18	3B	46 WALNUT RD	HAMBERG, MICHAEL & KEI	26.06	27.06
48	18.02	3B	52 WALNUT RD	HAMBERG, MICHAEL & KEI	1.00	
3	41	3B	122 HAINESBURG RIVER RD	HAMILTON, WILLIAM R & JUDY M	9.00	
48	25.02	3B	43 DELAWARE RD	HENDERSHOT, DONALD L & SUSAN M	13.70	
8	6.01	3B	HAINESBURG RIVER RD	HOH, JOHN & SALLIE	29.00	
68	6.01	3B	50 KOECK RD	HORRIDGE, STUART & VIRGINIA	6.58	
66	2.12	3A	34 NIGHTINGALE RD	HUNT, THOMAS	1.00	
64	1.02	3B	1 HONEY RUN RD	JAMES, GEORGE A & BRENDA L	12.83	19.88
64	2	3B	1 HONEY RUN RD	JAMES, GEORGE A & BRENDA L	7.05	
69	4.01	3B	3 SAREPTA RD	JODEXNIS, ROBERT & KIMBERLY	9.30	
68	4.02	3B	36 KOECK RD	JORDAN, FREDERICK & ELIZABETH	15.40	
5	28	3B	32 MT PLEASANT RD	KALMBACH, KURT & COLLEEN	15.13	
43	3	3B	26 RICH RD	KARNEY, PAMELA ANN & RICHARD H	111.17	136.65
46.01	2	3B	25 RICH RD	KARNEY, PAMELA ANN & RICHARD H	25.48	
29	1.02	3B	BRUGLER RD	KERO, JOHN N	2.04	4.05
29	1.03	3B	BRUGLER RD	KERO, JOHN N	2.01	
3	30	3B	106 STONY BROOK RD	KNERR, JOHN & SUSAN	9.56	
68	7	3B	58 KOECK RD	KNOWLING, MARILYN	9.18	
12	11	3B	14 SIMPSON RD	KNOWLTON CROSSROADS LLC	71.60	
71	13	3B	155 RTE 46	KNOWLTON RIVERSIDE ESTATES INC	23.30	
72	1.03	3B	154 RTE 46	KNOWLTON RIVERSIDE ESTATES INC	6.73	44.92
72	1.04	3B	RTE 46	KNOWLTON RIVERSIDE ESTATES, INC	6.00	
72	1.04	3B	RTE 46	KNOWLTON RIVERSIDE ESTATES, INC	6.00	
72	1.05	3B	RTE 46	KNOWLTON RIVERSIDE ESTATES, INC	6.00	
72	1.06	3B	ROUTE 46	KNOWLTON RIVERSIDE ESTATES, INC	20.19	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
3	2	3B	141 MT PLEASANT RD	KNOWLTON TWP GUN CLUB C/O LEWIS BUA	62.40	
3	64.01	3B	130 STONY BROOK RD	KNOWLTON TWP GUN CLUB C/O LEWIS BUA	12.62	
3	66	3B	57 MOUNTAIN RD	KNOWLTON TWP GUN CLUB C/O LEWIS BUA	79.45	
62	1.01	3B	86 AUBLE RD	KOLENZ, GARY & APRIL	5.50	10.50
62	1.16	3B	88 AUBLE RD	KOLENZ, GARY & APRIL	5.00	
44.01	14	3B	146 POLKVILLE RD	KONESNY, DONALD	16.00	
65	2.18	3B	63 AUBLE RD	KROHN, MARTY & THERESA	10.56	
44.01	15	3B	142 POLKVILLE RD	LIAW, HAO FENG & BERNARDINE T	7.70	
28	3	3B	21 WALNUT RD	LONGYHORE JR, DONALD	8.01	14.02
28	3.02	3B	23 WALNUT RD	LONGYHORE JR, DONALD	6.01	
44	7	3B	13 SHOTWELL RD	LONIE, RICHARD D & MARYLINN T	114.89	
46	4	3A	28 KNOWLTON RD	LUND, ROBERT & KAREN	1.00	
66	2	3B	24 NIGHTINGALE RD	MACHLEDER, BRUCE S & HELEN	25.90	
43	1	3B	39 COOK RD	MAKAREVICH, JR, EUGENE	10.76	17.76
42	6	3A	38 COOK RD	MAKAREVICH, JR, EUGENE R	7.00	
61	24	3B	150 KNOWLTON RD	MAKOWSKI, FRANCIS & CHRISTINE	14.38	
57	5	3B	114 RTE 46	MARSHALL'S FARM MARKET & COUNTRY ST	16.03	
3	63	3B	112 STONY BROOK RD	MARTYNIUK, ROMAN M & EUFEMIA	6.00	14.15
3	63.03	3B	114 STONYBROOK RD	MARTYNIUK, ROMAN M, IDA & PETER J	8.15	
31	16.04	3B	194 VAIL RD	MASKER, PHILIP W & KRISTIN	10.18	
61	15	3B	76 KNOWLTON RD	MATAKITIS, RONALD & ELIZABETH	20.00	
30	5	3B	13 BRUGLER RD	MATHEZ, RENE	0.50	46.50
31	6	3B	13 BRUGLER RD	MATHEZ, RENE	14.70	
32	2	3B	527 RTE 94	MATHEZ, RENE	23.66	
32	3	3B	527 RTE 94	MATHEZ, RENE	7.64	
61	18	3B	116 KNOWLTON RD	MAZZILLI, JOHN CHARLES	50.32	
40	7	3B	130 VAIL RD	MCNINCH, ROBERT & JOAN	85.40	123.01
40	4	3B	120 VAIL RD	MCNINCH, ROBERT A	13.47	
40	9.01	3B	140 VAIL RD	MCNINCH, ROBERT A	3.03	
40	9.05	3B	2 BRIDGE RD	MCNINCH, ROBERT A	3.00	
40	9.06	3B	4 BRIDGE RD	MCNINCH, ROBERT A	3.01	
40	9.07	3B	6 BRIDGE RD	MCNINCH, ROBERT A	3.01	
40	9.08	3B	8 BRIDGE RD	MCNINCH, ROBERT A	3.01	
40	9.09	3B	10 BRIDGE RD	MCNINCH, ROBERT A	3.01	
40	9.10	3B	12 BRIDGE RD	MCNINCH, ROBERT A	3.03	
40	9.11	3B	11 BRIDGE RD	MCNINCH, ROBERT A	3.03	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
44	29	3B	22 COUNTRYSIDE RD	MCNINCH, ROBERT A	8.80	
71	12	3B	173 RTE 46	MELILLO, DENNIS J & CANDICE	17.77	
42	9	3B	195 VAIL RD	MERRICK, DAVID	20.95	
46.01	3	3B	127 POLKVILLE RD	MILLER, EVE & BODINE, TIMOTHY S	8.06	
68	10	3B	39 RAMSEYBURG RD	MILLINGTON REALTY LLC	97.70	
4	9	3B	64 WISHING WELL RD	MITCHELL ROBERT E & SANDRA	43.02	
5	6	3B	67 WISHING WELL RD	MONDRINOS, VERONICA	14.15	18.40
5	6.01	3B	WISHING WELL RD	MONDRINOS, VERONICA	4.25	
40	2.05	3B	23 STATION RD	MORE FAMILY TRUST	4.02	
40	2	3B	25 STATION RD	MORE, ROBERT R	16.60	
63	2	3B	25 AUBLE RD	MT HERMON HILLS COMPANY, LLC	21.80	
63	4	3B	25 AUBLE RD	MT HERMON HILLS COMPANY, LLC	1.80	
66	2.17	3B	6 NIGHTINGALE RD	MULCH, CHRISTOPHER & DIANE	15.26	
68	9	3B	54 KOECK RD	MURRAY, DAVID	131.66	146.30
68	9.01	3B	54 KOECK RD	MURRAY, DAVID	4.95	
68	9.04	3A	54 KOECK RD	MURRAY, DAVID	2.61	
68	9.05	3B	54 KOECK RD	MURRAY, DAVID	7.08	
71	6	3B	40 SEREPTA RD	MURRAY, GREGORY J & MARJORIE	19.87	
3	22	3B	39 HEMLOCK RD	NATIVE AMERICAN RECOVERY ASSET TRST	117.00	175.50
3	22.01	3B	39 HEMLOCK RD	NATIVE AMERICAN RECOVERY ASSET TRST	57.00	
7	1	3B	38 HEMLOCK RD	NATIVE AMERICAN RECOVERY ASSET TRST	1.50	
62	1.08	3A	80 AUBLE RD	NESTER, NANCY C	10.00	
35	2	3B	11 STATION RD	NEVILLE, GILBERT L & PHYLLIS D	65.89	
68	8	3A	60 KOECK RD	NOVACK, DANIEL	3.86	
68	27	3B	145 KNOWLTON RD	OSMUN HELEN S & GARY D/TRUSTEES	12.28	18.10
68	27.02	3B	KNOWLTON RD	OSMUN, HELEN S & GARY D, COTRUSTEES	3.88	
68	27.03	3B	KNOWLTON RD	OSMUN, HELEN S & GARY D, COTRUSTEES	1.94	
61	1	3B	16 DELAWARE RD	OSMUN, GLEN W & RUTHANN	42.42	
67	1	3B	37 KOECK RD	PAGLIA, PETER	57.25	
62	11.02	3B	AUBLE RD	PEACEFUL VALLEY FARMS, LLC	1.38	
71	1	3B	8 RAMSEYBURG RD	PECK, JAMES M & ROBIN M	24.22	
3	24	3B	23 HEMLOCK RD	PELLICIER, DEMETRIUS & JOAN	16.83	
61	15.04	3B	60 KNOWLTON RD	PERNA, VINCENT J & REBECCA E	19.81	
7	24.05	3B	18 HEMLOCK RD	PETERSEN, JR, WILLIAM H	5.44	11.95
7	24.04	3B	16 HEMLOCK RD	PETERSEN, WILLIAM H JR & LAURIE	6.51	
70	2.09	3B	OSMUN RD REAR	REBER, JON B & KIMBERLY A	5.12	
8	22.14	3B	3 WOODRUFF WAY	REIDMILLER, RICHARD A & DANIELLE	9.71	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
3	15	3B	69 MT PLEASANT RD	REYFMAN, ALEXANDER & MARIA	36.94	43.53
3	13	3B	5 QUARRY RD	REYFMAN, SEMYON, IRINIA, ALEX & MARIA	6.59	
39	5	3B	33 IVAN RD	RIGGS, TRAVIS C/O JERRE	21.68	
62	14	3B	58 AUBLE RD	ROGERS, RICHARD D	39.50	251.19
62	3	3B	43 KNOWLTON RD	ROGERS, RICHARD D	126.29	
62	6	3B	29 KNOWLTON RD	ROGERS, RICHARD D	24.00	
62	6.05	3B	CENTERVILLE RD	ROGERS, RICHARD D	1.00	
62	11	3B	24 AUBLE RD	ROGERS, RICHARD D SR	58.33	
62	11.01	3B	AUBLE RD	ROGERS, RICHARD D SR	1.38	
62	11.03	3B	AUBLE RD	ROGERS, RICHARD D SR	0.69	
61	19	3B	130 KNOWLTON RD	SCOTTO DICARLO, GUISEPPE & VERONICA	101.38	
44	14	3A	112 POLKVILLE RD	SEARS, WESLEY	14.59	
68	8.01	3B	64 KOECK RD	SHIPPS, BRIAN R	3.86	
41	1.02	3B	STATION RD	SHRAMKO, ERIC & BRENDA	5.07	
4	9.01	3B	68 WISHING WELL RD	SICILIANO, ALBERT & LINDA	5.00	
48	15.01	3A	22 WALNUT RD	SIROKY, SANDRA	5.00	
39	1.07	3B	IVAN ROAD	SMARACKO, STELLA	5.17	80.65
7	2.01	3B	44 HEMLOCK RD	SMITH, JOHN H & JEAN M	60.45	
3	20	3B	53 HEMLOCK RD	SMITH, JOHN H & JEAN M	20.20	
4	6	3B	52 WISHING WELL RD	SMITH GUN CLUB C/O MARK ODENHEIMER	6.93	
71	8	3B	44 SEREPTA RD	SMITH, MARY JOAN & DEMERS, DOEKE	77.15	
48	15	3B	28 WALNUT RD	SMITH, NATHAN J & JANIS I	28.89	
4	1	3B	132 MT PLEASANT RD	SNYDER, JOHN E III & CHRISTINE	6.51	
3	62	3B	28 STARLITE HILL RD	SOLAS, ROBERT & STEVEN	50.04	
70	3	3B	16 OSMUN RD	STONE, HARRY	37.20	
44.01	13	3B	150 POLKVILLE RD	STROM, ROB & MARIE C/O KARIN STROM	16.35	
47	12.03	3B	59 LIME KILN RD	SULLIVAN, PAUL J & DAWN K	5.57	
3	11	3B	20 QUARRY RD	TAYLOR FAMILY LTD PARTNERSHIP #1	64.14	275.12
3	12	3B	14 QUARRY RD	TAYLOR FAMILY LTD PARTNERSHIP #1	21.51	
3	69	3B	50 MOUNTAIN RD	TAYLOR FAMILY LTD PARTNERSHIP #1	66.25	
3	7	3B	85 MT PLEASANT RD	TAYLOR FAMILY LTD PARTNERSHIP #1	68.22	
3	7.01	3B	85 MT PLEASANT RD	TAYLOR FAMILY LTD PARTNERSHIP #1	10.00	
3	70	3B	52 MOUNTAIN RD	TAYLOR FAMILY LTD PARTNERSHIP #1	45.00	
3	9	3B	79 MT PLEASANT RD	TAYLOR FAMILY LTD PARTNERSHIP #1	1.32	
12	16	3B	18 SIMPSON RD	TAYLOR FAMILY LTD PARTNERSHIP #2	7.59	45.99
13	14	3B	24 SIMPSON RD	TAYLOR FAMILY LTD PARTNERSHIP #2	38.40	

Inventory Table 1A. Unpreserved Farmland in Knowlton Township (Class 3A, 3B)

*Individual Lot or Single Lot Farm

**Multiple Lot Farm: Collection of Contiguous Lots Comprising a Farm

Block	Lot	Class	Location	Owner's Name	Individual Lot Acres (Tax Data)	Multiple Lot Farm Acres (Tax Data)
3	67.04	3B	MOUNTAIN RD	TAYLOR, CLAYTON	2.98	23.38
3	68	3B	48 MOUNTAIN RD	TAYLOR, CLAYTON	20.40	
3	9.01	3B	75 MT PLEASANT RD	TAYLOR, CLAYTON	8.08	
8	6.02	3B	29 HAINESBURG RIVER RD	THE HUGH J & MARYANN MURRAY FAMILY	23.04	
61	8	3B	10 LIME KILN ROAD	THE SEVERINO LIVING TRUST	10.00	
61	16	3B	90 KNOWLTON RD	TODESCHINI, JEAN L	138.42	
67	4	3B	57 KOECK ROAD	TOSCANO, JOSEPH	7.10	
65	3	3B	58 HONEY RUN RD	TRIPLE BROOK RV&CAMPING RESORT,LLC	20.00	
5	8	3B	63 WISHING WELL RD	TURNER, G CARMEN	11.85	
5	16	3B	444 RTE 94	ULLMAN FAMILY PARTNERSHIP LP	180.92	
28.01	1	3B	601 RTE 94	ULLMAN FAMILY PARTNERSHIP, LP	30.24	32.24
28.01	1.01	3B	615 RTE 94	ULLMAN FAMILY PARTNERSHIP, LP	2.00	
46	2	3B	120 LINABERRY RD	VASS, MARY KATHRYN L & WAYNE	33.48	99.48
47	4	3B	123 LINABERRY RD	VASS, MARY KATHRYN L & WAYNE	66.00	
46.01	1	3B	49 RICH RD	VASS, MARY KATHRYN L & WAYNE	4.63	
69	4.02	3B	56 RAMSEYBURG RD	WDC, LLC	11.10	
47	22	3B	72 DELAWARE RD	WEISS, SYDNEY JR & IRMGARD K	21.07	32.32
48	22	3B	71 DELAWARE RD	WEISS, SYDNEY JR & IRMGARD K	11.25	
5	2	3B	72 MT PLEASANT RD	WENNER, RICHARD D & JUDITH	6.90	
44	16	3B	124 POLKVILLE RD	WILSON, ABIGAIL	8.98	
3	18	3B	24 MOUNTAIN RD	WOLAK, THOMAS E & DEBRA S	21.00	
69	4.04	3B	OSMUN RD	ZOON, EDWARD M SR & JOSEPHINE G	4.50	8.80
69	4.08	3B	OSMUN ROAD	ZOON, EDWARD M SR & JOSEPHINE G	4.30	
69	4.07	3B	OSMUN ROAD	ZOON, EDWARD M SR & JOSEPHINE G	3.75	
3	63.02	3B	112 STONY BROOK RD	ZULLO, CARMEN & ANNMARIE	8.83	
Total (Unpreserved Farmland):					5,712.59	Acres
Number of Multiple Lot Farms:					46	
<i>Note:</i>						
<i>Block 61, Lot 18 the tax data is missing, the GIS acreage is used</i>						

Inventory Table 1B. Preserved Farmland (Class 1, 3A, 3B)

Block	Lot	Class	Location	Owner's Name	Acres (Tax Data)
3	3	3B	131 MT PLEASANT RD	ANDERSON, JOHN E & BROWN, CYNTHIA A	121.03
34	21	3B	401 RTE 94	ARENA, FRANK	33.00
46	3	3B	110 LINABERRY RD	BALDWIN, STEVEN & WYSS, EILEEN	77.40
48	26	3B	37 DELAWARE RD	BROMM, JR, HAROLD/MERIS, DONELEY	66.20
11	10	3B	594 RTE 94	BROOK HOLLOW WINERY REAL EST LLC	10.40
10	6	3B	586 RTE 94	BROOK HOLLOW WINERY, LLC	14.80
41	10	3B	VAIL RD	CDEK, LLC/STAMPONE, SR, EDWARD	38.43
61	10	3B	22 LIME KILN RD	CONTI N G C/O CONTI CONSTRUCTION CO	27.01
61	22	3B	142 KNOWLTON RD	CONTI N G C/O CONTI CONSTRUCTION CO	96.70
61	43	3B	4 DELAWARE RD	CONTI N G C/O CONTI CONSTRUCTION CO	152.20
48	23	3A	59 DELAWARE RD	DELAWARE RIVER TREE FARMS, LLC	64.50
47	15.01	3B	15 LIME KILN RD	DIECIDUE, AGOSTINO & ANTHONY	46.68
47	14	3B	21 LIME KILN RD	DURHOLZ, JAMES & SHERRI	63.28
5	10	3B	52 FROG POND RD	FLITCROFT, DAVID LEE & MARY LOU	163.51
3	15.01	3B	59 HEMLOCK RD	GERARDI, ENZO & FRANCESCA	4.60
7	3.01	3B	64 HEMLOCK RD	GERARDI, ENZO & FRANCESCA	22.08
7	3.02	3B	59 MT PLEASANT RD	GERARDI, ENZO & FRANCESCA	14.28
39	3	3B	113 VAIL RD	GESSIE, GERALD & VERONICA L	29.11
61	12	3B	36 LIME KILN RD	HOFFMAN, DAVID E & KATHLEEN B	106.30
68	28	3B	137 KNOWLTON RD	HURKALA, JOHN & SHANA & H WALTERS	147.50
29	1	3B	12 BRUGLER RD	KERO, JOHN N	35.21
29	1.01	3B	BRUGLER RD	KERO, JOHN N	50.84
47	7	3B	81 LIME KILN RD	KITCHEN, MARK W	29.65
31	11	3B	200 VAIL RD	LALLOUZ/STRIPE/HENSHAW/WHEELER	29.84
44	9	3B	10 KNOWLTON RD	MAKAREVICH, JR, EUGENE	168.89
5	11	3B	42 FROG POND ROAD	MANGINE, JAMES A	3.00
63	1.01	3B	39 AUBLE RD	MANN, HAROLD E & GEYER-MANN, ELAINE	11.56
66	1	3B	5 KOECK RD	MAZZA, JAMES M & STEFANIE L	20.60
61	13	3B	62 LIME KILN RD	PECK, PETER M & THERESA	39.93
71	4	3B	40 RAMSEYBURG RD	RHCL ASSOCIATES LLC	120.00
71	5	3B	28 SEREPTA RD	RHCL ASSOCIATES LLC	196.00
34	25	3B	461 RTE 94	RING, STUART M MD	43.07
47	16	3B	48 DELAWARE RD	RUDDY, FRANK & CAROL	23.60
48	24	3B	51 DELAWARE RD	RUDDY, FRANK & CAROL	36.70
68	29.02	3B	KNOWLTON RD	SMITH, BRETT C & ROBYN J	6.34
47	13	3B	41 LIME KILN RD	TERPSTRA, FRANCES M	108.70
64	1	3B	59 HONEY RUN RD	THE LABARRE FAM LMTD PARTNERSHIP	54.03

Inventory Table 1B. Preserved Farmland (Class 1, 3A, 3B)

Block	Lot	Class	Location	Owner's Name	Acres (Tax Data)
47	13.01	3B	31 LIME KILN RD	THOMAS, MARY M	58.02
6	1.03	3B	51 FROG POND RD	VOKOUN, CRAIG C & NOREEN M	20.54
			Preserved through the Farmland Preservation Program:		2,355.53
			Preserved with a NJDEP Green Acres Easement:		
35	4.01	3B	16 KILL RD	FARBER, RONALD C	2.31
37	3	3B	17 KILL RD	FARBER, RONALD C	35.41
34	23	3B	14 KILL RD	FARBER, RONALD C	11.14
40	3	3B	35 KILL RD	FARBER, RONALD C	24.57
11	9	3B	600 RTE 94	PROVENCHER, ROBERT, JOANNE, DIANE	13.50
12	4	3B	25 STARK RD	PROVENCHER, ROBERT, JOANNE, DIANE	18.90
			Preserved with a Green Acres Easement:		105.83
			Preserved with a Municipal Development Easement:		
7	9.42	3B	16 NORTH TERRACE	FAMA, GREG & LINDA	10.42
			Preserved Farm Assessed Land (Class 3A and 3B):		2,471.78
			<i>Note:</i>		
			<i>Block 3, Lot 3 the tax data is incorrect, the GIS acreage is used</i>		

Inventory Table 2. Targeted Farms in Knowlton Township

Multiple Lot Farms				Lot Data	Farm Data	
Block	Lot	Location	Owner	Acres (Tax Data)	Farm	Acres (Tax Data)
70	5.04	33 SEREPTA RD	ALVERRA CONCEPTS	7.78	Alverra	65.99
70	5.03	31 SEREPTA RD	ALVERRA CONCEPTS INC	9.33		
70	5.05	35 SEREPTA RD	ALVERRA CONCEPTS INC	5.19		
70	5	29 SEREPTA RD	ALVERRA CONCEPTS INC	43.69		
34	18.03	421 RTE 94	BOWMAN, LEWIS W & ERLA MAE	10.01	Bowman	64.39
34	18.02	423 RTE 94	BOWMAN, LEWIS & ERLA MAE	3.00		
34	18	437 RTE 94	BOWMAN, JAMES & JENNIFER	11.91		
34	18.01	425 RTE 94	BOWMAN, ERLA MAE	34.89		
34	18.04	435 RTE 94	BOWMAN, LEWIS W & ERLA MAE	4.58		
68	31	117 KNOWLTON RD	CLIFFORD, SUSIE	77.24	Clifford	96.26
61	17	104 KNOWLTON RD	CLIFFORD, SUSIE	19.02		
45	7	24 CENTERVILLE RD	DELORENZO, JAMES A	8.43	Delorenzo	57.86
45	6	26 CENTERVILLE RD	DELORENZO, JAMES A	49.43		
47	5	107 LINABERRY RD	GUARRACI PIETRO ET AL	125.40	Guarraci	128.40
47	5.04	111 LINABERRY RD	GUARRACI, JOSEPH & ANTOINETTE	3.00		
43	3	26 RICH RD	KARNEY, PAMELA ANN & RICHARD H	111.17	Karney	136.65
46.01	2	25 RICH RD	KARNEY, PAMELA ANN & RICHARD H	25.48		
72	1.03	154 RTE 46	KNOWLTON RIVERSIDE ESTATES INC	6.73	Knowlton Riverside	38.92
72	1.04	RTE 46	KNOWLTON RIVERSIDE ESTATES, INC	6.00		
72	1.05	RTE 46	KNOWLTON RIVERSIDE ESTATES, INC	6.00		
72	1.06	ROUTE 46	KNOWLTON RIVERSIDE ESTATES, INC	20.19		
40	9.06	4 BRIDGE RD	MCNINCH, ROBERT A	3.01	Mcninch	123.01
40	7	130 VAIL RD	MCNINCH, ROBERT & JOAN	85.40		
40	9.10	12 BRIDGE RD	MCNINCH, ROBERT A	3.03		
40	9.11	11 BRIDGE RD	MCNINCH, ROBERT A	3.03		
40	9.07	6 BRIDGE RD	MCNINCH, ROBERT A	3.01		
40	9.01	140 VAIL RD	MCNINCH, ROBERT A	3.03		
40	4	120 VAIL RD	MCNINCH, ROBERT A	13.47		
40	9.08	8 BRIDGE RD	MCNINCH, ROBERT A	3.01		
40	9.09	10 BRIDGE RD	MCNINCH, ROBERT A	3.01		

Inventory Table 2. Targeted Farms in Knowlton Township

Block	Lot	Location	Owner	Acres (Tax Data)	Farm	Acres (Tax Data)	
40	9.05	2 BRIDGE RD	MCNINCH, ROBERT A	3.00			
68	9	54 KOECK RD	MURRAY, DAVID	131.66	Murray	146.30	
68	9.01	54 KOECK RD	MURRAY, DAVID	4.95			
68	9.04	54 KOECK RD	MURRAY, DAVID	2.61			
68	9.05	54 KOECK RD	MURRAY, DAVID	7.08			
62	3	43 KNOWLTON RD	ROGERS, RICHARD D	126.29	Rogers	251.19	
62	11	24 AUBLE RD	ROGERS, RICHARD D SR	58.33			
62	6	29 KNOWLTON RD	ROGERS, RICHARD D	24.00			
62	14	58 AUBLE RD	ROGERS, RICHARD D	39.50			
62	11.01	AUBLE RD	ROGERS, RICHARD D SR	1.38			
62	6.05	CENTERVILLE RD	ROGERS, RICHARD D	1.00			
62	11.03	AUBLE RD	ROGERS, RICHARD D SR	0.69			
28.01	1	601 RTE 94	ULLMAN FAMILY PARTNERSHIP, LP	30.24	Ullman Family	32.24	
28.01	1.01	615 RTE 94	ULLMAN FAMILY PARTNERSHIP, LP	2.00			
47	4	123 LINABERRY RD	VASS, MARY KATHRYN L & WAYNE	66.00	Vass	99.48	
46	2	120 LINABERRY RD	VASS, MARY KATHRYN L & WAYNE	33.48			
					Total Eligible Multiple Lot Farms (Tax Acreage):		1,240.69
							12 Multiple Lot Farms
Single Lot Farms							
Block	Lot	Location	Owner	Acres (Tax)			
71	2.02	16 RAMSEYBURG RD	BAUMANN, CHARLES & ALICE	104.10			
8	2	17 WOODRUFF WAY	CASSER, CLAUDIA	57.10			
62	10	11 CENTERVILLE RD	DEAN, IRVIN W	64.60			
62	6.03	37 CENTERVILLE RD	EGIDIO ANTHONY & CHRISTINE	30.30			
8	6.01	HAINESBURG RIVER RD	HOH, JOHN & SALLIE	29.00			
44	7	13 SHOTWELL RD	LONIE, RICHARD D & MARYLINN T	114.89			
61	15	76 KNOWLTON RD	MATAKITIS, RONALD & ELIZABETH	20.00			
68	10	39 RAMSEYBURG RD	MILLINGTON REALTY LLC	97.70			
71	6	40 SEREPTA RD	MURRAY, GREGORY J & MARJORIE	19.87			

Inventory Table 2. Targeted Farms in Knowlton Township

Block	Lot	Location	Owner	Acres (Tax Data)		
61	19	130 KNOWLTON RD	SCOTTO DICARLO, GUISEPPE & VERONICA	101.38		
71	8	44 SEREPTA RD	SMITH, MARY JOAN & DEMERS, DOEKE	77.15		
8	6.02	29 HAINESBURG RIVER RD	THE HUGH J & MARYANN MURRAY FAMILY	23.04		
61	16	90 KNOWLTON RD	TODESCHINI, JEAN L	138.42		
5	16	444 RTE 94	ULLMAN FAMILY PARTNERSHIP LP	180.92		
			Total Eligible Single Lot Farms (Tax Acreage):	1,058.47		
				14 Single Lot Farms		
			Total Target Farms (Tax Acreage):	2,299.16		
				26 target farms		

Literature Cited

- ¹ New Jersey Division of Taxation, 2019 NJ Farmland Assessment. <https://www.state.nj.us/treasury/taxation/pdf/lpt/2019farmland.pdf>. Accessed January 2021.
- ² United States Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/>. Accessed January 2021.
- ³ United States Department of Agriculture, Natural Resources Conservation Service. Soil Data Access. <https://sdmdataaccess.nrcs.usda.gov/>. Accessed February 2021.
- ⁴ New Jersey Department of Agriculture, State Agriculture Development Committee, 2017 Warren County Agricultural Profile.
- ⁵ United States Department of Agriculture, National Agricultural Statistics Service. 2017 Census of Agriculture – County Data. New Jersey. County Summary Highlights. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/New_Jersey/st34_2_0001_0001.pdf. Accessed January 2021.
- ⁶ United States Department of Agriculture, National Agricultural Statistics Service. 2017 Census of Agriculture. Quick Stats. <http://quickstats.nass.usda.gov>. Accessed January 2021.
- ⁷ U.S. Department of Agriculture. Census of Agriculture. Data available online at: <https://www.nass.usda.gov/AgCensus/index.php>. Accessed March 2021.
- ⁸ Census of Agriculture. 2017
- ⁹ State Agricultural Advisory Committee. Warren County Farmland Assessment 2005-2017. Accessed March 2021.
- ¹⁰ Hackettstown Livestock Auction. About Us. <http://www.hackettstownauction.com/about-us.html>. Accessed March 2021.
- ¹¹ Warren County. News. <https://www.warrencountynj.gov/Home/Components/News/News/164/14>. Accessed October 2021.
- ¹² New Jersey State Development and Redevelopment Plan. March 2001. <https://nj.gov/state/planning/state-plan.shtml>. Accessed June 2020.
- ¹³ Knowlton Township Planning Board. 2008 Comprehensive Farmland Preservation Program. Accessed March 2021.
- ¹⁴ Knowlton Township Planning Board. 2009 Master Plan Re-Examination Report. Accessed March 2021. <http://knowlton-nj.com/master.htm>.

¹⁵ Knowlton Township Planning Board. 2020 Master Plan Re-Examination Report. Accessed March 2021. http://www.knowlton-nj.com/200309_Knowlton_Reexamination_Report.pdf.

¹⁶ Knowlton Township Planning Board. 2003 Master Plan Re-Examination Report. Accessed March 2021.

¹⁷ Knowlton Township. Municipal Code. <https://ecode360.com/29582544>. Accessed February 2021.

¹⁸ Knowlton Township. Historic Commission. Accessed February 2021. <http://historicknowlton.org/>

¹⁹ Natural Systems Utilities. Knowlton, New Jersey. Accessed February 2021. <https://nsuwater.com/portfolio-item/knowlton/>

²⁰ Knowlton Township. 2020 Master Plan Reexamination. Accessed February 2021.

²¹ NJ Herald. <https://www.njherald.com/news/20190308/state-rebuffs-knowlton-on-road-salt-issue>. Accessed June 2021.

²² Personal Communication. Knowlton Township. Adele Starrs, Mayor. June 2021.

²³ Knowlton Township. Land Use Ordinance. <https://ecode360.com/29582544>. Accessed September 2021.

²⁴ Knowlton Township. 2020 Master Plan Reexamination. Accessed February 2021.

²⁵ Warren County. 2017 Farmland Preservation Plan. Accessed February 2021.

²⁶ NJ Department of Labor. “Department of Labor and Workforce Development: Population & Household Estimates.” Department of Labor and Workforce Development | 2019. Accessed February 2021.

²⁷ NJ Department of Labor and Workforce Development. “Building Permits: Yearly Summary Data”. Accessed February 2021. https://nj.gov/labor/lpa/industry/bp/bp_index.html.

²⁸ Warren County. Comprehensive Farmland Preservation Plan Update. 2017.

²⁹ Personal Communication. Rene Mathez and Bob McNinch. August 2021.

³⁰ New Jersey Division of Taxation, 2019 Farmland assessment. <https://www.state.nj.us/treasury/taxation/pdf/lpt/2019farmland.pdf>. Accessed July 2020.

³¹ Personal Communication with Robert Baumley, Deputy Executive Director, State Agriculture Development Committee, August 8, 2008.

³² Personal Communication. Corey Tierney, Warren County Administrator. April 2021.

³³ Personal Communication. Steve Bruder. State Agriculture Development Committee. September 2020.

³⁴ New Jersey Department of Agriculture, State Agriculture Development Committee. Construction of Agricultural Labor Housing. <https://www.nj.gov/agriculture/sadc/farmpreserve/appraisals/Permitted%20Uses%20-%20Part%20IIB.pdf>. Accessed June 2020.

³⁵ Knowlton Code. 19-601. <https://ecode360.com/12615581>. Accessed June 2020.

³⁶ New Jersey Department of Agriculture, State Agriculture Development Committee. House Replacement Guidance Video. https://www.youtube.com/watch?v=tf2Cw_RICn8. Accessed June 2020.

³⁷ State Agriculture Development Committee, New Jersey Farmland Preservation Program Appraiser Handbook. June 22, 2017. <https://www.nj.gov/agriculture/sadc/farmpreserve/appraisals/2017%20Handbook%20as%20adopted%206-22-17%20meeting.pdf>. Accessed June 2020.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Warren County Land Preservation Department. <http://www.co.warren.nj.us/Land%20Preservation%20Dept/index.html>. Accessed May 2021.

⁴¹ Personal Communication. Knowlton Township. Christine Rolef. Chief Financial Officer. June 2021.

⁴² State of New Jersey, Senate No. 2605. https://www.njleg.state.nj.us/2020/Bills/S3000/2605_I1.HTM. Accessed August 16, 2021.

⁴³ State of New Jersey, Senate No. 3484. https://www.njleg.state.nj.us/2020/Bills/S3500/3484_I1.HTM. Accessed August 16, 2021.

⁴⁴ New Jersey Division of Taxation, 2019 Farmland Assessment. <https://www.state.nj.us/treasury/taxation/pdf/lpt/2019farmland.pdf>. Accessed December 4, 2020.

⁴⁵ Personal Communication with Corey Tierney, Warren County Board of Recreation Commissioners. December 11, 2020.

⁴⁶ New Jersey Department of Agriculture. Agricultural Smart Growth Tool Kit “Planning for Agriculture”. <http://www.state.nj.us/agriculture/toolkit.htm>. Accessed December 4, 2020.

⁴⁷ New Jersey Department of Agriculture, 2006 Agricultural Smart Growth Plan. <https://www.state.nj.us/agriculture/smartgrowthplan.pdf>. Accessed December 4, 2020.

-
- ⁴⁸ Warren County. Warren County Agriculture Development Board. <http://www.co.warren.nj.us/Land%20Preservation%20Dept/CADB.html>. Accessed May 18, 2020.
- ⁴⁹ New Jersey Department of Agriculture. 2011 Economic Development Strategies. <http://www.nj.gov/agriculture/pdf/11EcoDevStrategies.pdf>. Accessed December 4, 2020.
- ⁵⁰ New Jersey Farmland Assessment. Warren County Data. Received from Steven Bruder, SADC in March 2020.
- ⁵¹ Jersey Fresh. Retail Partners. <https://findjerseyfresh.com/find/partners/>. Accessed March 26, 2020
- ⁵² SADC. Farmland Assessment Forms. 2020.
- ⁵³ Jersey Fresh. Find Jersey Fresh. <https://findjerseyfresh.com/explore/#findfresh>. Accessed December 4, 2020
- ⁵⁴ Jersey Fresh. Community Supported Garden at Genesis Farm. <https://findjerseyfresh.com/go/community-supported-garden-at-genesis-farm/>. Accessed December 7, 2020
- ⁵⁵ Rutgers New Jersey Agricultural Experiment Station. Agritourism in New Jersey. <https://sustainable-farming.rutgers.edu/agritourism-in-new-jersey/>. Accessed December 7, 2020
- ⁵⁶ New Jersey Skylands. Agritourism in Warren County. <http://www.njskylands.com/fmwarren>. Accessed December 7, 2020.
- ⁵⁷ Natural Jersey. New Jersey Farms and Farm Stands. <http://www.naturaljersey.com/farms-open-to-the-publicfarm-standspick-your-own.html#/>. Accessed December 7, 2020.
- ⁵⁸ Tour de Farm New Jersey. <http://www.tourdefarmnj.com/>. Accessed December 7, 2020.
- ⁵⁹ Warren County Farmers Fair. <http://www.warrencountyfarmersfair.org/>. Accessed December 7, 2020.
- ⁶⁰ GrowNYC. Greenmarket Farmers Markets. <https://www.grownyc.org/greenmarket>. Accessed December 7, 2020.
- ⁶¹ Rutgers New Jersey Agricultural Experiment Station. Ultra-niche Crops. <https://njaes.rutgers.edu/ultra-niche-crops/>. Accessed March 26, 2020.
- ⁶² Rutgers New Jersey Agricultural Experiment Station. Growing Alternative Vegetables and Herb Crops from around the World. <https://sustainable-farming.rutgers.edu/alternative-world-crops/>. Accessed March 26, 2020.
- ⁶³ United States Department of Agriculture National Agricultural Statistic Service. 2017 Census of Agriculture.

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/New_Jersey/st34_2_0002_0002.pdf. Accessed December 7, 2020.

⁶⁴ Jersey Grown. Garden Centers and Nurseries Search Results. <https://www.nj.gov/cgi-bin/agriculture/jerseygrown/gcnsearch.pl?county1=warren>. Accessed December 7, 2020.

⁶⁵ New Jersey Department of Agriculture. List of Currently Certified Nurseries and Dealers. <https://www.nj.gov/agriculture/divisions/pi/pdf/NurseryAndDealerDirectory.pdf>. Accessed December 7, 2020.

⁶⁶ Rutgers New Jersey Agricultural Experiment Station. Sustainable Farming on the Urban Fringe. Growing Alternative Vegetable and Herb Crops from Around the World. <https://sustainable-farming.rutgers.edu/alternative-world-crops/>. Accessed December 7, 2020.

⁶⁷ World Crops for the Northeastern United States. <http://worldcrops.org/>. Accessed December 7, 2020.

⁶⁸ New Jersey State Assembly, 2020-2021 Session. Assembly Bill A585. <https://legiscan.com/NJ/bill/A585/2020>. Accessed December 7, 2020.

⁶⁹ Personal communication with Hank Bignell, Agriculture & Natural Resource Senior Program Coordinator. NJAES-RCE Warren County. March 2021.

⁷⁰ Warren County. Grown In Warren, A Strategic Growth and Planning Report. Accessed March 2020.

⁷¹ United States Department of Agriculture. Agricultural Marketing Service. Do I Need To Be Certified Organic? <https://www.ams.usda.gov/sites/default/files/media/DoINeedTobeCertifiedOrganicFactSheet.pdf>. Accessed December 7, 2020.

⁷² New Jersey Department of Agriculture. New Jersey Equine Advisory Board. Directory of Facilities. 2020. <https://www.jerseyequine.nj.gov/equinefacilities.pdf>. Accessed December 7, 2020.

⁷³ New Jersey Department of the Treasury. Out-of-State Winery License for Direct Ship Wine Sales to New Jersey. <http://www.state.nj.us/treasury/taxation/os-wine-sales.shtml>. Accessed December 7, 2020.

⁷⁴ New Jersey Department of Agriculture. News From the NJDA. July 2014, Volume 2, Issue 4. <http://www.nj.gov/agriculture/pdf/njdanewsletter1407.pdf>. Accessed December 7, 2020.

⁷⁵ LegiScan. New Jersey Assembly Bill 2773. <https://legiscan.com/NJ/bill/A2773/2020>. Accessed December 7, 2020.

⁷⁶ New Jersey Department of Environmental Protection. Spatial Analysis of Wine-Grape Growing in the Warren Hills American Viticultural Area of New Jersey. <http://www.state.nj.us/dep/njgs/pricelst/ofmap/ofm83.pdf>. 2011. Accessed December 7, 2020.

⁷⁷ New Jersey Department of Agriculture. Tourist Oriented Destination Signage (TODS). <http://www.nj.gov/agriculture/home/farmers/todsagritourism.html>. Accessed December 7, 2020.

⁷⁸ Rutgers New Jersey Agricultural Experiment Station. <https://sustainable-farming.rutgers.edu/agritourism-in-new-jersey/>. Accessed April 20, 2020.

⁷⁹ New Jersey Department of Agriculture. State Agriculture Development Committee. Rule Proposals. <http://www.nj.gov/agriculture/sadc/ruleprop/>. Accessed December 7, 2020.

⁸⁰ USDA 2012 Census of Agriculture. Appendix B. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/New_Jersey/njappxb.pdf. Accessed April 20, 2020.

⁸¹ Agritourism Industry Development in New Jersey. Brian J. Schilling. Rutgers. http://www.dvrpc.org/food/pdf/Schilling_AgTourism_2008.pdf. Accessed April 21, 2020.

⁸² New Jersey Department of Agriculture, Jersey Fresh website. <https://findjerseyfresh.com/> Accessed April 21, 2020.

⁸³ Rutgers University of New Jersey Agricultural Experiment Station. Extension Training for Agritourism Development. <http://agritourism.rutgers.edu/training/>. Accessed April 21, 2020.

⁸⁴ New Jersey Department of Agriculture. Jersey Equine. Calendar of Events. <https://www.jerseyequine.nj.gov/equinecal.htm>. Accessed April 21, 2020.

⁸⁵ New Jersey Department of Agriculture. Jersey Equine. Directory of Facilities. <https://www.jerseyequine.nj.gov/equinefacilities.pdf>. Accessed April 21, 2020.

⁸⁶ Visit NJ Farms! <http://www.visitnjfarms.org/>. Accessed April 21, 2020.

⁸⁷ Official Tourism Website of New Jersey. Wineries and Vineyards in New Jersey. <https://www.visitnj.org/nj/outdoors-sport-recreation/farms-orchards>. Accessed April 21, 2020.

⁸⁸ Official Tourism Website of New Jersey. Wineries and Vineyards in New Jersey. <https://www.visitnj.org/nj/attractions/wineries-vineyards>. Accessed April 21, 2020.

⁸⁹ Official Tourism Website of New Jersey. Wineries and Vineyards in New Jersey. <https://www.visitnj.org/nj/events/fairs>. Accessed April 21, 2020.

⁹⁰ New Jersey Skylands. Attractions. <http://www.njskylands.com/dirshop>. Accessed April 21, 2020.

⁹¹ Warren County. Tourism. <http://www.co.warren.nj.us/visitwarren.html>. Accessed April 21, 2020.

⁹² Explore Warren. Farms, Farm Markets, and Pick-Your-Own. <http://www.explorewarren.org/categories/farms>. Accessed April 21, 2020.

-
- ⁹³ New Jersey Farmers' Direct Marketing Association, Inc. Farm Directory. <http://www.njfdma.org/farm-directory.html>. Accessed April 21, 2020.
- ⁹⁴ New Jersey Christmas Tree Growers' Association. <https://njchristmastrees.org/find-a-farm/warren-county/>. Accessed April 21, 2020.
- ⁹⁵ The Farm Institute. About. <http://www.thetrustees.org/places-to-visit/cape-cod-islands/the-farm-institute.html>. Accessed April 21, 2020.
- ⁹⁶ New Jersey Department of Agriculture. Marketing and Development. <http://www.state.nj.us/agriculture/divisions/md/prog/wic.html>. Accessed April 21, 2020.
- ⁹⁷ Rutgers. Sustainable Farming on the Urban Fringe. Agritourism in New Jersey. <http://sustainable-farming.rutgers.edu/agritourism-in-new-jersey/>. Accessed December 8, 2020.
- ⁹⁸ Rutgers New Jersey Agricultural Experiment Station Cooperative Extension. Budgeting for a Corn Maze. <https://njaes.rutgers.edu/e343/>. Accessed December 8, 2020.
- ⁹⁹ Warren County. Grown In Warren, A Strategic Growth and Planning Report. 2019. <https://growninwarren.org/>. Accessed April 2020.
- ¹⁰⁰ Ibid.
- ¹⁰¹ Ibid.
- ¹⁰² New Jersey Department of Labor and Workforce Development. New Jersey's Minimum Wage Postcard. https://www.nj.gov/labor/forms_pdfs/wagehour/minimumwage_postcard.pdf. Accessed December 8, 2020.
- ¹⁰³ New York State Department of Labor. Minimum Wage. <https://labor.ny.gov/workerprotection/laborstandards/workprot/minwage.shtm>. Accessed December 8, 2020.
- ¹⁰⁴ New Jersey Department of Agriculture, Agricultural Economic Development Services. <https://www.nj.gov/agriculture/divisions/md/prog/agricultureconomic.html#top>. Accessed May 12, 2020.
- ¹⁰⁵ New Jersey Department of Agriculture. Farm Link. <https://www.nj.gov/agriculture/sadc/farmlink/>. Accessed April 30, 2020.
- ¹⁰⁶ New Jersey State Agriculture Development Committee. Annual Report For FY2018. <https://www.nj.gov/agriculture/sadc/publications/fy2018AnnualReportFinalWeb.pdf>. Accessed May 18, 2020.
- ¹⁰⁷ New Jersey Department of Agriculture State Agricultural Development Committee. Farm Transfer, Succession, and Retirement Planning. <https://www.nj.gov/agriculture/sadc/farmlink/resources/farmtransition.html>. Accessed May 18, 2020.

-
- ¹⁰⁸ California Farm Link. Farm Succession Guidebook.
<https://www.californiafarmlink.org/resources/farm-succession-guidebook/>. Accessed May 18, 2020.
- ¹⁰⁹ New Jersey Department of Agriculture. State Agriculture Development Committee. New Jersey Farmland Leasing Guidebook.
<https://www.nj.gov/agriculture/sadc/farmlink/resources/leaseguide.pdf>. Accessed April 30, 2020.
- ¹¹⁰ New Jersey Department of Agriculture. State Agriculture Development Committee. Project to Enhance Leasing and Linking Resources.
<http://www.nj.gov/agriculture/sadc/farmlink/resources/leasingproject.html>. Accessed April 30, 2020.
- ¹¹¹ New Jersey Department of Agriculture. State Agriculture Development Committee. Agricultural Mediation Program. Agricultural Mediation Program Handbook.
<http://www.nj.gov/agriculture/sadc/agmediation/handbook.pdf>. Accessed April 30, 2020.
- ¹¹² New Jersey Agricultural Society. New Jersey Agricultural Leadership Development Program (NJALDP). <http://www.njagsociety.org/nj-agricultural-leadership-development-program.html>. Accessed April 30, 2020.
- ¹¹³ Rutgers New Jersey Agricultural Experiment Station. Grow Healthy.
<http://growhealthy.rutgers.edu/>. Accessed December 8, 2020.
- ¹¹⁴ New Jersey State Horticultural Society. <http://www.horticulturalnews.org/advertising.pdf>. Accessed May 12, 2020.
- ¹¹⁵ Community Involved in Sustaining Agriculture. Resources for Farmers. Tipsheets and Resources. <http://www.buylocalfood.org/resources-for-farmers/tipsheets/>. Accessed May 12, 2020.
- ¹¹⁶ New Jersey Department of Agriculture, Marketing and Development. Jersey Fresh.
<http://www.nj.gov/agriculture/divisions/md/prog/jerseyfresh.html>. Accessed December 8, 2020.
- ¹¹⁷ United States Department of Agriculture, National Agricultural Library, Alternative Farming Systems Information Center, Community Supported Agriculture.
<http://www.nal.usda.gov/afsic/pubs/csa/csa.shtml>. Accessed December 8, 2020.
- ¹¹⁸ <http://www.foodshedalliance.org/>
- ¹¹⁹ Rutgers University School of Environmental and Biological Sciences.
<https://sebs.rutgers.edu/>. Accessed May 18, 2020.
- ¹²⁰ Personal communication with Hank Bignell, Agriculture & Natural Resource Senior Program Coordinator. NJAES-RCE Warren County. March 2021.
- ¹²¹ Ibid.

-
- ¹²² Hackettstown Livestock Auction. About Our Auction. <http://www.hackettstownauction.com/about-us.html>. Accessed May 11, 2020.
- ¹²³ Personal communication with Hank Bignell, Agriculture & Natural Resource Senior Program Coordinator. NJAES-RCE Warren County. March 2021.
- ¹²⁴ New Jersey Agricultural Convention. 2020 Resolution #1 Hemp. <https://www.nj.gov/agriculture/conventions/2020/2020%20Resolution%20%201%20-%20Hemp%20FINAL%20FOR%20WEB.pdf>. Accessed May 19, 2020.
- ¹²⁵ Personal communication with Hank Bignell, Agriculture & Natural Resource Senior Program Coordinator. NJAES-RCE Warren County. March 2021.
- ¹²⁶ Foodshed Alliance. Food Hub Feasibility Study For Northern New Jersey. <http://foodshedalliance.org/wp-content/uploads/2018/09/Food-Hub-Report-FINAL.pdf>. Accessed May 18, 2020.
- ¹²⁷ N.J.A.C. 7:13 Flood Hazard Area Control Act Rules. Amended February 2, 2015. http://www.nj.gov/dep/rules/rules/njac7_13.pdf. Accessed December 8, 2020.
- ¹²⁸ Warren County Economic Development Committee. About Us. <http://warrencdev.com/about-us>. Accessed May 14, 2020.
- ¹²⁹ US Department of Agriculture. Grants and Loans. <https://www.usda.gov/topics/farming/grants-and-loans>. Accessed May 18, 2020.
- ¹³⁰ New Jersey Department of Agriculture, Sustainable Agriculture Research and Education (SARE). <https://www.nj.gov/agriculture/grants/sare.html>. Accessed May 12, 2020.
- ¹³¹ New Jersey Department of Agriculture. 2020 Specialty Crop Block Grants. <https://www.nj.gov/agriculture/grants/>. Accessed May 18, 2020.
- ¹³² New Jersey Department of Agriculture State Agriculture Development Committee. Farmland Preservation Programs. <https://www.nj.gov/agriculture/sadc/farmpreserve/programs/>. Accessed May 18, 2020.
- ¹³³ New Jersey Farm Bureau. <https://njfb.org/>. Accessed December 8, 2020.
- ¹³⁴ United States Department of Agriculture, Natural Resources Conservation Service, Information for Farmers. <http://www.nj.nrcs.usda.gov/farmers.html>. Accessed May 2020.
- ¹³⁵ United States Department of Agriculture, Natural Resources Conservation Service New Jersey. <http://www.nj.nrcs.usda.gov/contact/index.html#Hackettstown>. Accessed May 2020.
- ¹³⁶ Personal Communication with Nick Saumweber. USDA Assistant State Conservationist for Field Operations, Somerset State Office. July 2020.

-
- ¹³⁷ New Jersey NRCS Technical Resources. Electronic Field Office Technical Guide (eFOTG). <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/>. Accessed May 2020.
- ¹³⁸ USDA Announces Updated Conservation Practice Standards <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=NRCSEPRD1692218>. Accessed November 2020.
- ¹³⁹ New Jersey Department of Agriculture, Agricultural and Natural Resources. <https://www.nj.gov/agriculture/divisions/anr/nrc/>. Accessed May 2020.
- ¹⁴⁰ Upper Delaware Soil Conservation District, Home Page. <https://www.upperdelawarescd-nj.com/>, Accessed July 2021.
- ¹⁴¹ Cooperative Extension of Warren County. Rutgers New Jersey Agricultural Experiment Station. <https://warren.njaes.rutgers.edu/ag/>. Accessed May 2020.
- ¹⁴² Ibid.
- ¹⁴³ New Jersey Department of Environmental Protection, Division of Parks and Forestry, Private Lands Management Program. http://www.nj.gov/dep/parksandforests/forest/njfs_private_lands_mgt.html. Accessed May 2020.
- ¹⁴⁴ New Jersey Department of Environmental Protection, NJ Forest Service. New Jersey Farmland Assessment. https://www.state.nj.us/dep/parksandforests/forest/njfs_farm_assess.html. Accessed May 2020.
- ¹⁴⁵ New Jersey Treasury, Division of Taxation, N.J.A.C. 18:15-2.7. <https://www.state.nj.us/treasury/taxation/pdf/lpt/regs/reg1815.pdf>. Accessed July 2020.
- ¹⁴⁶ New Jersey Department of Environmental Protection, Division of Parks and Forestry, State Approved Foresters List. <https://www.state.nj.us/dep/parksandforests/forest/ACF.pdf>. Accessed July 2020.
- ¹⁴⁷ New Jersey Division of Taxation, Farmland Assessment, <https://www.state.nj.us/treasury/taxation/pdf/lpt/2019farmland.pdf>. Accessed July 2020.
- ¹⁴⁸ New Jersey Department of Environmental Protection, Division of Fish and Wildlife. https://www.state.nj.us/dep/fgw/habitat_mgt.htm. Accessed May 2020.
- ¹⁴⁹ Personal Communication with Michael Hart, Regional Forester, New Jersey Forest Service, July 2020.
- ¹⁵⁰ New Jersey Department of Environmental Protection, Division of Parks and Forestry. NJ Forest Stewardship Program. http://www.njparksandforests.org/forest/stw_inc_prog.html. Accessed May 2020.
- ¹⁵¹ Personal Communication with Michael Hart, Regional Forester, New Jersey Forest Service, November 2020.

¹⁵² New Jersey Department of Environmental Protection, NJ Forest Service. https://www.state.nj.us/dep/parksandforests/forest/njfs_regional_offices.html. Accessed May 2020.

¹⁵³ NJRC&D. <https://www.northjerseyrcd.org/>. Accessed June 2021.

¹⁵⁴ River Friendly Farm. <https://www.riverfriendlyfarm.org/>. Accessed May 2020.

¹⁵⁵ New Jersey Department of Agriculture, Soil and Water Conservation Grants. <https://www.nj.gov/agriculture/sadc/farmpreserve/grants/>. Accessed May 2020.

¹⁵⁶ New Jersey State Agricultural Development Committee, Farmland Stewardship Deer Fencing Grants. <https://www.nj.gov/agriculture/sadc/publications/deerfencinggrants.pdf>. Accessed June 2020.

¹⁵⁷ United States Department of Agriculture, Conservation Programs Offered In New Jersey, Programs Available in 2020. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/nj/programs/>. Accessed May 2020.

¹⁵⁸ United States Department of Agriculture, Farm Service Agency, 2018 Farm Bill. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/nj/programs/farmbill/>. Accessed May 2020.

¹⁵⁹ United States Department of Agriculture, Economic Research Service. <https://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/crop-commodity-program-provisions-title-i/>. Accessed May 2020.

¹⁶⁰ United States Department of Agriculture, Economic Research Service. <https://www.ers.usda.gov/agriculture-improvement-act-of-2018-highlights-and-implications/crop-commodity-programs/>. Accessed May 2020.

¹⁶¹ United States Department of Agriculture, Economic Research Service. <https://www.ers.usda.gov/agriculture-improvement-act-of-2018-highlights-and-implications/conservation/>. Accessed May 2020.

¹⁶² United States Department of Agriculture, Farm Service Agency. <https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index>. Accessed May 2020.

¹⁶³ State of New Jersey, Department of Agriculture. <https://www.nj.gov/agriculture/divisions/anr/agriassist/crep.html>. Accessed May 2020.

¹⁶⁴ United States Department of Agriculture, NJNRCS. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/nj/programs/financial/equip/>. Accessed May 2020.

¹⁶⁵ Ibid.

¹⁶⁶ Personal Communication with Nick Saumweber. USDA Assistant State Conservationist for Field Operations, Somerset State Office. July 2020.

¹⁶⁷ United States Department of Agriculture, NJNRCS.
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/programs/financial/cig/?cid=nrcs141p2_018671#2018. Accessed March 2021.

¹⁶⁸ United States Department of Agriculture, NJNRCS.
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nj/programs/financial/csp/>. Accessed May 2020.

¹⁶⁹ United States Department of Agriculture, NJNRCS.
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/programs/financial/eqip/?cid=nrcs141p2_018990. Accessed May 2020.

¹⁷⁰ United States Department of Agriculture, NRCS.
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/>. Accessed May 2020.

¹⁷¹ United States Department of Agriculture, NRCS. News Release. Updates to Conservation Easements Strengthens Protection for Farmlands, Grasslands, and Wetlands.
<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/newsroom/releases/?cid=NRCSEPRD1738421>. Accessed February 2021.

¹⁷² United States Department of Agriculture, NRCS,
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/>. Accessed July 2020.

¹⁷³ United States Department of Agriculture, NRCS.
<https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/financial/rcpp/?cid=nrcseprd1459034>. Accessed May 2020.

¹⁷⁴ Warren County Planning Department. Warren County Open Space Plan, 2018.
http://www.co.warren.nj.us/planning/open_space_plan2018.html. Accessed March 2021.

¹⁷⁵ SADC. New Jersey Farmland Assessments. Warren County municipal data. Received March 2020.

¹⁷⁶ University of Nebraska-Lincoln, United States Drought Monitor.
<https://droughtmonitor.unl.edu/Data/Timeseries.aspx>. Accessed July 2020.

¹⁷⁷ New Jersey Farmland Assessment. 2017.

¹⁷⁸ NJAES-RCE. <https://njaes.rutgers.edu/pubs/>. Accessed September 2020.

¹⁷⁹ Office of the New Jersey State Climatologist at Rutgers University. NJ Weather & Climate Network. <http://njweather.org/>. Accessed May 2020.

-
- ¹⁸⁰ USDA, Soil Conservation Service. Agricultural Waste Management Systems. <https://www.wcc.nrcs.usda.gov/ftpref/wntsc/AWM/handbook/ch9.pdf>. Accessed July 2020.
- ¹⁸¹ New Jersey Treasury, Division of Taxation, <https://www.state.nj.us/treasury/taxation/lpt/farmland.shtml>. Accessed July 2020.
- ¹⁸² Personal Communication with Nick Saumweber. USDA Assistant State Conservationist for Field Operations, Somerset State Office. April 2021.
- ¹⁸³ New Jersey Department of Agriculture. Animal Waste Management. <https://www.nj.gov/agriculture/divisions/anr/pdf/animalwastemanagementrule.pdf>. Accessed May 2020.
- ¹⁸⁴ AgChoice. <http://www.ag-choice.com>. Access September 2020.
- ¹⁸⁵ New Jersey Department of Agriculture. Animal Waste Management. <https://www.nj.gov/agriculture/divisions/anr/agriassist/animalwaste.html>. Accessed July 2020.
- ¹⁸⁶ Personal Communication with Nick Saumweber. USDA Assistant State Conservationist for Field Operations, Somerset State Office. April 2021.
- ¹⁸⁷ Warren County Recycling Center. <http://pcfawc.com/recycling/>. Accessed March 2021.
- ¹⁸⁸ Recycling Center of North Jersey. <https://balbienterprises.com/recycling-center>. Accessed March 2021.
- ¹⁸⁹ Warren County District Landfill. <http://www.pcfawc.com/landfill3.htm>. Accessed March 2021.
- ¹⁹⁰ Pollution Control Financing Authority of Warren County. Tire Amnesty Day. <http://www.pcfawc.com/flyers/farmer%20tire%20amnesty%20day%20flyer.pdf>. Accessed May 2020.
- ¹⁹¹ New Jersey Department of Agriculture. Division of Marketing and Development. Programs and Services. Recycling. <https://www.nj.gov/agriculture/divisions/anr/nrc/recycling.html>. Accessed June 2020.
- ¹⁹² P.L.2009 Chapter 13. An Act concerning agriculture and biomass, solar, and wind energy, supplementing P.L.1983, c.32 and amending and supplementing P.L.1983, c.31 and P.L.1964, c.48. <http://www.nj.gov/agriculture/sadc/news/hottopics/solar%20wind%20biomass%20pamphlet%20law.pdf>. Accessed June 2020.
- ¹⁹³ State of New Jersey, Energy Master Plan. <https://www.nj.gov/emp/energy/>. Accessed May 2020.

¹⁹⁴ U.S. Department of Agriculture, Rural Development. <https://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency>. Accessed May 2020.

¹⁹⁵ United States Department of Agriculture, Natural Resources Conservation Service of New Jersey. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/nj/programs/financial/equip/?cid=nrcs141p2_018755. Accessed June 2020.

¹⁹⁶ Personal Communication with Nick Saumweber. USDA Assistant State Conservationist for Field Operations, Somerset State Office. April 2021.

¹⁹⁷ State Agriculture Development Committee. Subchapter 24 in Chapter 76, Solar Energy Generation on Preserved Farms <https://www.nj.gov/agriculture/sadc/ruleprop/SUBCHAPTER%2024%20unofficial%20copy%20solar.pdf> Accessed October 2020.

¹⁹⁸ State Agriculture Development Committee. AMPs for Construction, Installation, Operation and Maintenance of Solar Energy Generation Facilities, Structures and Equipment on Commercial Farms <https://www.nj.gov/agriculture/sadc/rtfprogram/amps/adoptedamps/solar.html> Accessed October 2020.

¹⁹⁹ Personal Communication with Nick Saumweber. USDA Assistant State Conservationist for Field Operations, Somerset State Office. July 2020.

²⁰⁰ New Jersey Board of Public Utilities, NJCEP Combined Heat & Power – Fuel Cell (CHP-FC) Program. https://www.njcleanenergy.com/files/file/FY20%20Program%20Guide_CHP-FC%20Final.pdf. Accessed June 2020.

²⁰¹ Renewableenergyworld.com. Measuring the Potential of Switchgrass Pellets. April 2013. <https://www.renewableenergyworld.com/2013/04/01/measuring-the-potential-of-switchgrass-pellets/>. Accessed June 2020.

²⁰² BioDiesel. <https://www.biodiesel.org/using-biodiesel/finding-biodiesel/retail-locations/retail-map>. Accessed June 2020.

²⁰³ American Biogas Council. <https://americanbiogascouncil.org/>. Accessed June 2020.

²⁰⁴ New Jersey Clean Energy Program. Renewable Energy Incentive Program. <https://www.njcleanenergy.com/renewable-energy/programs/renewable-energy-incentive-program>. Accessed June 2020.

²⁰⁵ New Jersey Clean Energy Program. SREC Registration Program. <https://www.njcleanenergy.com/renewable-energy/programs/solar-renewable-energy-certificates-srec/new-jersey-solar-renewable-energy>. Accessed June 2020.

-
- ²⁰⁶ New Jersey Clean Energy Program. Anemometer Loan Program.
<https://www.njcleanenergy.com/renewable-energy/technologies/wind/small-wind-systems/anemometer-loan-program>. Accessed June 2020.
- ²⁰⁷ New Jersey Clean Energy Program. SmartStart Buildings Program Guide modified 02/02/2021.
<https://www.njcleanenergy.com/files/file/NJSSB/FY21/FY21%20SmartStart%20Buildings%20Program%20Guide%2001%20-%20Ready%20to%20post.pdf>. Accessed March 2021.
- ²⁰⁸ United States Department of Agriculture, Rural Development.
<https://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency>. Accessed June 2020.
- ²⁰⁹ United States Department of Agriculture, Rural Development.
https://www.rd.usda.gov/sites/default/files/fact-sheet/508_RD_FS_RBS_AdvancedBioFuel.pdf. Accessed June 2020.
- ²¹⁰ United States Department of Agriculture, Rural Development.
<https://www.rd.usda.gov/programs-services/biorefinery-renewable-chemical-and-biobased-product-manufacturing-assistance>. Accessed June 2020.
- ²¹¹ New Jersey Department of Agriculture, State Agriculture Development Committee.
<https://www.nj.gov/agriculture/sadc/rtfprogram/>. Accessed June 2020.
- ²¹² New Jersey Department of Agriculture, State Agriculture Development Committee, Right to Farm (RTF) Program: Eligibility Criteria for RTF Act Protection.
<https://www.nj.gov/agriculture/sadc/rtfprogram/eligibility/>. Accessed January 2021.
- ²¹³ New Jersey Department of Agriculture, State Agricultural Development Committee.
<https://www.nj.gov/agriculture/sadc/rtfprogram/amps/adoptedamps/index.html>. Accessed January 2021.
- ²¹⁴ New Jersey Department of Agriculture, State Agriculture Development Committee, Formal Conflict Resolution Process.
<https://www.nj.gov/agriculture/sadc/rtfprogram/conflictres/formal/index.html>. Accessed January 2021.
- ²¹⁵ Knowlton Township Code. Article 50 Ord. No. 97-13. Right to Farm Ordinance.
<https://ecode360.com/29586049>. Accessed March 2021.
- ²¹⁶ Township of Knowlton. Ordinance No. 2021-04: Repeal of Ordinance 11-369.
<http://knowlton-nj.com/March%20,%202021%20public%20session%20meeting%20minutes.pdf>. Accessed August 9, 2021.
- ²¹⁷ SADC Model Ordinance.
<https://www.nj.gov/agriculture/sadc/rtfprogram/resources/modelrtfordinance.pdf>. Accessed January 2021.

-
- ²¹⁸ New Jersey Department of Agriculture, New Jersey’s Farmland Assessment Overview. <https://www.nj.gov/agriculture/divisions/anr/pdf/farmlandassessmentoverview.pdf>. Accessed January 2021.
- ²¹⁹ NJ Division of Taxation Farmland Data Reports. Numbers from 2009 and 2019. <https://www.state.nj.us/treasury/taxation/lpt/farmland.shtml>. Accessed January 2021.
- ²²⁰ New Jersey Department of Agriculture, State Agricultural Development Committee. Farmland Assessment. Tax Years 2009, 2019. <https://www.state.nj.us/treasury/taxation/lpt/farmland.shtml>. Accessed June 2020.
- ²²¹ New Jersey Department of Agriculture, Agricultural Smart Growth Plan 2006. <http://www.state.nj.us/agriculture/pdf/smartgrowthplan.pdf>. Accessed January 2021.
- ²²² New Jersey Farm Bureau. An Overview of Motor Vehicle Statutes & Regulations Impacting New Jersey Farmers. December 2010. <https://njfb.org/wp-content/uploads/2013/07/MotorVehicleBook.pdf>. Accessed June 2020.
- ²²³ Personal communication with Kent Hardmeyer, United States Department of Agriculture, Natural Resources Conservation Service. May 15, 2007 and August 2008.
- ²²⁴ New Jersey Department of Labor and Workforce Development. https://www.nj.gov/labor/wagehour/content/childlabor_RateofPay.html. Accessed June 2020.
- ²²⁵ Personal communication. Marianne Van Deursen, Vice President of Academics at Warren County Community College. February 2021.
- ²²⁶ Northeast Organic Farming Association – New Jersey. <https://nofanj.org/>. Accessed June 2020.
- ²²⁷ Salem County NJAES. <https://salem.njaes.rutgers.edu/contact.html>. Accessed June 2020.
- ²²⁸ New Jersey Department of Agriculture. Training. <https://www.nj.gov/agriculture/grants/training.html>. Accessed June 2020.
- ²²⁹ New Jersey Department of Agriculture. Food, Agriculture, & Natural Resources Education. https://www.jerseyageducation.nj.gov/agriculture/ag_ed/. Accessed June 2020.
- ²³⁰ New Jersey Farm Bureau. Information for Farmers. <https://njfb.org/issues-policies/information-for-farmers/>. Accessed June 2020.
- ²³¹ United States Department of Agriculture. National Agricultural Statistics Service. Quick Stats. <https://quickstats.nass.usda.gov/>. Accessed January 2021.
- ²³² Ibid.

-
- ²³³ United States Department of Agriculture. 2017 Census of Agriculture County Profile. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/New_Jersey/cp34041.pdf. Accessed January 2021.
- ²³⁴ Centenary University. University Catalog 2019-2020. <https://s18945.pcdn.co/wp-content/uploads/2019/09/Catalog-2019-2020-final1.0.pdf>. Accessed June 2020.
- ²³⁵ New Jersey Department of Agriculture. Directory of NJ Ag Food and Natural Resources Education Programs and Related Organizations. https://www.jerseyageducation.nj.gov/agriculture/ag_ed/bulletin/ageddirectory.html#5. Accessed June 2020.
- ²³⁶ New Jersey Office of the Secretary of Higher Education. <https://www.nj.gov/highereducation/ccog.shtml>. Accessed January 2021.
- ²³⁷ New Jersey Department of Agriculture. Agricultural Education. New Jersey FFA Association. http://www.state.nj.us/agriculture/ag_ed/ffa/. Accessed May 14, 2020.
- ²³⁸ National Future Farmers of America Organization. Our Membership. <https://www.ffa.org/our-membership/>. Accessed June 2020.
- ²³⁹ State of New Jersey Department of Agriculture. Agricultural Education. FFA Convention. http://www.nj.gov/agriculture/ag_ed/ffa/convention/ Accessed June 2020.
- ²⁴⁰ New Jersey Department of Agriculture. Directory of NJ Ag Food and Natural Resources Education Programs and Related Organizations. https://www.jerseyageducation.nj.gov/agriculture/ag_ed/bulletin/ageddirectory.html#6. Accessed June 2020.
- ²⁴¹ Personal communication with Jennifeur Wilson, FFA Advisor, North Warren Regional School District. September 2009.
- ²⁴² Rutgers New Jersey Agricultural Extension Station. 4-H Development. <https://warren.njaes.rutgers.edu/4h/>. Accessed June 2020.
- ²⁴³ Warren County 4-H Program. <http://warren4-h.org/>. Accessed May 14, 2020.
- ²⁴⁴ New Jersey Department of Agriculture. Farm Link. <https://www.nj.gov/agriculture/sadc/farmlink/>. Accessed June 2020.
- ²⁴⁵ NJ Land Link. <https://www.njlandlink.org/>. Accessed June 2020.
- ²⁴⁶ Rutgers New Jersey Agricultural Experiment Station. Perimeter Planning for Pest Management. <https://njaes.rutgers.edu/organic/perimeter-planting.php>. Accessed June 2020.
- ²⁴⁷ Rutgers: New Jersey Agricultural Experiment Station. Spotted Lanternfly. <https://njaes.rutgers.edu/spotted-lanternfly/#:~:text=In%20the%20USA%2C%20spotted%20lanternfly,Jersey%20crops%20and%>

20hardwood%20trees.&text=New%20Jersey%20populations%20were%20first,the%20state's%20border%20with%20Pennsylvania. Accessed March 2021.

²⁴⁸ New Jersey Department of Agriculture, Division of Plant Industry, Programs. <http://www.state.nj.us/agriculture/divisions/pi/prog/>. Accessed June 2020.

²⁴⁹ New Jersey Department of Agriculture. New Jersey Gypsy Moth Aerial Defoliation Survey, 2017. <https://www.nj.gov/agriculture/divisions/pi/pdf/2017%20NJ%20GM%20Aerial%20Defoliation%20Survey.pdf>. Accessed June 2020.

²⁵⁰ 2018 Farm Bill Primer: Rural Development Programs. <https://crsreports.congress.gov/product/pdf/IF/IF11225>. Accessed June 2020.

²⁵¹ United States Department of Agriculture, Rural Development. <https://www.rd.usda.gov/>. Accessed June 2020.

²⁵² Census Reporter. <https://censusreporter.org/profiles/06000US3404137320-knowlton-township-warren-county-nj/>. Accessed June 2021.

²⁵³ United States Department of the Treasury, Internal Revenue Service, Income Averaging for Farmers. https://www.irs.gov/publications/p225#en_US_2019_publink1000217859. Accessed June 2020.

²⁵⁴ United States Department of Agriculture, Farm Service Agency. <https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/beginning-farmers-and-ranchers-loans/index>. Accessed June 2020.

²⁵⁵ United States Department of Agriculture, Service Center Locator. <https://offices.sc.egov.usda.gov/locator/app?service=action/1/ServiceCenterSummary/4/agencyToOfficeLink>. Accessed June 2020.

²⁵⁶ United States Department of Agriculture, Farm Service Agency, Farm Loan Programs, Background. <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=landing>. Accessed June 2020.