
Town of Middletown

Comprehensive Plan

*The **Institute for Public Administration Institute** links the research and resources of the University of Delaware with the management and information needs of local, state, and regional governments in the Delaware Valley. The Institute provides assistance to agencies and local governments through direct staff assistance and research projects as well as training programs and policy forums. The Institute for Public Administration is located on the University's Newark Campus in 180 Graham Hall. Jerome Lewis is the director of the Institute, he can be contacted at (302) 831-8971.*



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Adoption Resolution

The Mayor and Council of Middletown
216 N. Broad Street
Middletown, Delaware 19709

Resolution

WHEREAS, Title 22 of the Delaware Code empowers municipalities to make a comprehensive plan for the development of the town; AND

WHEREAS, the Town applied for and was awarded a grant from the Limited Pool of the Infrastructure Planning Account by the Cabinet Committee on State Planning Issues; AND

WHEREAS, The Mayor and Council of Middletown have recently completed an update and revision of their 1974 Comprehensive Plan;

NOW THEREFORE, BE IT RESOLVED by The Mayor and Council of Middletown hereby adopts this Comprehensive Plan, a copy of which is attached to and made a part of this resolution.

Adopted this 6th day of April, 1998
The Mayor and Council of Middletown
Town of Middletown
New Castle County, Delaware

Mayor Kenneth Branner, Jr.

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Town, County & State Officials

Town of Middletown

Mayor and Council

Kenneth L. Branner, Jr., *Mayor*
C. Alan Douglas, *Council Member*
Catherine J. Kelly, *Council Member*
James L. Reynolds, *Council Member*
Austin E. Waters, *Council Member*

Planning and Zoning Committee

Franklin Bailey, *Commission Member*
Trent A. Camp, *Commission Member*
Donald Dilbert, *Commission Member*
Jason Faulkner, *Commission Member*
Robert Hutchinson, *Commission Member*
Lynda Lambert, *Commission Member*
Charles Roberts, *Commission Member*
George Schreppler, Jr., *Commission Member*
John Sparks, III, *Commission Member*
Loyre Thomas, *Commission Member*

Board of Adjustments

Robert McDowell, *Chair*
Harvey Carney, *Board Member*
Robert Pierce, *Board Member*
Charles Schreppler, *Board Member*
Donald Wilson, *Board Member*

Subdivision Review Committee

Franklin Bailey, *Committee Member*
Morris Deputy, *Committee Member*
C. Alan Douglas, *Committee Member*
Joseph Enrico, *Committee Member*
Jason Faulkner, *Committee Member*
Ed Mortenson, *Committee Member*

Town Attorney

Robert Daily

Town Staff

Joseph Enrico, *Town Manager*
Nancy R. Hitch, *Town Clerk*

New Castle County

County Council

Stephanie L. Hansen, *President*
Robert S. Weiner, *Council Member*
Richard C. Cecil, *Council Member*
Joseph E. Miro, *Council Member*
Penrose Hollins, *Council Member*
Karen Venezky, *Council Member*
J. Christopher Roberts, *Council Member*

County Executive

Thomas P. Gordon

Department of Planning

Edward J. O'Donnell, AICP, *Manager, Land Use Department*

State of Delaware

Senate

James T. Vaughn

House of Representatives

Oakley M. Banning Jr. (deceased)

Cabinet Committee on State Planning Issues

Jeffrey Bullock, *Chair*
Anne P. Canby, *Secretary, Department of Transportation*
John C. Carney, Jr., *Secretary, Department of Finance*
Robert W. Coy, Jr, *Director, Delaware Economic Development Office*
Susan A. Frank, *Director, Delaware State Housing Authority*
Karen L. Johnson, *Secretary, Department of Public Safety*
Dr. Iris Metts, *Secretary, Department of Education*
Carmen R. Nazario, *Secretary, Department of Health and Social Services*
Peter M. Ross, *Director, Office of the Budget*
John F. Tarburton, *Secretary, Department of Agriculture*
Christophe A.G. Tulou, *Secretary, Department Natural Resources and Environmental Control*

State Planning Coordinator

David S. Hugg III, AICP

Institute for Public Administration, College of Human Resources, Education, and Public Policy

This plan was prepared by the Institute for Public Administration of the College of Human Resources, Education, and Public Policy at the University of Delaware. The Institute links the research and resources of the University of Delaware with the management and information needs of local, state, and regional governments in the Delaware Valley. The Institute provides assistance to agencies and local governments through direct staff assistance and research projects as well as training programs and policy forums.

Jerome R. Lewis is the director of the Institute. Alexander M. Settles served as project planner, developed the maps in the plan, and coordinated the efforts of the staff and was the Institute liaison with officials and staff from the Town of Middletown. Linda Raab, AICP, a consultant to the Institute, served as an advisor. Graduate Research Assistants who worked on the plan were Julie Darsie, Lisa McKenzie and Deborah Norman. David Racca, assistant policy scientist with the Center for Applied Demography and Survey Research at the College, provided technical advice, data resources, and maintained the system for the development of the maps on the Center for Applied Demography and Survey Research Geographic Information System. Stephanie Gropp and Pamela Belmont assisted the layout, design, and production of the plan document.

Institute Director

Jerome R. Lewis, Ph.D.

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Stephanie S. Gropp, *Research Associate*

Pamela Belmont, *Student Assistant*

Summary of the Planning Process

The process for the development of an updated comprehensive plan for the Town of Middletown is described below:

Draft - This document will be formally presented to the Planning Commission and Mayor and Council at public hearing. The preliminary draft will consist of the background study contained, recommendations for future land use and annexation proposals, and an intergovernmental coordination policy for land use, infrastructure and development. The preliminary draft will be available for review by the public and will be submitted to the State of Delaware for review through the Land Use Planning Act procedures.

Adopted and Approved Comprehensive Plan - Once the comprehensive plan has been adopted by the Mayor and Council an Adopted and Approved Comprehensive Plan shall be issued. This document shall serve as a guide for making land use, development, and infrastructure decisions by the Planning Commission and the Mayor and Town Council.

Community Involvement

Public Workshop

A public workshop was held on June 5, 1997 to inform the residents of Middletown about the process of updating the comprehensive plan for Middletown. The public workshop was conducted by staff from the Institute for Public Administration in conjunction with the Mayor and Town Council. The workshop was held to provide a process to update the residents of the town on the planning process and serve as a forum in which residents of Middletown can voice their opinions about shaping the future of their town.

Public Hearing

An update on the planning process was provided at the August 4, 1997 regular meeting of the Mayor and Town Council. An opportunity for public input was provided at the meeting. Copies of the Draft Plan were provided for the public prior to the September 8, 1997 regular meeting of the Mayor and Council.

A final public hearing was held at the October 6, 1997 meeting of the Mayor and Town Council. The Adopted and Approved Comprehensive Plan includes a record of the adoption and approval of the plan and the resolution which approves the Plan.

Intergovernmental Coordination

The town of Middletown has recognized that intergovernmental coordination is essential to its planning process. The coordination of town, county and state plans and actions in the southern New Castle County region will have a direct impact on the well being and quality of life for all Middletown residents. Therefore an aggressive intergovernmental coordination process has been undertaken by the Institute under the direction of the Mayor and Council of the town of Middletown.

Intergovernmental coordination has been incorporated into all facets of the planning process. Background information and information concerning current projects has been collected from county and state agencies. Town officials and Institute staff have met with state, county, and regional governments to ensure intergovernmental coordination during the planning process. Town officials have met within the past year with a wide range of state and county agency staff both independently and under the auspices of the Delaware Office of State Planning Coordination.

The completion of the plan update will require additional intergovernmental coordination. Copies of the draft of the comprehensive plan update were distributed to New Castle County, surrounding municipalities, the Wilmington Area Metropolitan Planning Council, and to state agencies through the Land Use Planning Act process.

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Executive Summary

The Draft of the 1997 Comprehensive Development Plan Update for the town of Middletown provides vision for the future for Middletown and serves as a guide for growth and development within Middletown and surrounding areas. The plan update delineates the recognition by Middletown of the regional context of growth and development decisions in southern New Castle County. This plan serves as an update of the New Castle County prepared 1974 Middletown Comprehensive Development Plan. Portions of the 1974 plan have been incorporated into the update. Middletown has reached a crucial point in its history and the plan describes the current conditions and recommends a series of measures that will aid in guiding development and providing for long run sustainable development while maintaining a superior quality of life for the residents of Middletown.

New Castle County, in the 1996 Comprehensive Development Plan Update, recognized the intense development pressure and proposed a series of implementation tools to guide development, especially in southern New Castle County. Middletown has delineated an area of concern surrounding the existing municipal limits within which the town will want to coordinate land use decisions with New Castle County.

The Middletown Plan specifies a series of strategies and tools to manage the timing, location, and character of growth while providing for adequate public facilities to support that development. These strategies and tools will allow Middletown to maintain a high quality of life through the provision of adequate public facilities and a mix of residential, commercial, and employment opportunities to its residents.

The major strategies and tools are the following:

Adoption of a Future Growth and Annexation Policy. Annexation is a crucial component of growth and development of Middletown. The plan recommends that Middletown be the focus for growth in southern New Castle County, therefore an important part of implementing the plan will be adoption of a clear policy on how to handle that growth. The provision of employment centers for residents of Middletown and southern New Castle County will become increasingly important as residential development occurs. Annexation will provide opportunities for high density and compact residential development patterns and the development of manufacturing, fabrication, and office park campuses. Through negotiation with the county, this policy will decrease the uncertainty of the development and provide for the concentration of development within a municipality with public water and wastewater infrastructure and other public services.

Adoption of a Future Land Use Policy.

There are over 1400 acres of undeveloped land within the 1997 Middletown corporate limits. Middletown already has the tools of sunset zoning and sunset subdivision and therefore the existing zoning and subdivision plans must be acted upon within a specified limit or the rezoning or subdivision expires. Under these regulations Middletown can change the zoning classification or subdivision plans to meet the recommendations of the updated Middletown Plan and specifically the Future Land Use Policy element. The plan recommends, where appropriate, to sunset the existing development plans and revise the character of development in accordance with the plan recommendations concerning open space provision, mix of uses and improved architectural and mobility friendly design standards.

Adoption of an Intergovernmental Coordination Policy.

The coordination of land use decisions between the town and county and the coordination of infrastructure investments between the town, school district, county, and state are vitally important to the long term quality of life and financial health of Middletown. As part of the growth and annexation policy and recommended future land uses, an important element will be the designation of an intergovernmental planning and development area. Through negotiations with the county and state, the town will adopt an area for intergovernmental coordination and plan for future land uses and infrastructure to meet the needs of development.

Revision of the Zoning Code and Subdivision Ordinances.

The achievement of many of the goals outlined in the plan, including flexibility, mobility, mix of land uses, and development of employment centers, will require a revision of the Zoning Code and Subdivision Ordinances. The addition of zoning districts and changes in the standards in the subdivision code will be needed to affect the type and character of development within Middletown.

Adoption of an Economic Development Policy.

The diversification of the economic base for Middletown will become increasingly important as development occurs. Appropriate economic development in the town will provide for an enhanced property tax and user fee base for the town of Middletown and the Appoquinimink School District to be used for the provision of public facilities. The expansion of the existing industrial park and the provision for office campus sites within the corporate limits of Middletown will provide the opportunity to site new businesses in Middletown.

Adoption of an Adequate Public Facilities Policy.

Middletown will ensure the provision of adequate public facilities through the rededication to a formal policy which regulates the review and approval of specific development proposals. Middletown will evaluate development approvals based on existing or planned infrastructure to determine the ability of the town to meet the public facilities demand. Major employment centers would be able to receive pre-approval to provide for flexibility to ensure opportunities for economic development.

Development and Implementation of a Mutli-Modal Long Range Transportation Plan for the State Route 299 Corridor.

The town of Middletown recognizes the importance of the SR 299 corridor due to investment in SR 1 and potential investment in the realignment of US 301. The character and capacity of the SR 299 corridor will directly effect the future development of Middletown. Middletown will work with the WILMAPCO, New Castle County and the Delaware Department of Transportation to develop a long range plan linked to land use that will preserve SR 299 and provide additional alternatives for regional traffic.

Introduction

The town of Middletown has reached a crossroads in its history. The traditional small town structure of Middletown, which has been the basis for the community for decades, has been and will continue to be affected by the rapid growth in southern New Castle County. The suburbanization of southern New Castle County has placed increasing demands on Middletown for services and infrastructure as people move south of the Chesapeake and Delaware Canal.

Statement of Purpose

The 1997 Comprehensive Development Plan Update for Middletown is a statement of the principles and criteria that will be used to evaluate both public and private proposals for development and growth, including land use decisions and public facilities investments. The comprehensive planning project forms the guide for land use regulation decision, annexations and public investments in infrastructure and services. The plan has been developed to provide a general framework for the decision making process of the town of Middletown. The plan is intended to be used and modified as conditions and demands change.

The purpose of the plan is to provide the following:

- ★ a comprehensive view of development throughout Middletown and adjoining areas;
- ★ a long range view of development and infrastructure issues due to the 25 year time frame;
- ★ a basis for making annexation, zoning, and subdivision decisions;
- ★ a guide for planning capital improvements and public services;
- ★ a tool to coordinate decisions involving public, private, county, regional, and state interests.

Statement of Need

The increasing growth and development activity in New Castle County south of the Chesapeake and Delaware Canal presents the town of Middletown with many concerns. The conversion of land from agriculture uses to low density residential has increasingly occurred throughout southern New Castle County during the past decade. The expansion of Public Water Service Areas in southern New Castle County during that time period has allowed for low density residential development in the Summit Bridge and Boyd's Corner regions. The development that has occurred within Middletown, in contrast, has been at higher densities due to the availability of public utilities, such as central sewer and public water provided by the town.

The town faces two major long term development issues in the coming years. The first concern involves the development of large parcels over 30 acres, within the town limits. These parcels have been annexed as recently as 1996 and as long ago as the early 1970s. The public facility limitations and lack of development demand has limited the conversion of these parcels until recent times. The most recent development, Greenlawn, involves a parcel that was annexed in 1967 and had only been developed in minor portions prior to recent years. The development of parcels within Middletown has occurred at sporadic intervals and involves the greater regional marketplace.

The second concern involves the county and state wide issue of where development will be directed in southern New Castle County. The plan recommends that Middletown be the primary focus of growth in southern New Castle County. Coordination of state, county and town decisions will be necessary to reach the goal of concentration development in the town. The state has recently invested substantially in transportation infrastructure through construction of SR 1 in this region and allowed investor owned water utilities to expand services areas substantially thereby opening up new areas for development. The State has also worked with the County to develop a plan for possible wastewater treatment in the region which would further reinforce the current pattern of scattered development.

Middletown has recognized the need to develop sound public policies and investment decisions are needed to prepare the town for the next twenty five years. The size, character, and fiscal viability of the town will depend the decisions made concerning when and how to stage development within the town. In addition, Middletown faces the end of the rural setting that has dominated its history through the development of southern New Castle County.

Planning Principles

The following planning principles form the basis for the 1997 Comprehensive Plan Update for the town of Middletown. The principles have been included to provide a guide for land use and infrastructure investment decisions.

Comprehensive planning should take place for all large parcels of vacant land currently within the corporate limits or proposed for annexation. The evaluation of plans or proposals for vacant land should include an analysis of how these parcels will be incorporated into the community fabric of the town of Middletown. These plans should ensure that adequate public facilities and services be available and that natural features are protected and incorporated into existing natural lands, parks and greenways.

The protection and maintenance of the internal transportation system will become crucial as development and growth occurs. The existing grid network provides a variety of road, pedestrian, and bike routes that interconnect the various parts of Middletown internally and to the major transportation corridors. As properties are developed road, pedestrian, bikeway, and transit connections should be developed. Alternative routes will relieve the expected pressure at the intersection of Broad and Main Streets.

A mix of residential development similar to the current diversity of housing types within Middletown should be preserved when proposals for new development are submitted. While individual projects may not be able to meet the current mix of residential types, on the whole, a range of housing opportunities will be crucial to maintaining a viable community. A mix of affordable, moderate, and high end housing should be developed to provide housing opportunities to a wide range of income levels.

The preservation of a mix of commercial uses which are distributed throughout the town should be maintained. A key component of maintaining a strong community will be the preservation of the downtown commercial district and the establishment of neighborhood commercial uses within major new developments.

The town of Middletown continues to be concerned about the timing and quantity of growth in southern New Castle County. Substantial residential development has already occurred and an initiative to bring a major employment center to southern New Castle County has been started. The pattern of development due to the increases in population, housing units, and employment will have a dramatic effect on southern New Castle County and especially on Middletown, its largest municipality. Therefore the town will strive to work with other municipalities, the county and state agencies to maintain compatible development in areas near or adjacent to the town and to serve as a center for compact and fully served growth.

Open space, park land, active recreation areas, and greenways are important components of the quality of life for Middletown residents. The town will strive to balance the need for active recreation areas and the preservation of natural lands. The preservation of natural resources will provide open space and serve as management areas for storm water run off.

The provision of adequate public facilities, such as wastewater management, drinking water, electricity, police services, and other public services maintains the high quality of life of Middletown residents. The town will continue to provide public facilities in a cost effective and equitable manner.

The Authority to Plan

The preparation of a comprehensive development plan is the legal responsibility of the town of Middletown planning commission under Delaware enabling legislation. Title 22 of the Delaware Code Chapter 7 Section 702 specifies that "[a] planning commission established in any incorporated city or town under this chapter shall make a comprehensive development plan for the development of the entire area of such city or town or of such part or parts thereof as said commission may deem advisable."

Section 702 also establishes the contents of such a comprehensive development plan as the following:

"Such comprehensive development plan shall show, among other things, existing proposed public ways streets bridges, tunnels, viaducts, parks, parkways, playgrounds, sites for public buildings and structures, pierhead and bulkhead lines, waterways, routes of railroads and buses, locations of sewers, water mains and other public utilities, and other appurtenances of such a plan including certain private ways."

Section 703 provides additional legal authority for the planning commission as stated:

"The planning commission shall have the full power and authority to make such investigations, maps and reports of the resources, possibilities and needs of the city or town as it deems desirable..."

In February of 1996, the Mayor and Council of the town of Middletown received a Limited Funding Pool of the Infrastructure Planning Assistance Fund grant from the Governors' Cabinet Committee on State Planing Issues. The following excerpts from the grant application define the requirements for the grant:

"The grant recipient, as part of its scope of work, will be expected to recognize and comment on the State's "Shaping Delaware's Future" goals and describe the implications of those goals on local growth policies and the municipal development strategy. The comprehensive plan or municipal development strategy needs to relate the Shaping Delaware's Future goals to the vision developed by the municipality in the planning process.

"The preparation of a municipal development strategy, the updating of an existing comprehensive plan, or the preparation of a comprehensive plan must demonstrate inter-governmental and intra-governmental coordination, including the involvement of public works, police, fire and other public service entities whether public or private. This requirement can be satisfied with the submission of a letter from the respective agency which includes a statement concerning the involvement and consultation of the agency or government in the planning process.

This requirement is meant to demonstrate a coordinated process and is not intended to impeded the planning process. The municipal development strategy or comprehensive plan must be developed in a coordinated fashion while representing the wishes of the residents of the municipality."

Recent Annexation and Development

The pattern of development experienced in Middletown during the past thirty years reflects the increasing suburbanization of New Castle County south of Route 40. New Castle County has on a whole experienced increasingly suburban growth since the 1940s. The development began in the Brandywine Hundred area of northern New Castle County and spread to the south and west of Wilmington. Since the 1970s development has move towards southern New Castle County. The 1988 New Castle County Comprehensive Development Plan indicated that the largest magnitude of housing unit growth between 1985 and 1995 and between 1985 and 2010 would occur in the Central Pencader area. The land use maps contained in the 1988 plan indicate low density residential development, 1 to 3 dwelling units per acre, for the area just north of the canal.

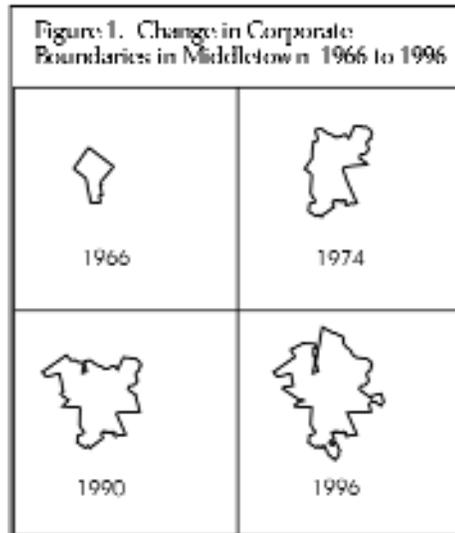
The 1996 New Castle County Comprehensive Development Plan Update Draft reinforced the southern movement of development through the identification of growth areas in the Central Pencader and Churchman's Crossing areas. The draft plan indicated a development area in the northwest portion of the study area where development has already taken place. The present boundaries of Middletown are included within the county's generalized development zone.

The town of Middletown has developed in three basic stages. Up until the 1960s Middletown served as an agricultural center where the agricultural industry was the primary commerce in the town. After the 1960s Middletown experienced a wave of growth based on the development and expansion of industry in Middletown and the trend toward ex-urban housing construction. The current phase of development, which Middletown has entered, depends on a county wide housing market trend toward low density housing development.

Development in southern New Castle County, during the previous decade, has tended to be low density residential with either well water and septic systems or public water and septic systems. Investor owned public water suppliers have, during the period from 1990 to 1996, substantially expanded the operation of public water systems and the acquisition of Certificates of Public Need and Convenience for public water in southern New Castle County.

Middletown has grown through annexation in the previous twenty years. The pattern of this growth indicates the expansion of the town toward the east, north and west. Figure 1. Growth in Middletown

documents the expansion of the town over time. The set of annexations that occurred between 1966 and 1974 involved properties in the south of the town which have become detached single family homes and properties to the north and west of town which have become sites for commercial and industrial uses. This set of annexations include properties which have recently been developed.



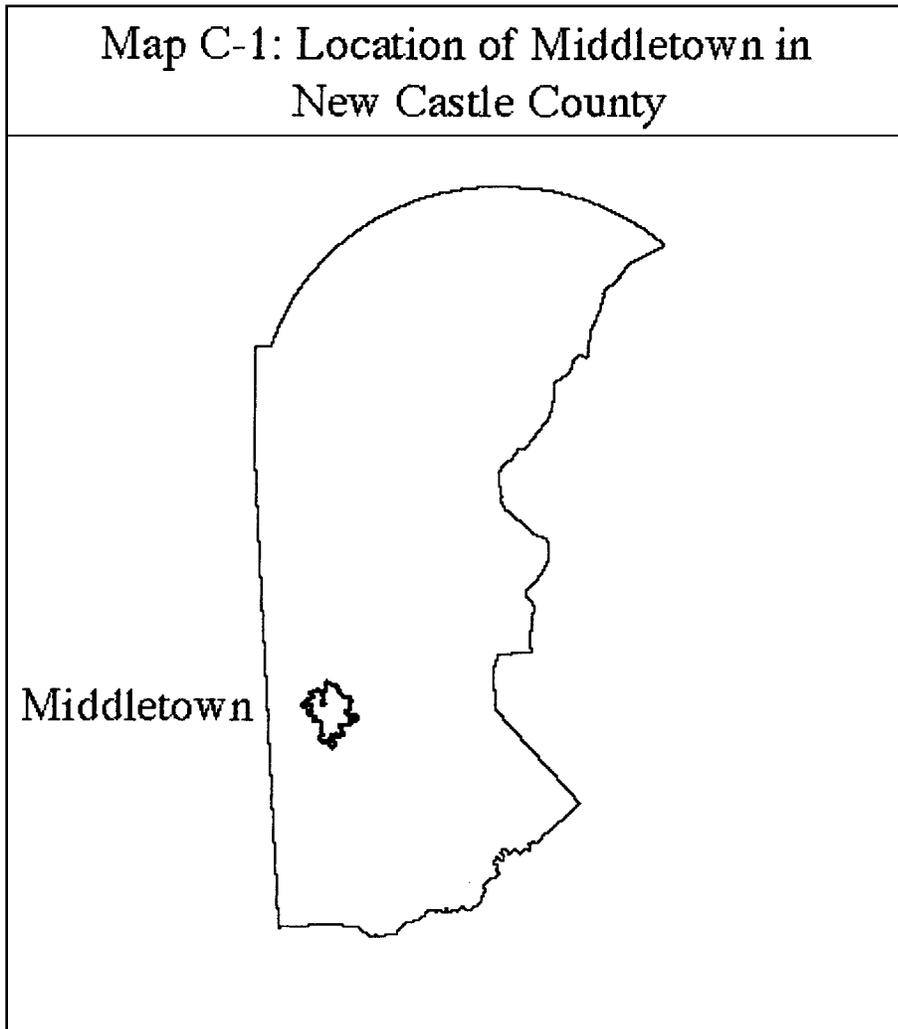
The pattern of annexation also demonstrates the infrequent nature of annexation by the town of Middletown. The period June 1966 to August 1971 resulted in the annexation of nine properties which consisted of 971 acres of land. The majority of this annexed land has remained vacant until the last five years. Notable expectations included the industrial park just west of the railroad line and south of Route 299 and the property that includes the Silver Lake Elementary School and nearby residential development south of Berkman Street.

The completion of the New Castle County Wastewater Treatment Plant at Odessa has expanded the capacity for Middletown to grow and develop. Middletown has grown by approximately 1400 acres since 1987 through annexation. During that same period nearly 570 acres of land either within the town or recently annexed has been rezoned to meet the changing market demand for potential uses. This annexation, rezoning, and subdivision has produced a potential for approximately 4,000 housing units that can be built in Middletown.

The development activity in southern New Castle County has been the focus of state wide concern. The future completion of the State Route 1 will be the largest state investment in highway capacity in the State for years to come. The possible investment through US Route 301 will provide additional highway capacity which will increase the direct connection between Middletown and the eastern shore of Maryland. These two transportation routes reduce the time-distance to employment centers which will allow households to move to Middletown and surrounding areas.

Location

Middletown is located in southern New Castle County, Delaware. US Route 301 bisects the town east and west and State Route 299 bisects it north and south. The Appoquinimink Creek forms the southern boundary. Middletown is the largest town south of the Chesapeake and Delaware Canal in New Castle County. The areas to the west and south are primarily in agricultural uses. The areas to the north and east are still primarily in agricultural uses but are increasing under development pressure as suburbanization has crossed the Chesapeake and Delaware Canal. Map C-1: Location of Middletown places Middletown in New Castle County.

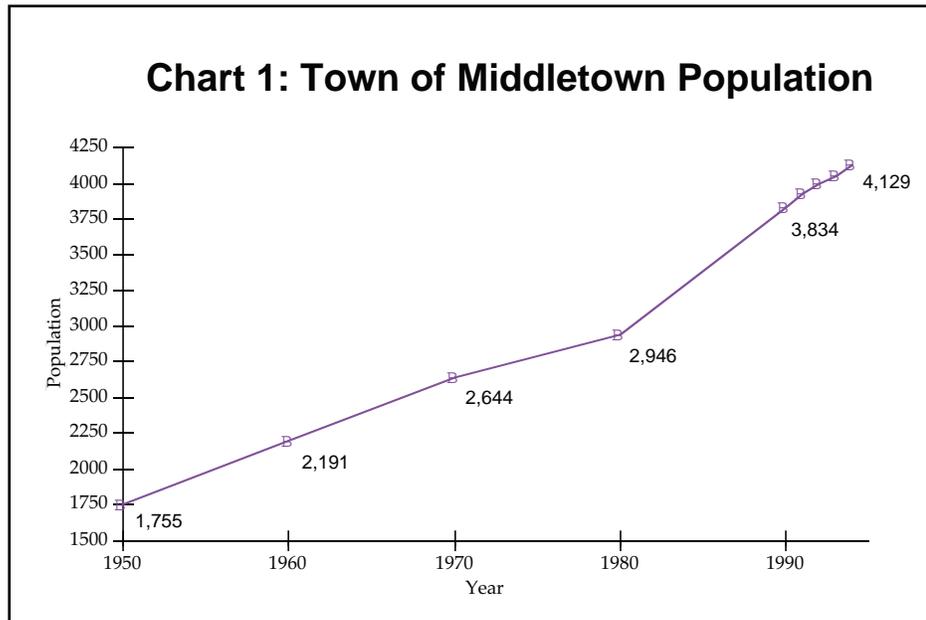


Community Profile

The Middletown community profile was developed using data from a number of sources. The Delaware Health Statistics Center in the Delaware Department of Health and Social Services provided the 1990 census profile for the town of Middletown. Additional information was obtained from the 1980 US Census, Middletown's 1974 Comprehensive Development Plan, and the 1988 Comprehensive Development Plan and 1996 Comprehensive Development Plan Update for New Castle County.

Population and Households

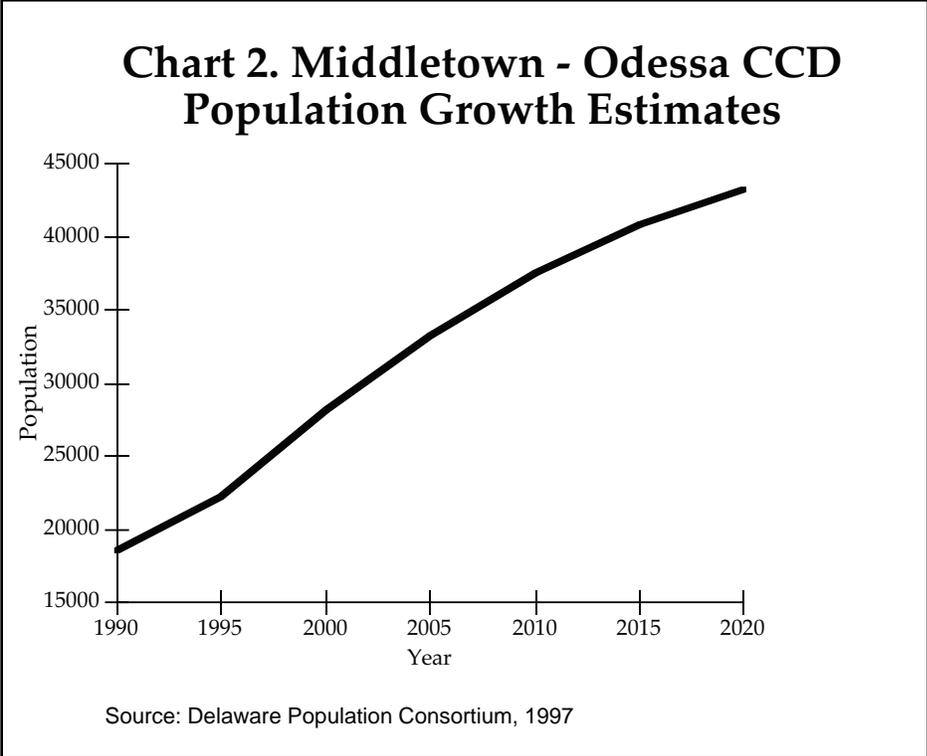
Chart 1 tracks the population of Middletown from 1950 to 1990 with estimates from 1991 to 1994. Middletown grew the fastest from 1980 to 1990 by adding 888 new residents, a gain of 23 percent. The size of Middletown grew at a rate of approximately 20 percent during the 1950 to 1960 post-World War II years.



The Middletown-Odesa Census County Division (CCD), which Middletown is located within, is projected to grow from the 1990 level of 18,578 residents and 6,210 dwelling units to 43,232 residents and 15,874 dwelling units by the year 2020. The projected growth of approximately 133 percent translates into a 5.3 percent yearly population growth rate during the 25 year time period. From the period 1990 to 1995 an estimated 3,656 persons moved into the Middletown-Odesa Census County Division.

Chart 2 describes the projected growth in population in the Middletown - Odesa CCD over the next 25 years. The projections were developed by the Delaware Population Consortium. The counties are required to

use these projection as part of the development of the county updates to their respective comprehensive plans. The 1997 projections for the Middletown - Odessa CCD are greater than the 1996 projections which reflect the shift in projected population growth in New Castle County from the Central Pencader area to southern New Castle County due to market forces and projected public facility investment to support more growth north of the C & D Canal.



The increase in the number of residents in the town of Middletown and in the Middletown-Odessa Census County Division will have a more dramatic impact on public facilities than previous growth of the period from 1950 to 1990 due to the projected decrease in household size.

Table 1 tracks the trend in the number of households and average household size in Middletown from 1970 to 1990.

Table 1. Middletown Households

Year	Number of Households	Percent Change	Household Size
1970	833		3.17
1980	1083	30%	2.72
1990	1475	36%	2.59

Source: 1990 US Census

Table 1 indicates that household growth increased at a greater rate of change than population growth over the period from 1970 to 1990. Middletown experienced a declining household size over that period. The pattern of declining household size has been record nationally, in the state of Delaware and throughout New Castle County.

Table 2 delineates the projected household growth for the Middletown - Odessa Census County Division from 1990 to 2020. The 1997 Delaware Population Consortium household projections have been increased over 1996 due to increased interest in residential development in southern New Castle County. An increase in 8,566 household has been projected for the Middletown - Odessa CCD for the period from 1995 to 2020. Nearly half of that growth, approximately 4,158 households, has been projected to occur in the next 10 year period.

**Table 2. Middletown - Odessa CCD
Population and Household Projections**

Year	Households	Population	Household Size
1990	5,903	18,578	3.14
1995	7,308	22,234	3.04
2000	9,493	28,163	2.97
2005	11,466	33,303	2.9
2010	13,221	37,556	2.84
2015	14,715	40,889	2.78
2020	15,874	43,232	2.72

Source: Delaware Population Consortium, 1997

The projections made for southern New Castle County and the trends in the projections over time reflect an increasing demand for residential development south of the C & D Canal. The Middletown plan has incorporated these projections in the development of recommendation for the management of growth and development of the town and the surrounding areas. Middletown has the existing capacity to absorb a major portion of the projected population growth in compact town center development that provides a wide range of public facilities. The important question for Middletown, New Castle County, and the State of Delaware will be the timing, location, and quality of development in southern New Castle County.

Racial Composition

The 1990 population of Middletown was reported as 3,834 residents. The population consists of 75.7 percent white, 22.7 percent black, and 1.7 percent listed other as their race. The total number of residents of any race that reported to be of Hispanic origin in Middletown was 71 in 1990. The racial composition of Middletown is represented in Table 3.

Table 3. Middletown Racial Composition

Race	Number	Percent
White	2,901	76%
Black	869	23%
Other Race	64	2%

Source: 1990 US Census

Age and Sex Composition

Table 4 depicts the Middletown age and sex profile. The median age for Middletown reported in 1990 was 31.0 years of age. There were reported to be 2,701 residents, 70.4 percent, age 18 and over of which 420 (11.0 percent) were 65 and older. In comparison, 11.4 percent of New Castle County's population and 12.1 percent of Delaware's total population were over the age of 65. The population of Middletown residents younger than age 18 was reported as 1,133 persons or 29.6 percent of the total population. For New Castle County and Delaware 24.0 percent and 24.5 percent of the population respectively were younger than 18 years of age.

Table 4: Middletown Age and Sex Composition

Age	Male	Female	Total
0-4	183	177	360
5-17	397	376	773
18-24	157	194	351
25-44	607	653	1,260
45-64	316	354	670
65+	170	250	420
Total	1,830	2,004	3,834
Median Age	29.3	32.5	

Source: 1990 US Census

Residence

The effects of growth and migration are apparent in Middletown as indicated in the number of residents that lived in the same home in 1990 as they did in 1985, only 51 percent. Although 35.9 percent more lived in New Castle County in 1985, only 13.1 percent of the 1990 Middletown residents lived in either another county, another state, or abroad in 1985. The tenure of residents follows the pattern of migration below the Chesapeake and Delaware Canal as indicated in studies by New Castle County.

Education

The 1990 census reported that 69.4 percent of Middletown residents over the age of 25 were either high school or college graduates. Those with at least a bachelor's degree accounted for 6.6 percent of Middletown residents over the age of 25. Also, approximately 18 percent of Middletown residents were of school age and attending either a private or public primary or secondary school. In 1990 there were 0.51 children attending school per household in Middletown.

Housing

There were reported to be 1,475 housing units in Middletown by the 1990 US Census. A tabulation of the housing in Middletown and the age and ownership characteristics of the housing have been included in Table 5. Of the 1,417 occupied units at the time of the 1990 Census, 1,009 (71.2 percent) were owner occupied and 408 (28.8 percent) were renter occupied.

Table 5: Ownership and Age of Middletown's Housing Stock

Year Built	Total Units	Percent of Total	Owner Occupied	Renter Occupied	Vacant Units
1989 to March 1990	19	1.3%	19	0	0
1985 to 1988	303	20.5%	281	22	0
1980 to 1984	185	12.5%	29	156	0
1970 to 1979	239	16.2%	199	40	0
1960 to 1969	117	7.9%	115	2	0
1950 to 1959	160	10.8%	101	42	17
1940 to 1949	109	7.4%	38	49	22
Before 1940	343	23.3%	227	97	19
Total	1,475	100.0%	1,009	408	58

Source: 1990 US Census

The 1990 US Census reported that 49.4 percent of Middletown's housing stock was built prior to 1970. In comparison 63.5 percent of all housing units in New Castle County were built prior to 1970. Although Middletown has a historic downtown it has an above county average of new housing stock. The housing built in Middletown since 1970 has primarily been owner occupied with 71 percent owner occupied and 29 percent renter occupied. This was slightly higher than the construction in the whole county where 62.5 percent of housing units built since 1970 were owner occupied units. The length of tenure for a householder in 1990 was shorter in Middletown than in the county. In 1990 54.5 percent of Middletown householders had been in their current housing unit for five years or less compared to 49.0 percent of all county householders.

Table 6 depicts the types of housing reported in Middletown.

Table 6: Middletown Housing Types and Ownership in 1990

Units in Structure	Total Units	Percent of Total	Vacant Units	Total Occupied Units	Owner Occupied Units	Renter Occupied Units
1, Detached	643	43.6%	2	641	536	105
1, Attached	198	13.4%	0	198	68	130
2	54	3.7%	17	37	0	37
3 or 4	58	3.9%	0	58	0	58
5 to 9	21	3.5%	22	29	0	29
10 to 19	41	2.8%	0	41	0	41
20 to 49	2	1.6%	17	0	0	6
50 or more	0	0.0%	0	6	0	0
Mobile home or	398	27.0%	0	398	398	0
Other	9	0.6%	0	9	7	2
Total	1,475	100.0%	58	1,417	1,009	408

Source: 1990 US Census

Single family detached homes accounted for the largest portion of the housing stock of Middletown at 43.6 percent. Nearly 84 percent of all single family detached homes were owner occupied while duplexes were predominately renter occupied. The future character of Middletown will depend upon the types of housing approved by the town through the land development process. Approximately 3,600 units are approved but unbuilt.

Table 7 depicts the types of housing reported in New Castle County.

Table 7: New Castle County Housing Types and Ownership in 1990

Units in Structure	Total Units	Percent of Total	Vacant Units	Total Occupied Units	Owner Occupied Units	Renter Occupied Units
1, Detached	89,277	51%	2,180	87,098	81,649	5,448
1, Attached	34,208	20%	2,565	31,643	22,331	9,312
2	3,926	2%	265	3,661	590	3,071
3 or 4	5,760	3%	543	5,217	234	4,983
5 to 9	7,033	4%	789	6,244	299	5,945
10 to 19	16,645	10%	1,745	14,900	505	14,395
20 to 49	5,028	3%	701	4,327	949	3,378
50 or more	5,449	3%	382	5,067	527	4,540
Mobile home or	4,844	3%	146	4,698	44,431	267
Other	1,390	0%	83	1,307	525	782
Total	173,560	100%	9,399	164,161	112,040	52,121

Source: 1990 US Census

The predominate housing unit in New Castle County is the single family detached home. In the county 51.4 percent of housing units are single family detached housing units which is substantially higher than that of Middletown's 43.6 percent. The New Castle County housing stock indicates the typical suburban characteristics compared to the small town characteristic which existed in Middletown in 1990. The future mix of housing units will determine the viability of Middletown as either a small town or as a suburban bedroom community. In comparison to the county, Middletown had a disproportionate amount of mobile home or trailer units in 1990. Mobile homes accounted for 27.0 percent of the total housing units in Middletown compared to only 2.8 percent of total housing units for New Castle County. Though Middletown had less than 1 percent of the total county housing units, it had 8.2 percent of the total mobile home or trailer units within the county.

The median value of owner occupied housing units in Middletown was reported as \$83,400 in 1990 or 2.8 times median income for households in Middletown. Owner occupied housing unit values clustered around the \$60,000 to \$124,999 range or between 2 to 4 times median household income in Middletown. In comparison the median value of housing units in New Castle County was reported at \$110,100 or 2.85 times median income for households in the county. Owner occupied housing in New Castle County clustered from \$75,000 to \$149,999 in value or 2 to 3.9 times median household income for the county.

Renters

The median gross rent for renter specified occupied households in Middletown as reported in the 1990 US Census was \$324 per month. In comparison the median gross rent for renter specified occupied households in New Castle County in 1990 was reported as \$524 per month.

Governmental & Community Services

Town Government

The Middletown governing body consists of a mayor and four council members. The council members are elected in staggered two-year terms. The mayor and two council members are elected for two-year terms in odd-numbered years. In even-numbered years two council members are elected. The elections for town officials are held in March of each year. The Town Council meets the first Monday evening of every month at 8:00 p.m. in the town offices at 216 North Broad Street. The mayor serves as the president of the town council.

The town of Middletown has created a set of organizations which assists the mayor and council in governing the town. The Planning Commission has been established in accordance with Chapter 3, Title 22 of the Delaware Code to review the zoning ordinance and to create the Comprehensive Development Plan for the town. The Planning Commission also has the responsibility to review changes in the zoning ordinance and zoning changes and make recommendations to the council for revision. The Planning Commission members are appointed by the mayor with consent of the council. The Planning Commission meets on the third Thursday of every month. There are nine members of the Planning Commission.

The Board of Adjustments has been set under Chapter 3, Title 22 of the Delaware Code for the task of granting or denying variances, special exceptions, and zoning appeals. The Board of Adjustments meets on the first Monday of each month and is appointed by the mayor with consent of the council. There are five members of the Board of Adjustment.

A Subdivision Review Committee has been established to review plans to subdivide parcels already zoned for a certain land use. The Subdivision Review Committee meets whenever necessary. There are seven members of the Subdivision Review Committee which includes the Town Manager.

The town employs a town manager, a town clerk, and three foremen for administration and operations of town services. There are approximately 29 employees of the town of Middletown. The direct employees of the town are responsible for administration, the electricity system, public works, the sewer system, street repair, street lighting, and snow removal, parks and recreation, and the water system. The town contracts with outside providers for police protection and trash collection.

The Middletown Town Hall is located at 216 North Broad Street. This building currently houses the Town Manager's office and the office of the Town Clerk.

Solid Waste Disposal

The town of Middletown provides trash collection service to residences and commercial operations. The town contracts with Home Waste, Inc., a private collection company, for this service. The contractor picks up trash on Tuesday and Friday of each week. Residential collection services provides for pick up of all residential refuse, appliances, and furniture. Commercial collection provides each designated commercial or non-residential user with the collection of two forty gallon containers per pickup. Waste materials generated by contractors or from home alteration, oil or lead based paints, toxic chemicals, tires, batteries, and large tree limbs over 4 feet in length are not included in the service. The town picks up leaves and brush on special request.

Storm Water Management

The town of Middletown and the New Castle County Conservation District has jurisdiction over storm water management in Middletown. The storm water management system was constructed as a separate system from the sanitary sewer system. The system consist of a series of drains, transmission lines and catch basins which direct storm water into natural storm water management areas.

Storm drainage on new construction shall be constructed to meet the New Castle County Drainage Code, the New Castle County Specification for Sediment and Erosion Control and the New Castle County Stormwater Management Code. The town of Middletown also specifies that new development should utilize natural storm water recharge points within or in proximity to low points such as swales so as to collect storm water and return it to the natural water table.

Public Safety

Fire Protection

Fire protection is provided by the Volunteer Hose of Middletown located at 14 South Broad Street. The service area for the fire company includes the town of Middletown and the surrounding areas. The service area is bounded on the north by Howell School - Maryland Line road, on the east by a line dividing the County into eastern and western halves, on the south by the northern boundary of the Townsend Fire District, and on the west by the Maryland State Line. The Middletown Fire District covers approximately 57 square miles. This area includes the rapidly developing areas of Summit Bridge and the area around the Summit Air Park.

The Volunteer Hose Company of Middletown participates in the mutual aid agreement with surrounding fire companies. Fire equipment is dispatched through the New Castle County 9-1-1 Emergency Communications Center operated by New Castle County.

Police and Emergency Medical Services

Police protection for the town of Middletown is provided through a contract with the New Castle County Police. The County police force provides 24-hour-a-day protection for the town in addition to county responsibilities. The New Castle County Police southern patrol unit headquarters was completed in 1996 in Middletown to provide a base for the approximately 20 public safety personnel assigned to southern New Castle County.

The mission of the New Castle County Department of Public Safety is to improve the quality of life throughout New Castle County by striving to provide a secure community environment which protects citizens' lives, health and property through the efficient delivery of quality law enforcement and emergency services.¹ The Department of Public Safety has set as the goals for the department to improve public safety through community policing; to respond to community public safety needs through the establishment of police community substations; and to consider the national standard of one police officer per 1,000 New Castle County residents.

The town of Middletown has developed an important intergovernmental relationship with the New Castle County Department of Public Safety through the police service contract. The relationship provides the town police services without necessitating the formation and operation of a town police department. The town of Middletown plans to continue to strengthen the relationship as growth and development occur in Middletown through supporting the efforts of the Department of Public Safety to provide a secure community environment.

In addition to contracting police service the town of Middletown currently contracts for 9-1-1 emergency communications and basic life support (BLS) emergency services through the New Castle County Department of Public Safety.

Education Facilities

Middletown is in the Appoquinimink School District. This school district serves the majority of southern New Castle County. Appoquinimink has been one of the fastest growing districts averaging 8 percent increases per year in student enrollment. The total projected enrollment for the 1996/97 school year will approach 3,500 students.

The district currently operates three elementary schools, one middle school, and one high school. Silver Lake Elementary School, Redding Middle School, and Middletown High School are located within Middletown.

A new Middletown High School was completed in 1996. The new school is located on 35 acres of Delaware Route 299 on the eastern edge of Middletown. The capacity of the school is 1,200 students. The new Middletown High School opened in the winter of 1997. In addition to the high school, a clinic with participants from the Division of Public Health, the Department of Health and Social Services, and the Department of Services for Children, Youth and Their Families is located at the facility. The old high school will be converted into a middle school.

The Appoquinimink District expects that over the next 5 to 10 years there will be a need for a new elementary school in the northern area of the district near the canal if current development patterns hold. The projected population growth of 94 percent and household growth of 117 percent in the Middletown - Odessa Census County District will have a substantial effect on the generation of new students for the Appoquinimink District. The Appoquinimink District includes, in addition to a majority of Middletown Odessa CCD, the rapidly growing area immediately north of the C & D Canal and on the west side of the county.

Table 8 list the current enrollment as of September 1995 by grade levels in the Appoquinimink School District.

Table 8: Appoquinimink School District Enrollment

Grade	Number Enrolled
Kindergarten	269
Grades 1-3	882
Grades 4-6	887
Grades 7-12	1,292
Total Special	260
Total	3,590

Source: Department of Public Instruction
September 30, 1995 Student Enrollment and
Unit Allotment Report

The Appoquinimink School District enrollment as of September 1995 is further described in table 9. This table provides separate counts for each school by grade level.

Table 9: Appoquinimink School District Enrollment Breakdown

School	Kindergarten	Grades 1-3	Grades 4-6	Grades PK-6 Special	Grades 7-12	Grades 7-12 Special	Total
Silver Lake	87	311	192	36	0	0	626
Townsend	99	262	187	29	0	0	577
Cedar Lane	83	309	310	23	0	0	725
Appoquinimink	0	0	0	51	0	19	70
Redding Middle	0	0	198	23	513	36	770
Middletown	0	0	0	0	779	43	822
District Total	269	882	887	162	1,292	98	3,590

Source: Department of Public Instruction
September 30, 1995 Student Enrollment and Unit Allotment Report

Table 10 lists the actual enrollment numbers for the period of 1991 to 1995 of the Appoquinimink School District recorded by the Delaware Department of Public Instruction (DPI). The table also lists the DPI adjusted projections through 2000. The school enrollment numbers indicate that from 1991 to 2000 the number of students enrolled will have increased 62 percent. The impact on all grades levels have required the construction or renovation of schools to meet the current needs of the district. These numbers are based on the existing cohorts of students and assumptions made about retention in the school district. The increased residential development throughout the Appoquinimink district will affect the rate of growth of enrollments

Table 10: Appoquinimink School District Projections

Grades	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
K-4	1,153	1,267	1,380	1,460	1,538	1,585	1,655	1,640	1,621	1,681
5-8	890	943	1,005	1,110	1,195	1,365	1,490	1,507	1,626	1,653
9-12	583	630	682	774	930	874	977	1,115	1,161	1,329
Total	2,816	2,840	3,067	3,344	3,583	3,825	4,081	4,283	4,407	4,562

Source: Department of Public Instruction, Appoquinimink Retention Enrollment Projection and Adjustment for Overestimation, 1996

The town of Middletown recognizes the importance of maintaining a high quality of public education facilities. A connection exists between the land use decisions of a local jurisdiction and the ability of the public school facilities to handle the number of students attracted to the district through expanded residential uses. An appropriate mix of land uses that includes agricultural, residential, commercial, office, and industrial land uses will provide the adequate tax base for the school district to meet the financial needs of the future.

The town of Middletown also recognizes the need for additional school sites and plans to work with the school district to develop potential school sites as part of the development process. The majority of schools within the district, including the new Middletown High School, are located within the corporate limits of Middletown. The continuation of siting schools within the town of Middletown in close proximity to residential development will reduce the school transportation costs and assist the town in meeting its goal to integrate civic land use with residential and other land uses. The historic pattern of placing schools within the town of Middletown has contributed to the creation of community character. The plan recommends the continuation of siting new schools within Middletown's corporate limits.

Post Secondary Education

The University of Delaware has expanded its continuing education program to Middletown in the fall of 1997 and will offer evening courses at the new Middletown High School. The new offerings will provide additional convenience for Delawareans living and working in the growing community of southern New Castle County. Courses that will be featured are useful to individuals hoping to complete a bachelor's degree and for those seeking professional development opportunities.

Libraries

The former small community library, the Appoquinimink Public Library, was located in the same building that housed the police and other town services. In the fall of 1996, with the completion of the new Middletown High School, a 20,000 square foot community library was opened to replace the 1,500 square foot Appoquinimink Library. The new library is named the Middletown-Odessa-Townsend Library and is open six days a week. The regional library facilities located in northern New Castle County are also available to Middletown residents if the community library in Middletown is not sufficient.

The New Castle County Department of Libraries provides library services in accordance with an adopted master plan to all residents of New Castle County. The mission of the New Castle County Department of Libraries is to provide convenient and accessible information and education resources to every citizen within a three mile radius or 15 minute drive. The Department of Libraries has adopted the goal to

encourage public access to a diversity of informational, educational and leisure time materials through a public library system. The location decision for the Middletown-Odessa-Townsend library at the new Middletown High School met the goal of the department to locate libraries with other civic uses adjacent to retail centers.

Postal Service

The town of Middletown is served by the United States Postal Service. The Post Office building is located at 30 West Main Street.

The need for a large site for the increased mail demand south of the C&D Canal has prompted the development of plans to move to a larger site. Preliminary discussions have been reported to site the Post Office within the town. The future location of the post office building should incorporate the town goal of maintaining civic uses within walking distance of residential development and should form a focus of activity.

Senior Services

The Middletown-Odessa-Townsend Senior Citizens Center, Inc. is a private non-profit senior center located at 300 South Scott Street. The senior center provides recreation, nutrition, and outreach services to seniors throughout southern New Castle County.

Health Care

Middletown residents are served by the Middletown Health Center run by the Division of Public Health, Department of Health and Social Services, State of Delaware. The Center is located at 216 North Broad Street. The Middletown Health Center provides the following medical services; dental care for Medicaid eligible children, cancer screening, prenatal clinic, post-partum and family planning clinics, mental health, hygiene, nurse pediatric clinic, physician pediatric clinic, and geriatric screening.

The Medical Center of Delaware operates a Primary and Specialty Care Center in Middletown located at The Medical Center of Delaware, Middletown Center, Suite 300, 200 Cleaver Farm Road. The Alfred I. duPont Institute runs a Children's Clinic at 404 Foxhunt Drive in Bear, Delaware north of the Chesapeake and Delaware Canal.

The regional hospital in closest proximity to Middletown is the Medical Center of Delaware, Christina Hospital located at 4755 Ogletown-Stanton Road, Stanton, Delaware.

Utilities

Utilities include such services as public water, sewer, storm water management, electricity, natural gas, telecommunications, cable television, and solid waste disposal. These services are a vital contribution to the health and welfare of community and can be provided by either public, private or mixed public-private partnerships.

The availability and capacity of utilities both encourages and constrains growth. The town of Middletown recognizes the need to stage balanced growth to allow for fiscally responsibility expansion of utilities such as public water, sanitary sewer, and electricity.

Public Water

The Water System

The water system in Middletown serves all of Middletown and is owned and operated by the municipal government.. The water system is operated under regulations determined by the Office of Safe Drinking Water, Division of Public Health, Department of Health and Social Services and the Division of Water Resources, Department of Natural Resources and Environmental Control.

The Middletown water system is dependent on water from a set of municipal wells for the supply of water for the town. The system taps into Potomac, Magothy, and Mt. Laurel aquifers for the water used by its customers. The system does not collect water from surface sources.

Middletown operates a plant for the treatment of the well water used by the town. The increase in the size of Middletown has increased the need for water. The town will need to examine the condition of its existing wells and determine the future well needs and evaluate options for expansion.

The water system includes two water reservoir tanks and one standpipe. The standpipe has a capacity of 47,000 gallons and was built in 1883. The standpipe is located on Lake Street near the intersection with Cox Street. The reservoir tank located on Green Street has a capacity of 150,000 gallons. The other reservoir, a water tower, is located on Industrial Road and has a capacity of 500,000 gallons. This water tank was built in 1968. A new water tower, completed in 1996, that has a capacity of 1,500,000 gallons and is located near the new New Castle County police building on North Broad Street. An additional 142,000 gallons of ground level raw water reservoir exists. The water distribution system consists of approximately 104,000 linear feet of 6 inch through 12 inch diameter water mains.

Current Conditions

The town of Middletown recently completed a water study in 1997 that evaluated the system and made recommendations concerning the conditions of the water system and possible improvements to the system.

Middletown has replaced approximately 5.5 miles of water lines as part of a refitting and updating program to increase the quality of the water system. The original 4 inch lines have been replaced with 6 inch and 10 inch lines to increase the capacity of the water system. The town plans to continue replacement and upgrading on a continuous basis to ensure capacity and quality of the water distribution system.

The Town of Middletown has five wells currently producing water for needs of the municipality's customers. The following table 11 details the productivity of each well and the depth from which the well pumps.

Table 11: Middletown Well System

Well Number	Permit Number	Gallons Per Minute (gpm)	Average Depth in 1994	Total Annual Pumpage (in gallons)
4	10453	210	161'	17,433,200
5	10455	68	NA	9,294,100
6	10454	277	160'	37,880,000
8	39676	350	124'	48,997,400
9	39685	320	156'	65,395,300

Source: 1994 Middletown Submission to the Water Supply Branch, DNREC

Middletown had a 0.5 million gallons per day (mgd) average demand for water in 1994 and peak demand in May, 1994 of 1.3 mgd. The current water demand for the town of Middletown averages 325 gallons per minute based on pumpage records from September 1995 to August 1996.

The town treats the water from wells No. 4, No. 8, and No. 9 at the water treatment plant located on East Lake Avenue. Water from well No. 5 is chlorinated and pumped directly into the 150,000 gallon storage tank. Water from well No. 6 is chlorinated and pumped directly into the water distribution system.

The town's water distribution system consists of 6 inch through 12 inch water mains. The older piping system went from Lake Street to Park Place along Broad Street and was constructed in approximately 1941. The system was expanded in 1970 thus extending water service to the 1970 town limits. In 1991-1992 a major renovation of the water main

system was undertaken due to concerns over age and condition of the lines. In 1990 1,461 out of 1,475 housing units had public water supply. There were 14 housing units in the town that were served by individual drilled wells.

The policy of Middletown states that all future development will be required to be connected to the municipal water system.

Future Water Availability

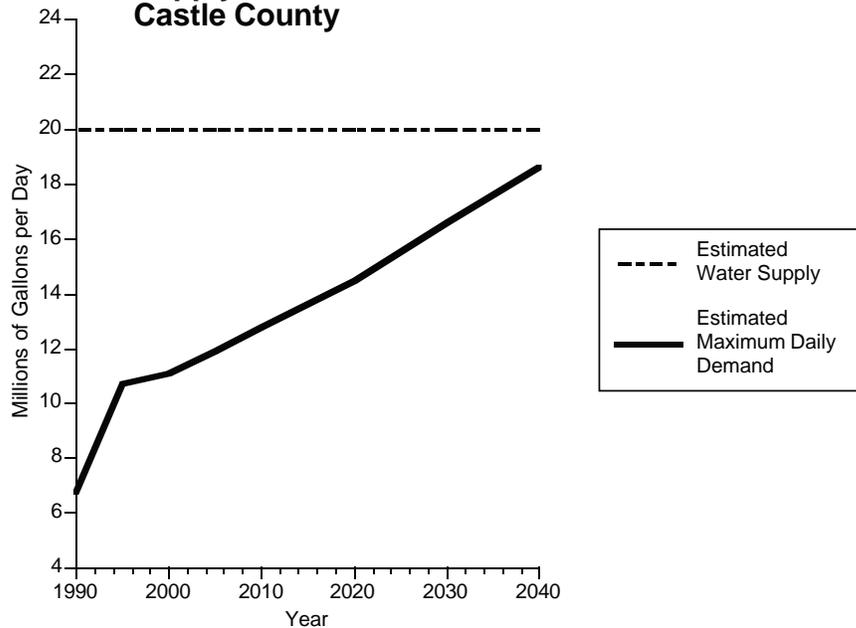
The availability of water from underground sources will become increasingly important as Middletown grows and develops. The question of water availability is compounded due to extensive potential development within the watersheds Middletown shares with areas in southern New Castle County. The Delaware Geological Survey (DGS) evaluated the availability of groundwater in Southern New Castle County for the New Castle County Department of Public Works and Water Resource Agency for New Castle County. The DGS evaluation indicates that there will be about 20 million gallons per day (mgd) available from wells in Southern New Castle County.

The DGS evaluation further divided the water availability by watersheds and aquifers. The Town of Middletown straddles the Drawyer Creek and Appoquinimink River watersheds. The water availability from the Drawyer Creek Watershed was estimated at 2.36 mgd from all aquifers. The aquifer within the watershed with the greatest estimated water availability was the Englishtown/Mt. Laurel with an expected 0.99 mgd available. Middletown shares the Drawyers Creek Watershed with the southeastern part of the rapidly developing Boyd's Corner area. The Appoquinimink River Watershed, which is south and west of currently developed Middletown, was estimated to have 3.37 mgd of water available. The water in this watershed was primarily available in the Potomac Aquifer with an estimated 1.61 mgd of water available.

The DGS evaluation indicates that the largest portion of the estimated water availability is located in the Blackbird Creek Watershed south of Middletown and in the area the draft New Castle County Comprehensive Development Plan Update has designated as either a Resource Protection Area or Agriculture District where development will be limited. Investor owned utilities, as of July 1996, had not acquired the right to provide public water in any large measure within the Blackbird Creek Watershed.

The estimated water availability was compared by DGS to the estimated Maximum Daily Demand that had been estimated in a previous study completed by Metcalf and Eddy in 1991. This information is listed in chart 3.

Chart 3: Estimated Water Supply in Southern New Castle County



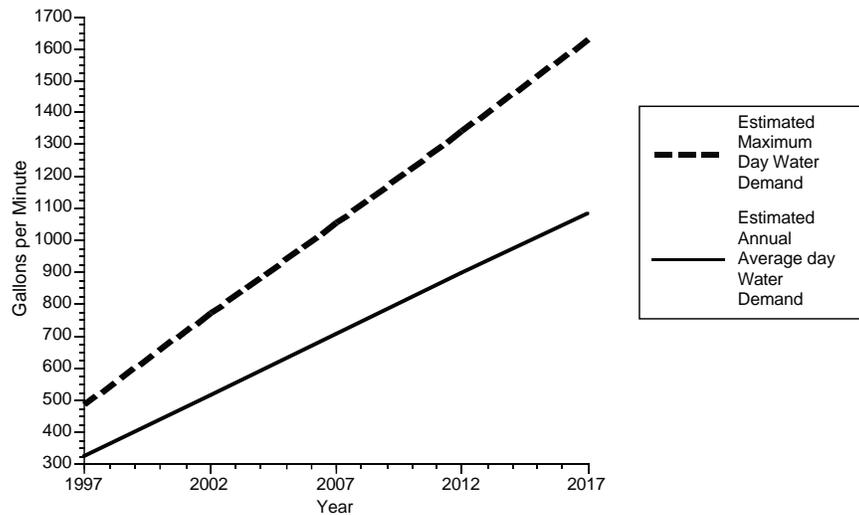
Source: Delaware Geological Survey, 1996

DGS concluded that the water availability will meet the estimated needs for Southern New Castle County as a whole. The issue for Middletown will be whether or not the water will be available to support the projected growth in Middletown. The development within the Drawyer Creek and Appoquinimink Creek Watersheds outside of Middletown can not be controlled by Middletown but will have a significant impact on the municipality's capacity to meet the needs for residential, commercial, and industrial water users within Middletown. If the water capacity is assigned to residential users outside of Middletown by land use decisions of New Castle County and the water franchise decisions of the Delaware Department of Natural Resources and Environmental Control, then the long run capacity of Middletown to provide water to residential, commercial and industrial users could be compromised.

Metcalf and Eddy completed a Water Supply Plan for New Castle County, Delaware in 1991 which estimated the potential water supply needs and developed supply to meet those needs. The estimations were completed using projections for population and development made in 1990 and therefore recent development activity has had a substantial effect on demands for water in Middletown and across Southern New Castle County. The surplus - deficit projections made by Metcalf and Eddy are based on a 21.6 million gallon (mg) total for developed water supply in Middletown. The projections indicate that Middletown will be in surplus until August of 2010 and again in the summer of 2020, 2030, and 2040 under the development expectations made in the study. The surplus of 94.95 mg in 1990 was projected to dwindle to 55.34 mg in 2010 and become a net deficit in 2040 to 12.86 mg in 2040.

The KCI Technologies Middletown Water Study of March 1997 estimated the future water usage for the town of Middletown based upon the proposed future development and a uniform growth rate. Chart 4 depicts the estimated future water usage.

Chart 4. Annual Average Day Water Demand



Source: Middletown Water Study, KCI Technologies, Inc., March, 1997

Water usage as estimated in the Middletown Water Study would increase from the current level of approximately 0.47 million gallons per day to 1.56 million gallons per day by 2017. The total rated capacity of 920 gpm that the current municipal wells could generate will be sufficient to meet the assumed uniform pattern of growth through 2004. The existing storage system was also examined in the Water Study. The current need for water storage to fire protection, peak demands, and emergency storage in case of water plant shutdown was computed to be 722,500 gallons. The current storage capacity, with the addition of the Greenlawn water storage facility, is 2,292,000 gallons.

Recommendations for Investment in New Water Infrastructure

The Metcalf and Eddy 1991 study and operational data from the town of Middletown indicates that Middletown has water supplies to meet its current needs and has room for limited expansion. The completion of the 1.5 million gallon storage tank provides the storage capacity that will be used to meet current and near future needs. The rate of development of unbuilt areas in Middletown will dictate the rate of construction of expanded water infrastructure.

The Middletown Water Study 1997 recommended that existing water sources and treatment facilities be upgraded and renovated to maintain the existing water supply and to provide water resources to meet the needs for the next five to ten years. An additional recommendation was to contact the Department of Natural Resources and Environmental Control, Division of Water Resources to discuss increasing the Middletown's allocation. The allocation of water resources will become crucial over the next five to ten years as investor-owned water utilities continue to expand into southern New Castle County and facilitate development. The availability of water will effect the ability of Middletown to become an economic and residential center and significantly impact the natural resource sustainability of the region.

In addition to the availability of water resources the plan recommends that the town continue and expand the practice of requiring development to finance the expansion of the system. The plan further recommends the investigation of public-private partnerships to undertake the provision of water and maintenance of the water system. The long run goal of developing a self sufficient water utility will be based on adequate financing and recovery of long run costs of the system. Public-private partnerships can be one way of bringing private sector financing into the provision of public facilities and providing the necessary capital to meet major economic development opportunities. The facilities developed under these relationships shall be owned by the town and the customers will remain customers of the town of Middletown.

The availability of water resources will be an important component in the development of Middletown as an residential, commercial, and employment center in southern New Castle County. Water supply will be crucial for the attraction of major employment centers and therefore Middletown will explore the availability of industrial water supply to serve areas suitable within or to be annexed into Middletown for industrial development.

Wastewater System

Current Conditions

Sanitary sewer service exists throughout the town of Middletown. According to the 1990 US Census of the 1,475 housing units in the town of Middletown 1,434 were connected to the public sewer system. In 1990 41 housing units used either a septic system or cesspool to dispose of the household sewage. The town policy is to have all housing units connected to sanitary sewer service.

The provision of sanitary sewer is managed by the town of Middletown. Collection and pumping to the MOT Interceptor line is completed by the town. Sewage treatment is performed by New Castle County Department of Public Works at the Middletown-Odessa-Townsend

Regional Treatment Plant at the New Castle County Water Farm 1. This is a spray irrigation treatment facility near the town of Odessa. The majority of the sewer system is based on a gravity flow system. There is a pumping station on North Broad Street near Ashland Street. This pumps sewage from the north into the 8 inch line that flows eastward on Lockwood Street. A pump station is located at the north end of New Street which pumps sewage from the east side of town.

The town of Middletown and New Castle County completed an agreement in 1996 that will provide Middletown with 0.75 million gallons per day of treatment capacity. The 1996 agreement updated a 1986 agreement and expanded the overall flow limits for Middletown. The agreement specifies a peak flow limit of 2.5 million gallons per day. Any exceeding of the peak flow limit will result in the town assuming the liability for any illegal water discharges and sanctions that may be imposed by the Department of Natural Resources and Environmental Control. The town is responsible to ensure that the quality of the sanitary and industrial waste discharge into the sewer system meets the requirement for wastewater discharge regulation of the county.

Middletown currently has excess sanitary sewer capacity and the Middletown-Odessa-Townsend Regional Treatment has been operating at less than capacity in recent years. Middletown estimates that the town's current average daily flow ranges between 400,000 to 430,000 gallons per day. The daily average flow for the year of 1995 was approximately 419,500 gallons per day. The annexation and potential development within the town of Middletown will increase the use on both the collection and treatment portions of the system.

The town has begun the process of upgrading the collection system within the town. In 1995 the preliminary plans for the development of a bypass transmission line system were completed. The plans call for the construction of a West Trunk Line and East Trunk Line to serve the newly developed and potential developed areas to the north and west of central Middletown and areas to the east along State Route 299. The trunk lines will converge at the New Castle County metering station near Silver Lake.

The West Trunk Line that will serve the new development along US Route 301 and the industrial areas on the west side of town will be under construction during 1996. The West Trunk Line begins on Peterson Road and heads south to Hayed Road. The trunk line then follows Industrial Road to Arcadia Parkway where it turns east to run into the New Castle County Metering Station. The West Trunk Line is a 10 inch line for the majority of its length until it crosses South Broad where it feeds into a 15 inch line. Part of the project includes a new lift station to allow for the pumping of sewage to the south side of town.

The East Trunk Line will serve development on New Street, Cleaver Farm Road and areas along Delaware Route 299 east to the new high school. The line begins on New Street just south of East Lake Street and

on Delaware Route 299 just west of Silver Lake Road. These two 10 inch line flow into a 12 inch line which begins on Main Street at the intersection with New Street. From Main Street the 12 inch line flows across the east side town through the Silver Lake Elementary School property to a 14 inch line just south of East Park Place. The East Trunk Line ends at the New Castle County Metering Station.

Future Demands on the Sanitary Sewer System

The expected development of recently annexed, rezoned, or subdivided properties has the potential of adding approximately 1.3 to 1.4 million of gallons per day (mgd) of average flow to the sanitary sewer system and adding 2.9 to 3.1 mgd of peak flow to the system. These estimate are based upon the 1995 engineering plan for the development of the East and West Trunk Lines and development activity approved through the October, 1996. These estimates are in addition to the current flow range of 0.42 to 0.43 mgd for existing development within the town.

Major Developments

The town of Middletown has experienced rapid growth during the past six years and one property affected by that development is the development known as Greenlawn. This property was originally annexed on April 3, 1967 and the southeast section of this 255 acre property was developed along New Street. The property had not been developed until after a the rezoning of portions of the property in January of 1989 from single family residential to commercial and multi-family residential. The build out of this property is currently under way and is expected to be completed in the next few years. When Greenlawn Residential Phase I is completely built out it will consist of 198 housing units with an average daily flow of approximately 60,000 gpd. Greenlawn Residential Phase II is planned to consist of higher density residential including apartments and when completed it will include 293 housing units with an average daily flow of approximately 78,000 gpd. The Greenlawn property also consists of a 188,000 square foot shopping center which will produce an average daily flow of 18,800 gallons per day.

The next major development, know as the Legends, will also have potential impact on the utilities provided by Middletown. The Legends is located along Cedar Lane to the north of central Middletown. This property was annexed in February of 1996 and consists of approximately 315 acres zoned as 116 acres R-1A for single family homes, 119 acres zoned R-2 for higher density single family home possible duplexes or town houses, and 34 acres zoned R-3 for multifamily residences such as apartments.

The 1996 estimate for the number of units in the Legends property is approximately 600 units. Legends, as currently planned in 1996 ,will be designed to limit the impact on the sanitary sewer system and will have an on-site spray irrigation system to handle treatment needs. The on site

treatment plant may also provide additional capacity for other areas either currently developed or planned for development.

The Carter Farm on the north side of town and west of US 301 has been proposed for development. The Carter Farm is a 116 acre property on northeast of the downtown that has been slated for 220 detached homes. This property has frontage along Route 301 and is separated from the majority of the currently developed portions of town by the major transportation corridor consisting of Route 301 and the o rail line. The Carter property will produce 66,000 gallon average daily flow when fully built out. The property will also be the first major addition to the new West Trunk Line.

The developments of the Ash Farm on the west side of the town and the Village Brook and Middletown Crossing properties on the east side of the town represent the majority of five year to ten year growth in Middletown. These three developments will produce approximately 0.65 million gallons of average daily flows if developed as currently planned. These developments will consist of nearly 2400 housing units and approximately 450,000 square feet of commercial and office space. These three developments alone will double the number of housing units and substantially expand the commercial and office space capacity in Middletown.

Recommendations for the Wastewater System

Middletown has assured its short run wastewater treatment needs by increasing the capacity assigned to the town at the Middletown-Odessa-Townsend Regional Treatment Plant by 50 percent. The increase in the amount allocated to Middletown by 250,000 gallon per day average flow could be translated into approximately 500 single family homes, 250 townhouses or multi-family housing units, and 400,000 square feet of commercial and office space. The major issue facing Middletown in its provision of sanitary sewer services will be how deal with the approximately 4,300 housing units, 900,000 square feet of commercial space and 156 acres of undeveloped land within the town of Middletown that would not be covered under the contract with New Castle County. Middletown has already faced this issue with the Legends development by working on a plan for the Legends' developer to construct an on-site spray irrigation system to handle the wastewater needs.

The town of Middletown has considered the impact of the recent development activity as it relates to the wastewater system and begun the process of developing a wastewater facilities management plan. The facilities management plan should examine the effects of timing development on the capacity to provide wastewater services. In any planning for the future of the wastewater system, public - private partnerships should be considered.

The town of Middletown recognizes the need to incorporate adequacy and timing into the process of facility planning. If Middletown is to return to the business of treating wastewater then the appropriateness of treatment methods such as land application and spray irrigation will need to be investigated. For Middletown to control its future, adequate public facilities will need to be in place at the time of development.

The town of Middletown should examine the possibility of developing additional capacity for industrial, manufacturing, office space, or other employment uses. The available sewer capacity will be a determinate in attracting economic development to Middletown. The possibility of a major employer locating in Middletown will have a dramatic impact on the needs for wastewater treatment. Sites will need to be investigated for possible wastewater treatment expansion.

Electricity

The town of Middletown supplies electricity for residential, commercial, and industrial needs within the town. Middletown has a public-private partnership where the town purchases electricity from Delmarva Power and Light Company and distributes it to town customers. Middletown installs new electric lines, maintains the distribution system, and installs and maintains meters to monitor usage. The Electric Department maintains a staff of seven employees to meet the needs of its customers. The town of Middletown will face increasing competition as the national electrical distribution system is deregulated. An important fiscal consideration for the town of Middletown will be the effects of deregulation of electrical markets in Delaware.

The electric system in Middletown has been judged to be at capacity with the inclusion of possible recorded new development. In the 1996/1997 Capital Improvements Budget there has been the proposal to add to the existing 12 kilovolt line, a 25 kilovolt line crossing US Route 301. The potential for additional development in Middletown may make it necessary to install a step down transformer that can handle the new demand of the estimated 4,000 dwelling units that can be added to Middletown in the next five to ten year period.

The possibility of major investments in the electrical distribution due to additional development expected during the next five and ten year periods will have a substantial impact on the capital base needed to meet the electrical needs of Middletown's customers. The town of Middletown has undertaken a facilities planning process to determine the needed expansions and improvements to the electrical system. The town expects to remain a provider of electricity to the current industrial, commercial and residential users well into the future as well as providing electrical services to newly developed areas of Middletown. The possibility of additional manufacturing, industrial, or other employment centers will also produce the need for additional electricity. The town has and will continue to study the electrical needs for the potential residential, commercial, office, and industrial development.

Natural Features

Introduction

The physical features of Middletown, including natural drainage, soil conditions, and topography, are particularly significant in guiding its future growth. Development permitted without regard to physical features can destroy the natural amenities of the community and be detrimental to its safety, health, and welfare. Natural features should play a role in the location of buildings, various types of land uses, road systems, and utilities.

The purpose of the Natural Physical Characteristics Study of the 1974 Comprehensive Development Plan was to examine the Town's soils and subsoils, rock formation, topography, drainage, and the availability of underground resources. The results of this study serve as a basic source of information to indicate generally those areas which may be considered for various types of residential, industrial, and commercial development in the Proposed Land Use Plan for the Town. The results of the 1974 Natural Physical Characteristics Study have been added to the 1996 Background Study to provide a natural features basis for recommendation for future land use and development.

Physical Characteristics Study

New Castle County lies in two geological and physiographic provinces: the Appalachian Piedmont Province and the Atlantic Coastal Plain Province. The boundary between the Piedmont and the Coastal Plain is, for the most part, well defined by a marked change in topography and geology. The change consists of the abrupt transition from the upland of diversified relief to relatively smooth lowlands and is well marked by an increase in the gradient of the streams flowing from the upland to the plain. The change in characteristics of the Provinces is so abrupt and obvious that their common boundary has been identified as the "Fall Line."

Middletown and all of the M-O-T Planning District lie in the Atlantic Coastal Plain Province. Nearly one-half of the land in the M-O-T Planning District is of elevation of less than 50 feet above sea level. At no point within the M-O-T Planning District does the elevation exceed 100 feet.

The Coastal Plain is a relatively flat plain area made up of two distinct physiographic units: the coastal lowlands and the interior lowlands. The coastal lowlands unit is up to 6 miles wide and the zone adjacent to the Delaware River is characterized by conspicuous marshes and numerous bays and estuaries. All of these features were created by the submergence of the valleys formed during a time when this part of New Castle County stood higher above the sea than at present.

The elevations of this zone do not exceed 50 feet above sea level. Every stream and creek in this zone is either entirely tidal or has at least a tidal segment.

The other physiographic unit, the interior lowlands, lies westward of the coastal lowlands and extends through the remainder of the Coastal Plain. This unit is characterized by relatively broad, flat interstream areas, narrow, deeply-incised valleys and a number of small, undrained depressions. Generally, the boundary between the two physiographic units is abrupt, from about 30 feet to about 50 feet above sea level in a short distance. Westward from the boundary between the two units the elevations of the interior lowlands gradually rise to about 85 feet above sea level.

Middletown is located in the interior lowlands. Elevations within the Town range from about 8 feet near the western end of Silver Lake to about 75 feet near the north end of Town. Map NF-1: Topography in the Middletown Area shows the topographical features in Middletown and its adjacent area. The topography indicates that Middletown is located on a rise between Silver Lake and Appoquinimink Creek and Drawyers Creek. Slopes are an issue only along stream beds. Areas to the west and east of town have few slope limitations on future development.

Slope

Slope is defined as the ratio of the difference in elevations between two selected contour lines and the horizontal distance between them expressed in a percentage. Slopes are divided into 5 categories: nearly level (0%-3%); gentle (3%-8%); moderate (8%-15%); steep (15%-25%); and very steep (25% and over).

The potential development of a land area is directly related to its slope. Slope is one of the very important factors controlling the land use and urban development. Most of the commercial, residential, industrial, and other development has been established on relatively flat or very gently sloping areas. To build on a steeper slope means to face many problems -- greater cost (due to slope retention measures), shallower soils (which makes excavation more expensive), and provision of adequate septic tanks. These problems are not so extensive in the Coastal Plain where the slope does not exceed 8% except in a few narrow, steep zones along streams.

Nearly level slope, 0%-3%, is suitable for all kinds of urban and rural developments. Land areas in this category are very flat and ideal for residential, industrial, educational, and other uses, as well as for rail and highway routes provided drainage is adequate.

Gentle slope, 3%-8%, are primarily suitable for residential development. They can also be used successfully for industrial and commercial establishments or agricultural purposes. In the M-O-T Planning District,

gently sloping land areas are generally found near stream beds along the transition zone between the coastal lowlands and the interior lowlands.

Moderate slope, 8%-15%, is too steep for commercial and industrial uses, but it can be used for residential developments. This slope range is not well suited for crop purposes. In the Coastal Plain land areas in this slope range are found only in small patches.

Steep slope, 15%-25%, is not suitable for most urban developments. However, the land areas in this slope range can be used for individual residences. Such slopes are found only along stream beds in the M-O-T Planning District.

Very steep slope, 25% and over, is not suitable for any kind of urban development, and is best used for forestry, wildlife, and recreation areas. These slopes are found in the mist of the stream valleys in the M-O-T Planning District and along the Chesapeake and Delaware Canal.

Almost all of Middletown and its adjacent areas are in the 0%-3% slope range, reflecting the flat nature of the Coastal Plain. Steeper slopes are almost non-existent in the Town and occur in the adjacent area only along water courses.

Drainage Basins

A drainage basin is a natural topographic feature which supplies water to a creek, stream, or river. Drainage basins formed from sub-basins together form drainage regions. Drainage itself is defined as any flow of surface or subsurface water toward the sea.

Middletown is in the Appoquinimink Creek Basin which is part of the Delaware River Drainage Region. A ridge line which generally parallels Highway 299 forms a sub-major divide through the Town. South of the sub-major divide water drains toward Deep Creek, which flows into Appoquinimink Creek. North of the sub-major divide water drains into a tributary of Drawyers Creek, which in turn flows into the Appoquinimink Creek.

Geology

Basic geology should be a major factor in planning considerations because an understanding of the physical properties of the land is essential to its efficient utilization. Rock type is a dominant factor in determining the production of ores, fuels, industrial minerals, and construction materials. It is also important in determining the availability and quality of ground water, foundation characteristics, and construction costs related to earth moving. Soils are generated by the decomposition and disintegration of rocks exposed at the surface in accordance with prevailing climactic conditions. Rock type and structure influence land forms and surface drainage patterns.

The geological base of the Atlantic Coastal Plain is composed of rocks which are loose or unconsolidated sediments. Although these materials have not hardened they are rocks in every geological sense. The geologic section is made up of layers or strata which have accumulated on top of one another. The situation is complicated by the gradation of individual layers into each other, both vertically and laterally. The rocks of the Coastal Plain contain fossils and have not been structurally deformed so that the history of the area is known in greater detail than that of the Piedmont.

The sedimentary layers are built on a platform of metamorphic rocks, in effect an extension of the Piedmont, that forms a base sloping gently towards the ocean. The sedimentary layers generally slope or dip in the same southeastern direction. They also tend to become thicker in this direction. In this way, the sedimentary units form a wedge-shaped mass with its thin edge lying at the Fall Line. The wedge reaches a maximum thickness of approximately 2,400 feet in the southeastern corner of the M-O-T Planning District.

Middletown and its adjacent area is underlain by the Rancocas Formation which occurs in a wide zone, four to five miles wide, extending from the Delaware westward into Maryland. This formation is found in the southern one-third of St. George's Hundred and the northern half of Appoquinimink Hundred.

The Rancocas Formation was formed some 68 to 72 million years ago during the Paleocene and Lower Eocene epochs of the Tertiary geologic period. Its sediments are green, grayish-green, brownish-green, and fine to medium-grained silty sand. The formation contains an unusually high percentage of glauconite (a green mineral occurring in small pellets). In the outcrops the sediments are indurated by iron ore (limonite). The maximum thickness of the Rancocas Formation is about 160 feet.

The Rancocas, as well as the other formations which make up the Coastal Plain, are covered by the sediments of the Columbia Formation. The deposition of the Columbia Formation occurred about one million years ago during the Quaternary Period at a time when the sea had retreated from the area and left behind land which was exposed to the destructive action of weathering. The sediments are composed mostly of fine-medium and coarse-grained quartz sands with gravel, cobbles, and even boulder beds. The composition as well as the thickness of the formation varies considerably from place to place. In several areas the Columbia has been stripped away and older rocks exposed.

Water Resources

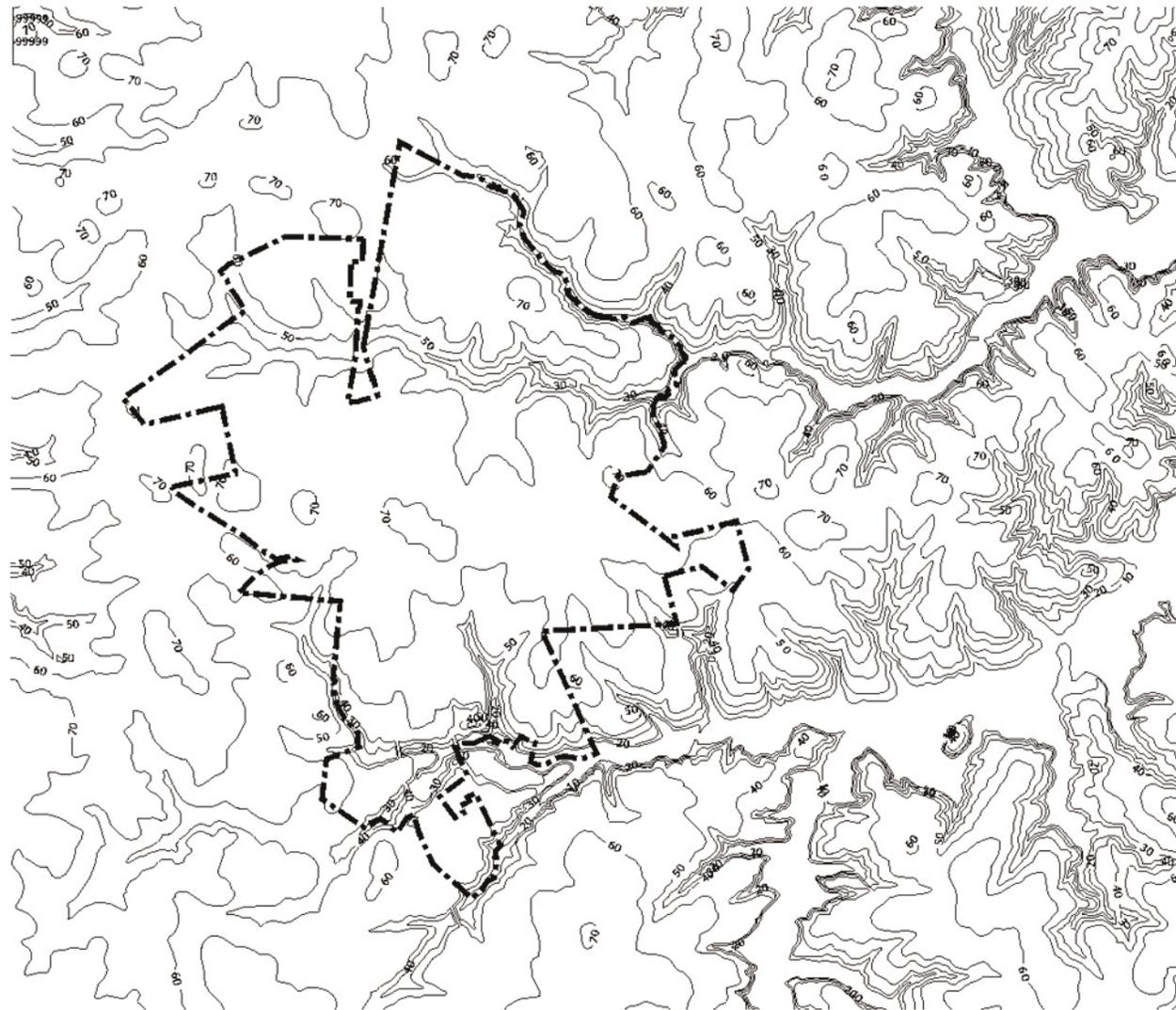
The management of water resources is an important component of preserving natural resources and managing long range growth. As development has increased in southern New Castle County the availability of water resources has become increasingly important. Water resources are a prime factor in determining the rate of growth throughout New Castle. Natural water resources are unevenly distributed throughout the County, and the development of residential, industrial, and commercial complexes will necessarily have to be encouraged in a manner which is compatible with the available water supply.

Surface water in the area immediately adjacent to Middletown is not particularly abundant, and difficulties develop during periods of drought. Generally, streams are relatively short and do not contain large amounts of water. Because the geological structure of the area is composed primarily of loose sediments, much of the rainfall does not drain directly into streams but instead penetrates into the ground, thus supplying the underground aquifers with water. Rainfall, however, indirectly supplies water to the streams by the overflow from the ground water reservoirs. The main source of surface water near Middletown is the Appoquinimink Creek.

Ground water in the Middletown area is moderately abundant but unevenly distributed. The compositions of the rocks, climate, and topographic features are, in general, favorable for the occurrence and accumulation of ground water. Precipitation is usually abundant and normally, evenly distributed throughout the year. Many of the sediments of the geological base are fairly porous and permeable; thus, almost every sedimentary formation yields some water.

The Rancocas Formation is a very important water-bearing formation in the M-O-T Planning District. It has uniform coarse texture and shows little variation in permeability and porosity. The formation is widely distributed.

The Columbia Formation is the last of the sedimentary layers to be deposited, and its sheet of sand and gravel covers the older formation almost entirely. Because of its high permeability it can yield water to shallow wells in great quantities. It is of irregular thickness, and its productivity varies with the thickness. Thus, large yields are obtained where sufficient saturated thickness is available, and productivity is locally limited where not enough drawdown is available to induce large flows to wells. The water in the Columbia Formation is not confined or insulated by impermeable beds above, therefore, it is susceptible to contamination. Most of the water that enters the older, underlying formation must first pass through the Columbia Formation. Fortunately, it is permeable and will permit the recharge of the deeper units.



Town of Middletown

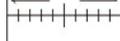
New Castle County

Map NF-1

Topography in the Middletown Area

 City Boundaries



2500 feet


The topography is derived from the USGS Digital Line Graphic files for the Middletown quadrangle map.

Map prepared by the Institute for Public Administration at the Geographical Informations Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

The quality of the ground water in both formations is variable. In the Rancocas Formation, near the outcrops, the water contains a high concentration of iron and is relatively hard. However, with increasing depth (southward) the concentration of iron progressively decreases and the water becomes moderately hard. The high concentration of iron in the outcrop-areas is attributed to the high percentage of glauconite in the sediments of the formation.

The concentration of dissolved solids in the waters of the Columbia Formation varies from place to place. In many localities the water is moderately hard. In a few places chemical analysis indicate an increase in the concentration of sulfate and chloride. The sediments of the Columbia Formation crop out in many localities or they may be overlain by the thin cover of the surface soil. Therefore, the ground water in the formation is exposed to contamination from the surface. This situation is illustrated by the high concentration of nitrate in the water of some wells near St. George's. Locally, the concentration of iron may be high, however, the water is satisfactory for most purposes.

Mineral Resources

The mineral resources found in the M-O-T Planning District consist mainly of unconsolidated and slightly indurated sediments: gravels, sands, silts, clays, and their mixtures. Gravel and sand are the two most important engineering materials, and their production exceeds many times the production of clay. However, not all of the sands and gravels present in this part of New Castle County are equally suitable for engineering purposes. Most of the sand and gravel is only good for "borrow," that is, it is dug from pits and used as fill for construction purposes. Depending on its engineering properties, such material may be graded as select borrow or common borrow. Gravel and crushed stone may be used as aggregate, the inert ingredients that are mixed with cement or bituminous products to form concrete and asphaltic concrete.

The Rancocas Formation is composed of silty sands and contains large amounts of glauconite. Glauconite is a green mineral which has a very complex chemical composition. In the Rancocas Formation, it contains an average of about nine percent of potash which makes it suitable for use as a fertilizer. In addition, it contains aluminum, iron, silica, magnesium, and a number of other elements. Glauconite sands of the Rancocas Formation can also be used as a water-softener. The accessibility of the Rancocas offers a good possibility of economic exploitation and mining of this valuable material.

The Columbia Formation is composed of sands with gravels and some silts and clays. The material is suitable for aggregate. Sands and gravels of the formation have been, and still are, the main and most important source of engineering materials in the County, and where they are present they are at the surface and easily accessible. Their properties and wide distribution make them the most valuable material in the area.

Soils

The mechanical and physical characteristics of soils depend upon their compositions and moisture content. The compositions of soils is directly related to the composition of the rocks from which the soil was derived and to the climate. The term "soil" is applied to the product produced by the weathering of rock. Weathering refers to the physical (erosion by wind and water action) and the chemical (reaction to water) processes. Moisture is contributed to soils by many natural processes. Major processes which intermittently saturate soils include stream and tidal flooding and fluctuations of the water table.

A flood plain is considered a strip of relatively smooth land bordering a stream and overflowed in times of high water. Deposition from overbank flow is responsible for the formation of most flood plains. Therefore, the formation of a flood plain is in fact a constructive process in the evolution of the stream valley associated with a particular climate, topography, and hydrologic regime of a drainage basin.

A tidal plain is defined as a flat coastal land that is overflowed by sea water at high tides. A tidal plain is a feature of low coastal areas. It is formed by the intermittent rising and falling movements of the sea. Tidal plains are basically associated with the topography of a coastal land area. Tidal influence is felt as far west of the Appoquinimink as Silver Lake and on Drawyers Creek west of Odessa.

The lowest altitudes of the water table are close to the mouths of the major streams in the tidal marsh zone. Elevations of the water table increase as the distances from streams increase toward the drainage basin divides and are greatest along the regional drainage divide just west of Middletown.

The water table is not constant, it fluctuates, and seasonal fluctuations are most important. Water table position is indirectly related to annual rainfall. The water table as the result of the rainfall does not register the total recharge of the ground water, but rather the excess of the recharge over the discharge. When the water table lies at considerable depth below the land surface, water from the surface may arrive at the water table at a relatively constant rate and may be more or less continuously offset by percolation out of the area. Under such conditions slight fluctuations may register only a small part of the actual recharge. In some areas a very small diurnal fluctuation of the water table can be caused by the withdrawal of the ground water by plants.

This, however, is the case only where the water table is very shallow and close to the land surface. The water table can be seriously changed artificially by the action of man. A number of wells drilled in a particular area can strongly influence water table conditions in the area by removing water from the ground and lowering the water table.

Engineering Soils

The term "soil" generally refers to the product produced by the weathering (alteration by physical and chemical processes) of exposed rock. "Engineering Soils" is a term applied to all loose or moderately cohesive materials including gravel, sand, silt, and clay which may not be weathered.

Soil Associations

One of the most important uses of the patterns of soils is to identify fairly large areas that are suitable for certain types of land use. The several main patterns as a rule contain few major soils and several minor soils in a pattern that is characteristic, although not strictly, uniform. Within any one association the soils are likely to differ in some properties such as depth, slope, stoniness, or natural drainage. A name generally taken from the locality where it was first recognized and described is given to each soil series. Five of the eight soil associations found in the Coastal Plain Province are found in the M-O-T Planning District. These are: Matapeake-Sassafras Association; Fallsington-Sassafras-Woodstown Association; Sassafras-Fallsington Association; Keyport-Elkton Association; and Tidal Marsh Association. Within Middletown and in its immediate area only one association appears, the Matapeake-Sassafras Association.

The Matapeake-Sassafras Association is the most prominent soil association in the M-O-T Planning District. The deep, well drained, silty Matapeake soil dominates the association. The proportion of Matapeake to Sassafras soils is approximately four or five to one, and the two series together comprise approximately 85% of the area of the association. The remaining 15% is divided mostly between the moderately well drained Woodstown soils and the poorly drained Fallsington soils, as well as the poorly drained Johnston soils that are subject to flooding. There are some small deposits of mixed alluvial land.

The association as a whole is characterized by nearly level to steep slope. The average slope is less than 3 percent over approximately 80 percent of the area. There are practically no limitations on use with respect to major soils except those imposed by slope and local erosion conditions. In many areas agriculture is both intensive and extensive. The agricultural potential is generally greater than in any other soil association or area of the County.

A large portion of Middletown, mostly the older built-up area, is covered with Made Land. Made Land consists of areas that have been filled with soil material brought in from other areas and land that has been so altered or disturbed by urban works and structures that classifying the soils is no longer feasible.

Development Limitations

On the basis of various soil characteristics, a map was prepared of the soil limitations for planning and development in Middletown and its immediate area. Four categories were used: (1) slight or moderate soil limitations for houses, small buildings, light commercial, and light industrial and light institutional buildings (less than three stories); (2) severe soil limitations for houses and small buildings (less than three stories); (3) severe soil limitations for light commercial, light industrial, and light institutional buildings (less than three stories); and (4) severe soil limitations for houses, small buildings, light commercial, light industrial, and light institutional buildings (less than three stories).

Soil limitations are based on the following criteria:

Bearing Strength: The load bearing capacity of the soil in a wet state to a depth of five feet is such that foundation loads of more than 2 tons/square foot may prove excessive;

Flooding hazard: The frequency of the out-of-bank stream flow imposes restrictions for building purposes;

Percolation rate: The percolation rate of the undisturbed soil is such that it limits the functioning of septic tank sewage disposal systems;

Topography: The topography of the soil landscape is such that it limits normal construction of building; and

Wetness hazard: The year round or seasonal internal and/or surface water characteristics are such that water management problems exist.

Severe Soil Limitations for Houses and Small Buildings (Less than Three Stories)

This interpretation indicated soil limitations for construction and maintenance of homes and small buildings having less than three stories with basements.

Soils are important in the construction and maintenance of building foundations and basements. The cost of excavation, the bearing strength of the foundation, and the drainage around the basement will not only support the building without undue settling and cracking, but will also be dry throughout the year. Sound construction techniques should provide adequate drainage around the foundation or footing to prevent undue settlement and wet basements. Soil characteristics affecting building sites include depth to seasonal high water table, slope, depth to bedrock, stoniness, and flooding hazard.

Severe limitations exist under the following conditions:

Depth to seasonal high water table is less than 1-1/2 feet below the surface;
Slope exceeds 15%;
Depth to hard bedrock is less than 3 feet;
The soil is extremely stony; and
Flood hazard is occasional to frequent.

Soils which present severe limitations to building in this category because of the wetness hazard are Fallsington loams and Johnston loams. Soils which present severe limitations due to a flooding hazard are Johnston loams and Mixed Alluvial soils. Soils which present severe limitations due to topography are Sassafra and Matapeake soils on slopes exceeding 15 percent.

Severe Soil Limitations for Light Commercial, Light Industrial, and Light Institutional Buildings (Less than Three Stories)

This interpretation indicates soil limitations for the construction of light institutional, industrial, and commercial buildings having structure or equivalent foundation load bearing requirements of less than three stories. The ratings are made generally for buildings placed on slab construction. Principal consideration is given to those facilities which normally need or prefer level site conditions.

Soils are important in the construction and maintenance of building foundations. The cost of excavation, the bearing strength of the foundation and drainage around the foundation depend on the soil. Sound construction techniques should provide adequate drainage around the foundation and beneath the slab floor. In soils with impaired drainage, this might include porous fill and tile drains both under and around the structure. Sites with unstable soils can be used only when engineering designs are prepared to offset these conditions. Soil characteristics affecting the construction of light industrial and commercial buildings include depth to the seasonal high water table, slope, depth to hard bedrock, soil stability, and flood hazard. Severe limitations exist under the following conditions:

Depth to seasonal high water table is at the surface, some ponding;
Slope exceeds 8%;
Depth to hard bedrock is less than three feet;
The undisturbed soil lacks stability and has poor bearing quality; and
The flood hazard is occasional to frequent.

The soil which presents severe limitations to buildings in this category because of the wetness hazard is the Johnston loam. None of the soils found in Middletown present a severe limitation due to bearing quality. The soils which present severe limitations due to flooding hazard are the Mixed Alluvial soils.

The soils which present severe limitations due to topography are the Sassafras and Matapeake soils on slopes exceeding 8 percent.

Severe Soil Limitations for Houses, Buildings, Light Commercial, Light Industrial, and Light Institutional Buildings (Less than Three Stories)

The most severe limitations occur on those soils which present severe limitations for both building categories. The soils in this group are Johnston loam, Mixed Alluvial soils, and the Sassafras and Matapeake soils. In addition to the above soils, Made Land, gravel pits, and tidal marsh should all be considered as having severe soil limitations for all purposes until on site tests prove otherwise.

Other Limitations

Other types of development also limited because of the quality and nature of an area's soils are agriculture, streets, parking lots, sewage areas (septic tank system), and recreation areas.

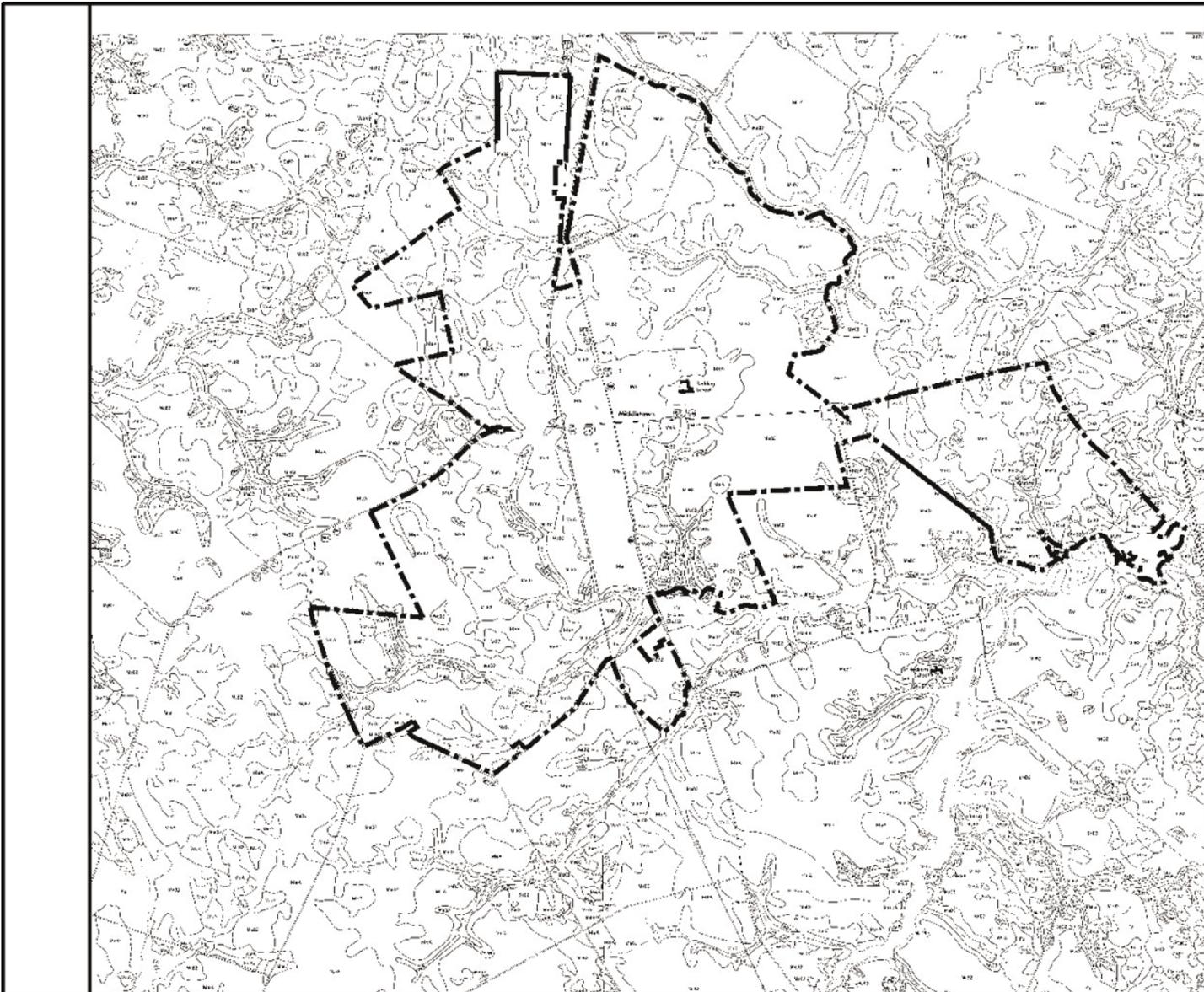
Map NF-2: Soil Survey for the Town of Middletown and Surrounding Areas lists the soils found in Middletown and its immediate area. The table 12 list the soil classifications with slope categories and degree of limitation expressed as being slight, moderate, or severe.

Table 12: Soil Limitations

Soil Classification	Slope Category	Homes with basements (3 stories or less)	Streets and Parking Lots	Septic Tanks	Intensive Play Areas	Extensive Play Areas
Matapeake Silt Loam (MeA)	0-2%	Slight	Slight	Moderate	Slight	Slight
Matapeake Silt Loam (MeB2)	2-5%	Slight	Moderate	Moderate	Moderate	Slight
Matapeake Silt Loam (MeC2)	5-10%	Slight	Severe	Moderate	Severe	Slight
Matapeake Silt Loam (MeC3)	5-10%	Slight	Severe	Moderate	Severe	Slight
Matapeake Silt Loam (MeD2)	10-15%	Moderate	Moderate	Moderate	Severe	Moderate
Matapeake Silt Loam (MeD3)	10-15%	Moderate	Moderate	Moderate	Severe	Severe
Fallsington Sandy Loam (Fa)	Varies	Severe	Severe	Severe	Severe	Severe
Fallsington Loam (Fs)	Varies	Severe	Severe	Severe	Severe	Severe
Mixed Alluvial Land	Varies	Severe	Severe	Severe	Severe	Severe
Woodstown Sandy Loam (WoA)	0-2%	Moderate	Moderate	Moderate	Moderate	Slight
Woodstown Loam (WsA)	0-2%	Moderate	Moderate	Moderate	Moderate	Slight
Sassafras Sandy Loam (SaA)	0-2%	Slight	Slight	Slight	Slight	Slight
Sassafras Sandy Loam (SaB2)	0-2%	Slight	Moderate	Slight	Moderate	Slight
Sassafras and Matapeake (SmE)	15-30%	Severe	Severe	Severe	Severe	Severe
Johnston Loam (Jo)	Varies	Severe	Severe	Severe	Severe	Severe
Othello Silt Loam (Ot)	Varies	Severe	Severe	Severe	Severe	Severe
Mad Land and Urban Land (Ma)	Varies	Various*1	Various*1	Severe	Various*1	Various*1

Source: Soil Conservation Service, US Department of Agriculture and Department of Planning, New Castle County
 1 "Various" should be considered "Severe" unless on-site tests prove otherwise

Map NF-2 show that soil limitations exists in stream corridors and along wetland areas. The town of Middletown and the area surrounding Middletown has localized soil limitations for construction of homes and other urban uses as examination of the map of the Soil Survey demonstrates. Soil limitations for development have incorporated in the future land use plan.



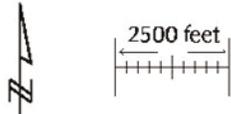
Town of Middletown



New Castle County
Map NF-2

Soils Survey for the
town of Middletown
and Surrounding Areas

 City Boundaries



The soils maps are a reproduction of the 1970 New Castle County Soil Survey maps compiled by the Soil Conservation Service, USDA from a 1968 soil survey.

Map prepared by the Institute for Public Administration at the Geographical Information Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

Recreation and Open Space

The provision of open spaces, recreation facilities and greenways has been recognized by the town of Middletown as an important component of maintaining a high quality of life for town residents. Middletown has worked in the past to provide adequate park and open space and has cooperated with other levels of government to provides these amenities. Outdoor recreation facilities take many forms in Middletown from a neighborhood park to a regional park and recreation area to the development of golf courses and finally to the preservation of natural corridors. Incorporation of open space, greenways, and recreation facilities into the design of new development and the provision of adequate facilities and space for existing residents is a main priority for Middletown. A high priority for commercial, manufacturing and office parks is the use of environmentally and visually appealing open space and landscaping screening.

Goals for Open Space and Recreation

- Provide adequate recreation facilities and usable open spaces for the residents of Middletown.
- Protect riparian areas through preservation of stream corridors.
- Encourage cluster development to provide increased open space for both passive and active recreation areas.
- Develop a interconnected greenways system for the town and connection to the state resource areas and the Coastal Heritage Greenway.
- Participate in the implementation of the Statewide Comprehensive Outdoor Recreation Plan and the open space and recreation goals of the New Castle County Comprehensive Development Plan

Current Facilities

The town of Middletown operates Silver Lake Park which was developed in a partnership with New Castle County Department of Parks and Recreation. The Silver Lake Park is 22 acres located at the site of the Silver Lake Elementary School on the southeast side of town. There are one baseball field, two softball fields, five soccer fields (two with bleachers), four tennis courts, a community sized pool, an all-weather running track, a picnic area, a playground and two new pavilions. The town has had operational control of the area for the past two years. There is a neighborhood park located on Lake Street which has playground equipment. A little league field is located on West Green Street which is on land owned by the town of Middletown and operated

by the M-O-T Little League.

Appoquinimink School District facilities are also available to Middletown residents. The Redding Middle School has a baseball field, a football field and a track. There is also a basketball court, a horseshoe pit, and a volleyball area. Middletown High School has a baseball field, a softball field, and a football field. At Cedar Lane Elementary, north of town, there are two multipurpose areas and one picnic area. Located just outside of Middletown on the south side of town is Wiggins Mill Park. This park is made up of 193 acres and is run by the New Castle County Department of Parks and Recreation. This park is primarily used as open space and has had limited amenities.

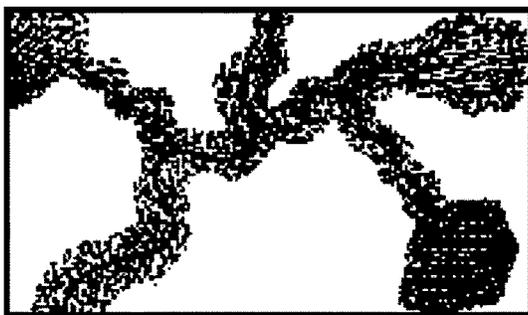
Recommendations for Open Space and Recreation

The plan recommends in the Land Use Section a set of land use policies which will provide open space and areas and amenities for recreation. Middletown is currently the center of recreation and park land for southern New Castle County and the plan recommends a continuation of this policy. The development of additional park facilities will require intergovernmental coordination between the town, county and state to provide the highest quality and most cost efficient recreation facilities. The plan further recommends that Middletown protect riparian areas through the preservation of stream corridor and sensitive natural areas during the development process.

Riparian Corridor Preservation

The plan recommends that the Zoning Code and Subdivision Ordinances be revised to include a provision for preserving riparian corridors. The protection of riparian corridors will provide wedges of passive open space along streams and lakes. These corridors serve to link natural areas and provide wildlife passages. The riparian area includes the stream, associated wetlands and the flood plain. Figure 2. Riparian Strips Serving as Wildlife Corridors, provides an example of preserved riparian corridors.

Figure 2. Riparian Strips Serving as Wildlife Corridors



Source: T. King, R. Stout, and T. Gilbert, *Habitat Reclamation Guidelines*, Florida Game and Fresh Water Fish Commission, 1985, p. 27.

Greenway Development

Middletown has areas that have been dedicated to public uses along stream corridors that can be connected into a greenway and pedestrian network. A greenway is a corridor of open space that can provide an alternative pedestrian network. The transportation section of the plan recommends the development of alternative modes of transportation and the implementation of a greenways plan is one way to provide recreational transportation options. The growth management and land use section of the plan further recommends the incorporation of greenways and pedestrian walkways into the development proposals. Therefore the plan recommends the development of a greenways network for the town.

Map OP-1: Proposed Greenway Network provides a guide for the development of a greenway system. The greenway network would be interconnected with the existing and proposed pedestrian and bikeway network to provide a pedestrian and bike circulation pattern through the town. The greenways primarily follow stream corridors and wooded areas. The greenway system would interconnect existing town properties along Deep Creek to proposed development along Silver Lake and the Silver Lake Park. When properties are developed along Silver Lake the greenway would be continue along Silver Lake and Appoquinimink Creek. The greenway network on the north side of town would follow the Drawyer Creek stream bed with interconnection to existing and proposed open spaces. The question of incorporation of existing private open space as part of the network would need to be dealt with on a situation by situation basis with goal of integrating private and public interests.

The plan recommends coordination and solicitation of input from the Department of Natural Resources and Environment Control Division of Parks and Recreation and the New Castle County Department of Parks and Recreation on the possible integration of the greenway network with the state and county greenway network. It also recommends coordination with the Delaware Department of Transportation to

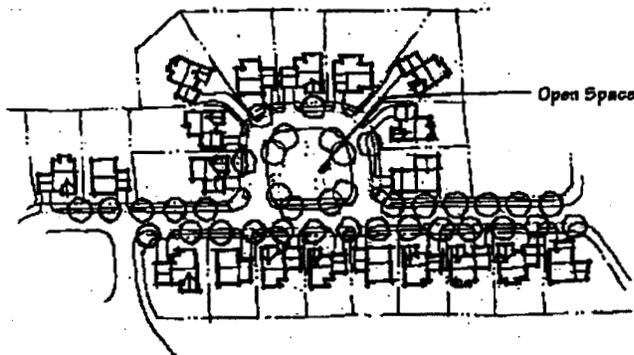
determine the uses along routes and interconnections with state bike routes. It is recommended to access through the Delaware Land and Water Conservation Trust Fund and the Intermodal Surface Transportation Enhancement Act (ISTEA) Enhancement Funds for assistance in the development of greenways and park land along greenway corridors.

Reinforcement of the Open Space Requirements

The plan recommends a review and revision of the open space requirements for new development. It recommends increasing the amount of passive and active open space and a provision for development of park and recreation facilities as part of the development process. Increased usable open space that has been provided to the public will benefit the developer, land owner and town by creating more amenities to the home buyer and an attractive community.

Figure 3. Usable Open Space as Neighborhood Focal Point, demonstrates how neighborhood open space and parks are recommended to be designed to increase the usable open space. A common design practice for dedicated public open space has been to designate unbuildable areas, odd shaped lots or end lots as open space. The plan recommends that parks and passive open space be designed as the focal point of neighborhoods. The Growth Management and Land Use section of the plan further details recommendations for open space dedication.

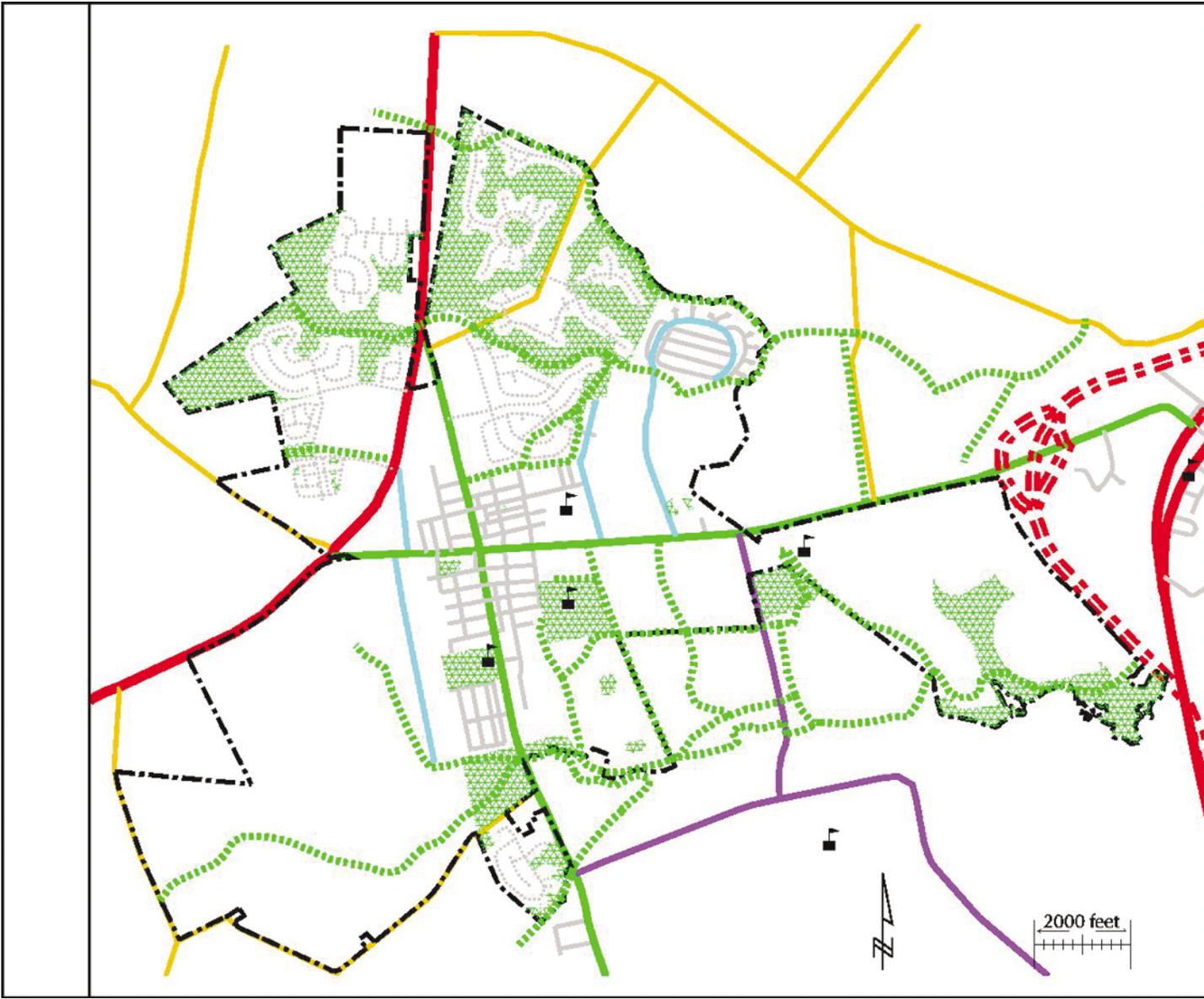
Figure 3. Usable Open Space Serves as a Neighborhood Focal Point



Source: LDR International

Regional Park

New Castle County in the 1997 Draft Comprehensive Development Plan Update proposed the creation of two District Parks in Southern New Castle County. The M-O-T Area Proposed District Park is proposed to be located on the southeast side of Middletown. New Castle County has



Town of Middletown



New Castle County

OP-1 Proposed Greenway Network

- Proposed Greenway
- Principal Arterials
- Minor Arterials
- Minor Collectors
- Rural Collectors
- Subcollectors
- Residential Access Streets
- State Route 1
- Proposed Residential Access Streets
- Open Space



The data source for the roadway network is the USGS quadrangle maps.

The function classification of the road network is based upon 1992 Functional Classification Map of New Castle County prepared by DelDOT and last revised on 10/26/94.

Map prepared by the Institute for Public Administration at the Geographical Informations Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

acquired property east and south of town adjacent to Silver Lake Park and along Silver Lake Road for the development of this regional park.

The plan recommends that the town of Middletown work with New Castle County to develop a joint regional park to serve both the town of Middletown and the M-O-T area. The Growth Management and Land Use section of the plan recommends a site along Silver Lake as a possible location for this regional park. The park would be interconnected with a greenway along a stream corridor with the Silver Lake park and with possible neighborhood parks within residential developments on the south east side of town. When areas are developed along the Appoquinimink Creek the plan recommends a continuation of open space and park facilities along the creek to provide for an interconnected network of parks, open space and preserved natural areas.

Historic Preservation

The preservation of the heritage of the town of Middletown and of the historic place in the town strengthens the legacy of the past and provides a basis for community. These historic places provide a connection to the past and as a building block for future development. The character of development of the Middletown historic district incorporates many principles recommended in this plan for future development and provides an example of integrating land uses and community activities. The town of Middletown has demonstrated a preservation and reuse ethic through public policy decisions to continue the Old Middletown Academy as the Town Hall and through adoption and use of a historic preservation ordinance as part of the Zoning Code.

Goals for Historic Preservation

- * Encourage the restoration and redevelopment of historic properties throughout the town of Middletown.
- * Continue the preservation of historic properties through the use of the historic preservation regulations.
- * Preserve historic and archeological resources on properties annexed into town.

Middletown's Heritage¹

On March 4, 1675, a Swede named Adam Peterson purchased 200 acres of land. Middletown is situated on a portion of this land. Subsequently, Scotch-Irish and Dutch families settled in this area, and a farming community arose and began to prosper.

It was around the 1750s that the name Middletown first came into use. The name refers to the town's position mid-way between the head of the Bohemia River and the waters of the Appoquinimink Creek. Since the portage of six miles between these two bodies of water was the shortest on the peninsula, Middletown prospered from its beginning.

In 1761, David Witherspoon built a "publick house" which was to become popular in Middletown as a stop-over for travelers along the Upper King's Road. Many notables of the Revolutionary period such as Caesar Rodney stopped at the Witherspoon house for rest and refreshment. During the Revolutionary War, there were many patriots from the Middletown area who joined the cause for "Liberty and Independence." Once during the campaign the Delaware Continentals under the command of Caesar Rodney encamped at the Noxontown Mill, the exact spot being marked for today's visitors to that area.

As Middletown prospered, the size of the village grew in proportion to the businesses that opened here including: a tannery, a wheelwright, an iron works, mills, and dry goods stores. The water transportation provided the nearby town of Odessa with a sound economy for many years. Farmers from this area were able to bring their small grains in wagons to Odessa from which point the products would be shipped to a hungry world. In about 1834 the Pennsylvania, Baltimore and Wilmington Railroad (PB&W) proposed to run their line through Odessa. However, the townspeople wanted no part of the noisy, sooty iron horses, so in 1855 the PB&W built a depot in Middletown, and from that time on Middletown prospered as never before. The success of the railroad brought prosperity and three decades of economic and social progress.

By the middle of the nineteenth century Middletown had a population of 368 people. Fifty years later it was the largest village in the Hundred. As the population grew schools were erected, the most famous of which is the Middletown Academy, built in 1826. Today this building is perhaps the most revered in town. Its very presence reminds native inhabitants of days gone by. It is now owned by the Middletown Mayor and Town Council and is currently used by the Town offices.

Middletown's charter was signed on February 12, 1861. The Delaware Railroad had been put through in 1855, and Middletown was humming with activity. Odessa was uninterested in having the railroad because of her boat trade with Philadelphia, so it was decided to run it through the hamlet of Middletown, called by many at that time Mrs. Blackston's Corner after an elderly lady who lived in the old house next to Schagrin's store. The first council decided the town should be one mile square, commencing at the center of the crossroads and extending one-half mile in each direction. Thus it was known as the "Diamond Town of the Diamond State."

On March 4, 1861 following the granting of the charter, an election was held for five Commissioners to serve a one year term. Middletown began to expand the services that government could provide to its people. On April 12, 1862 the Commissioners approved the levy of a tax and resolved that \$300 be raised by taxes. The amount of taxes raised in 1862 was \$362.85. By March 1866 the Town leaders began to consider providing street lighting. Police protection has been provided for Middletown residents since 1873. In 1893 the first Light and Water Commission was organized making Middletown one of the first towns in the State to have electricity. In 1924 the town took over and operated the utilities. The electric plant was sold in 1947 to Delaware Power and Light Co., which continues to supply electricity to the town today.

Industries

Tanning, distilling, and wheelwrighting were the principal early industries in Middletown. The earliest industry of which there is record was the old Peterson tannery at the east end of town. Two or three

tanneries are said to have been in operation at one time. Wheelwrighting was also an early industry. Other businesses in the town from 1870 to 1890 included two foundries. The Delmarva Manufacturing Co. was incorporated in 1873 with a capital stock of \$20,000. Two acres were purchased west of Cochran Street. The buildings were fitted with four evaporators, their capacity being 800 baskets of peaches, 48,000 ears of corn, and 3,500 baskets of berries per day. In 1882 a partnership was formed for the purpose of canning fruits and vegetables under the name of Biggs, Clayton, and Company. Employment was given to about 120 people. In 1887 J.B. Maxwell erected a cannery for putting up the "Lion" brand of tomatoes, and 150,000 cans were shipped annually to Philadelphia.

Commerce

The Middletown Transcript, Middletown's weekly publication, was first published by Charles H. Vanderford on January 4, 1868. The paper was printed in the basement of a building on West Main Street on an old Washington hand-press that could print about one copy per minute. During the 1880s the editor was the nationally-known humorist and writer W. Scott Way. After having been published in five different locations the paper was purchased in 1900 by Thomas S. Fouracre, who constructed the building that now houses the offices and printing plant on West Main Street. In 1926 Mr. Fouracre purchased his only competitor, the New Era, which had been established in 1885 by Freeman and Webber.

Mills

Among the many early grist-mills in the vicinity, such as Willow Grove, Harmon's, Vance's and Murphy's, is the Noxon Mill at the head of the Appoquinimink Creek. Thomas Noxon erected two mills: one, known as Drummond's Mill, for custom work; and one that is believed to be the older mill, Noxon Mill, erected prior to 1736, which is a four-story framed building used solely for merchant work by ships loading at its door. At Noxon's death the mills were devised to his son Benjamin. Eventually the Noxon Mill came into the possession of W. E. Evans, whose family has owned the property for five generations. The family operated a store in Middletown for the merchandising of the mill products.

Creameries

During the era when farmers delivered their milk locally, Middletown had two creameries. The "Farmers' Creamery" established about 1906, was a cooperative enterprise of a number of farmers in the neighborhood. The older and larger creamery was know as "Arcadia Dairies" or "Middletown Farms" and was established in the southwest section of town in 1878 by Charles H. Cook and Frederick Brady. It was one of the largest manufacturers of milk products in the east and had a capacity of over 1,000 gallons of ice cream per day, selling more than

150,000 gallons each year throughout the entire Peninsula. The company operated a retail store in the old Eighth Street Market House in Wilmington for their products and conducted a retail milk-route in the city. Each summer they had an ice cream store in Ocean City, Maryland. The company went out of business in 1932.

Middletown's Historic District

The Middletown Historic District, established in 1977, encompasses the irregular area roughly defined by East and West Lake Streets on the north, North and South Cox Streets on the east (but extending along East Main Street to Catherine Street), East Redding Street and West Main Street on the south, and North Scott Street and South Broad Street on the west. The current district includes nearly 200 residential, commercial and institutional buildings representing the town's architectural and urban development from the early nineteenth century through the early twentieth century. Most of the resources date from the latter half of the nineteenth century. This outstanding collection of buildings constitutes the historic heart of the town.

Organization and Form

The Town

Middletown is organized by a grid centered around the crossing of Broad Street, a former King's Highway of the eighteenth century, and Main Street, the former Hermann's Cart Road of the seventeenth century. Alleys pass through the middle of some blocks. Building lots have narrow street frontage and extend about half the depth of the block. Major buildings stand flush with or very close to the street. Smaller buildings, such as those on East Main Street and East Lake Street, tend to be tightly spaced, while larger buildings, such as those on North Cass Street and South Broad Street, stand further apart.

The historic district and the town have a clear pattern of organization and hierarchy. Major commercial and public buildings cluster at the intersection of Main and Broad Streets, within walking distance of residential areas. The major roads leading into and out of town are the sites of many of the grandest dwellings, while modest dwellings line the side streets. The historic district includes housing for low-, moderate-, and high-income families in single- and multiple-unit dwellings. Churches and schools are interspersed throughout the community. Industrial development, excluded from the district, occurs along the railroad tracks to the west of town.²

The Dwellings

Spaces within individual residential lots are also arranged in an ordered, hierarchical manner. Most of the dwellings have front porches facing the street, some meeting or extending over the sidewalks. Although some

porches, particularly along East Main Street, are not original,³ they have existed long enough to be considered part of the houses' historic development. Porches traditionally served as a buffer between street and dwelling and as a space for social interaction.

Inside the dwellings, entry halls and parlors traditionally occupied the front rooms and had the most elaborate ornamentation and furnishings. Behind, dining rooms and family sitting rooms had more simple finishes. On upper floors, bed chambers followed a similar hierarchy, with master and spare rooms located to the front and others to the rear. These five types of spaces, or some combination thereof, formed the main blocks of dwellings. Preservation ordinances primarily apply to this portion of a house.

Rear ells, usually frame, extend to the rear of most dwellings. These wings traditionally housed service spaces such as kitchens. Although frequently mistaken for additions, ells were constructed as part of new dwellings beginning in the early nineteenth century. Most have been heavily altered over the years. An ell is therefore an appropriate place for modern kitchen and bath facilities.

Behind the dwellings stood outbuildings such as chicken houses and privies. Gardens and other outdoor work spaces were also located here. Stables and garages stood at the rear of the lots, often along alleys.

Architectural Styles

Architectural styles represented in the historic district range from the Federal and Greek Revival of the early nineteenth century to the Colonial Revival of the early twentieth century. Included are a range of late-nineteenth century eclectic styles.

Among the earliest remaining buildings constructed in Middletown is the Middletown Academy. This and other early-nineteenth century buildings, such as 7 East Main Street, represent the Federal and Greek Revival styles. These buildings have relatively simple, usually symmetrical facades and often have bands of small frieze windows at the third story level. Other identifying features include ornamentation around and over the door and a decorative cornice.⁴

The coming of the railroad and the prosperity of the mid-nineteenth century brought a range of eclectic styles to Middletown. The Gothic Revival style, exemplified by St. Anne's Episcopal Church on East Green Street, emerged in the 1840s and recalled medieval European manors and churches. Gothic Revival buildings commonly feature steeply-pitched roofs, often with centered cross gables, windows and doors with pointed arches, and decorative vergeboards under the eaves.⁵

The Italianate style, based on architecture of the Renaissance, dominated new construction from the 1850s to the 1880s.⁶ The double dwelling at 115-117 West Main Street is a good example. Common features of Italianate buildings include tall, arched windows, low-pitched roofs and heavy brackets under the eaves.⁷ Second Empire buildings have many features in common with Italianate buildings but are distinguished by their unique mansard roofs. The mansard shape, seen on the Fire House on South Broad Street, was developed in seventeenth century Paris and revived in the mid-nineteenth century.⁸

The Stick style, one of many late-nineteenth century styles commonly called "Victorian," was derived from half-timbered medieval houses of Europe.⁹ Dwellings of this style commonly have steep roofs and open eaves accented by decorative trusses and exposed rafters.¹⁰ Exterior walls often feature mock exposed timbers and varying patterns of clapboard and shingle.¹¹ Houses of the Queen Anne style, such as 101 South Broad Street, usually have more irregular rooflines, asymmetrical facades, and asymmetrical porches with turned spindles and posts.¹² Dwellings of the later Shingle style also have irregular rooflines and asymmetrical facades, but have reduced ornamentation, walls completely clad in shingles, and deep, rambling porches.¹³ Number 204 South Broad Street has many features of a Shingle-style dwelling.

The early-twentieth century saw the revival of Colonial styles. Early Colonial Revival dwellings, such as 105 South Broad Street, usually have low-pitched, hipped roofs and wide front porches with classical columns.¹⁴ They are frequently symmetrical and often have ornamentation around the door.¹⁵ Later Colonial Revival dwellings more closely resemble their eighteenth-century models.¹⁶

Southwest of the current historic district, along West Cochran and West Redding Streets, is a cluster of mid-twentieth century craftsmen bungalows. These dwellings continued the tradition of the Stick and Shingle styles in their rustic ornament but represented a radical change in building form with their open floor plans and small scale. Developed in the 1910s and 1920s for a growing middle class, these dwellings are now considered historic and should eventually be included in the Middletown district.

Style is a difficult concept because many buildings blend aspects of more than one style. Others may have only a slight reference to a particular movement. These buildings, commonly known as "vernacular," are no less valuable than pure examples of style. Vernacular buildings reveal valuable information about how new ideas were spread through a region and adapted to daily lives. Middletown has an outstanding collection of buildings illustrating the diffusion of new and revived forms of architecture in the nineteenth and early twentieth centuries.

Preservation Ordinance

The ordinance governing the Middletown Historic District is based on the Secretary of the Interior's Standards for Rehabilitation. These guidelines, developed by the National Park Service in 1977, were meant generally to guide rehabilitation projects and specifically to determine eligibility for financial benefits for National Register properties.¹⁷ They have since been adopted by historic districts nationwide.¹⁸

The Middletown Historic District ordinance includes specific definitions of frequently confused terms such as preservation, rehabilitation and restoration. It also outlines the review procedure for requests to alter buildings within the district. While the Planning Commission does meet to review each request, the members are not required to consult an expert in preservation, architecture or history for every case. The consultation of the State Historic Preservation Office and the preservation planner of New Castle County should be considered prior to action concerning historic structures. A means of developing expertise within the town could be accomplished through the installation of a specialized Architectural Review Board (ARB) made up of architecture and preservation professionals.

Application of the Secretary of the Interior's Standards ensures a rehabilitation of the highest integrity. However, such a rehabilitation often requires the advice of someone experienced in interpreting the guidelines. Specific provisions often overlooked or misunderstood include retaining the buildings' original use; preserving rather than replacing the buildings' original materials; and including interior finishes in preservation efforts. Members of an Architectural Review Board would be familiar with these issues.

Conclusions

Middletown's historic district is located in the heart of the town. It follows a traditional grided plan long favored for its efficiency and livability. The district includes commercial and office spaces as well as dwellings designed in a range of architectural styles and affordable to a range of income levels. Middletown, like many other places, broke away from its traditional plan during the irregular annexations of the 1970s. The historic district could remain the focal point of the town's historic and contemporary development and function as the town center. The Future Land Use Plan designates the center of the historic district as the Town Center which would reinforce this area a focal point of future activity.

Footnotes For Historic Preservation Section

- 1 The Middletown' Heritage section of the 1996 Updated Middletown Comprehensive Plan has been based on the 1974 Adopted Middletown Comprehensive Development.
- 2 boundaries described in National Register of Historic Places nomination for Middletown Historic District.
- 3 Middletown Historic District nomination
- 4 as described by Virginia and Lee McAlester, *A Field Guide to American Houses* (New York: Alfred A. Knopf, 1991), 152-53, 178-79.
- 5 *Ibid.*, 197-98.
- 6 *Ibid.*, 212.
- 7 *Ibid.*, 210-11.
- 8 *Ibid.*, 242.
- 9 *Ibid.*, 255.
- 10 *Ibid.*, 254-55.
- 11 *Ibid.*
- 12 *Ibid.*, 262-64.
- 13 *Ibid.*, 288-89.
- 14 *Ibid.*, 320-21.
- 15 *Ibid.*
- 16 *Ibid.*, 326.
- 17 W. Brown Morton III et al., *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings* (Washington: U.S. Department of the Interior, National Park Service, Cultural Resources, Preservation Assistance Division, 1992), v-vi.
- 18 *Ibid.*, vi.

Transportation

The importance of the preservation, maintenance and upgrading of the transportation within and in the region surrounding Middletown was expressed during the public participation process. Town officials and the public indicated that the transportation system will be a major determinate in the quality of life for Middletown residents. The transportation plan recommends a connection between land use decisions at the town and county level and transportation investment decisions.

Transportation Goals

- ✓ Maintain and improve the existing transportation and circulation pattern within the town of Middletown.
- ✓ Encourage mobility friendly design that interconnects new development and the existing street pattern. The development of new road, pedestrian, and bicycle connections should provide for alternative routes to relieve congestion from internally generated trips.
- ✓ Connect land use and transportation decisions to preserve the capacity of existing and future transportation investments.
- ✓ Support the town's and region's economic well-being while by preserving and enhancing the internal transportation network and connections to the regional transportation network.
- ✓ Preserve the capacity of arterial roads such as SR 299, SR 71, and US 301.
- ✓ Extend the municipal character of SR 299 between areas already developed within Middletown to the new Middletown High School. A continuation of main street style street scape should be encouraged.
- ✓ Protect the capacity of major state investments in SR 1 and the realignment of US 301 through maintaining limited access and compatible land uses.
- ✓ Continue to work with New Castle County, the Wilmington Area Planning Council (WILMAPCO) and the Delaware Department of Transportation in implementing the county, regional and statewide long range plans. In addition Middletown will include county, regional and statewide transportation agencies in reviewing transportation impacts of development proposals.

Existing Transportation Facilities

This section describes the exiting transportation system serving the town of Middletown and vicinity. Middletown is located between two major existing north-south principal arterials and one planned and under construction major limited access expressway. An additional major expressway has been under study to replace and upgrade an existing principal arterial in the Middletown vicinity. In addition the major railroad line on the Delmarva Peninsula intersects the west side of town.

Roadways

The roadways within Middletown and the region surrounding Middletown can be grouped into the following categories:

- Freeway / Expressway
- Principal Arterial
- Minor Arterial
- Minor Collectors
- Subcollectors
- Rural Collectors
- Local or Residential Access Streets

Freeways or expressways are characterized as limited access facilities of at least four lanes that are not part of the Federal Interstate system. Principal arterials are major roadways that primarily utilize multi-lane design and serve as high volume corridors. Minor arterials are streets and highways that link towns and cites. Minor collectors serve intra-county destinations as opposed to regional destinations and provide connections to neighborhoods and arterial roads. Rural collectors interconnect rural areas with arterial roads. And local or residential access streets provide connection between individual homes and businesses within Middletown and collectors and arterials.

In addition to the DelDOT classification the classification of Subcollector was added to identify interconnecting roadways within Middletown. A subcollector would provide residential frontage and provide an alternative connection for traffic internally generated within a neighborhood located inside of Middletown.

Map T-1. Functional Classification Map displays the existing roadway and railroad map for the town of Middletown and the vicinity. Map T-1 displays the classification of existing roadways by functional classification. These functional classifications are based on information developed by the Delaware Department of Transportation, Office of Planning in cooperation with the U.S. Department of Transportation, Federal Highway Administration.

Railroads

The major north-south railroad line on the Delmarva Peninsula is located on the west side of Middletown. Conrail owns and operates this railroad line which serves as the primary railroad line for the entire Delmarva Peninsula south of the Chesapeake and Delaware Canal. This railroad line connects into the northeast corridor and provides transportation into statewide and regional destinations, including other modes such as the Port of Wilmington. The rail line is currently used as a freight line for the movement of goods. In the past passenger transportation was operated on this line but due the shift in mode choice across the region and nation by individuals to automobiles and specific limitation of the railroad line there no passenger service is provided or expected in the short to medium term.

The town of Middletown has had over time a variety of interconnections into this rail line. The possibility for intermodal transfer centers or site specific rail transportation through a railroad spur line to be provided for access to either a manufacturing or an industrial use still exists. The proximity of existing manufacturing and appropriately zoned properties to the Conrail line would allow for use of the rail line for freight transportation.

Public Transportation

The Delaware Department of Transportation has reorganized both regional and state wide public transportation systems into DART First State. The public transportation provide to Middletown primarily is operated by DART First State

Intercity Service

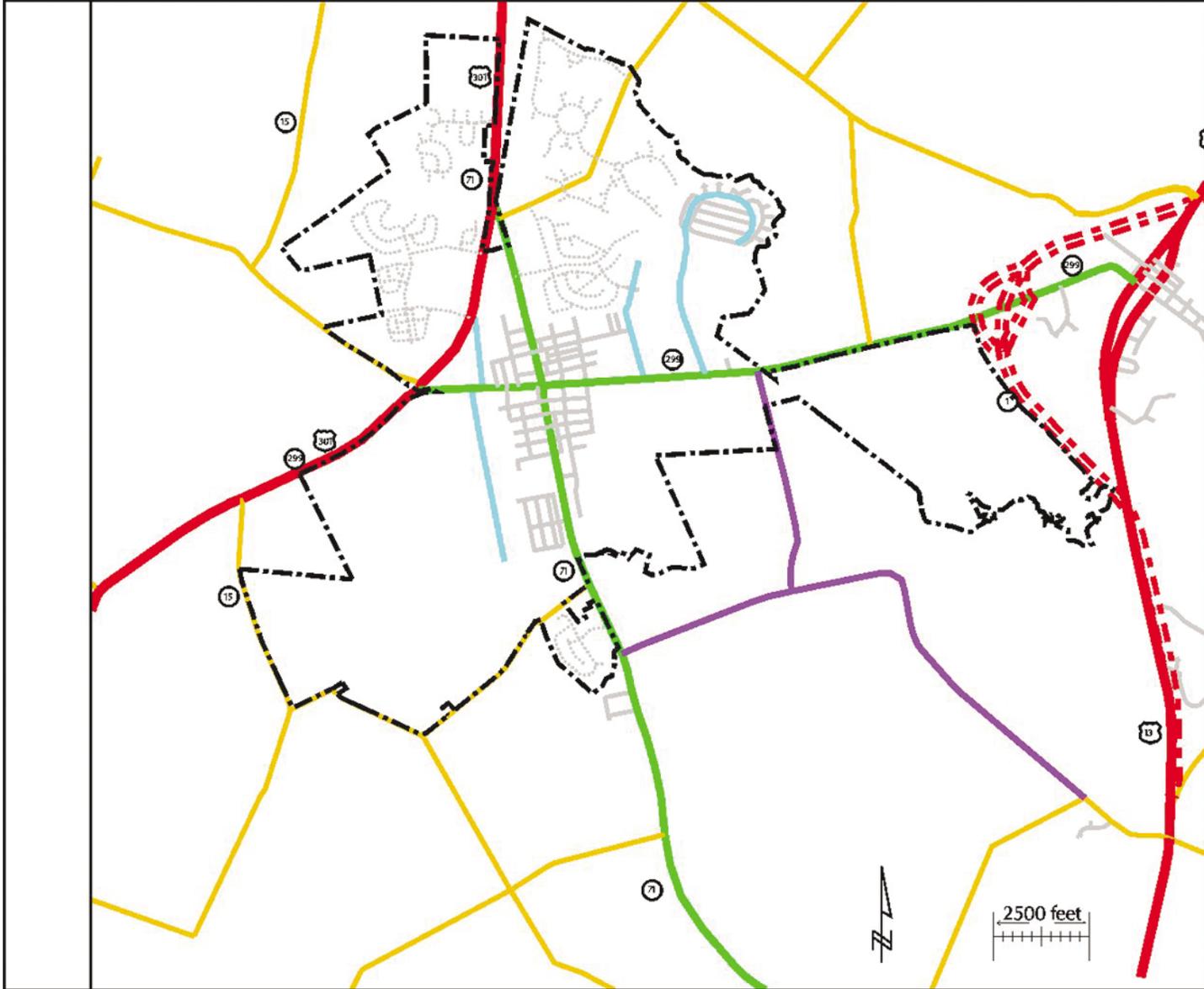
The Delaware Transit Corporation (DTC) provides public intercity bus service, formally know as the Blue Diamond service, through Middletown on SR 71. The service interconnects with local bus service in northern New Castle County and Kent and Sussex County.

Local Service

The Delaware Administration for Regional Transit (DART) operates fixed route service in New Castle County. Middletown has fixed route local service which interconnects into the local route service operated in New Castle County. The route system serves primarily countywide and intercounty destinations.

Service for the Elderly and Disabled Riders

The Delaware Administration for Specialized Transportation (DAST) operates a door-to-door transportation service for elderly and disabled riders. DAST has become part of the DART First State system. The ride needs to be arranged at least on day in advance. Also available through DAST is the Senior Citizens Affordable Taxi (SCAT) service.



Town of Middletown



New Castle County Map T-1

Functional Classification Map

- Principal Arterials
- Minor Arterials
- Minor Collectors
- Rural Collectors
- Subcollectors
- Residential Access Streets
- State Route 1
- Proposed Residential Access Streets



The data source for the roadway network is the USGS quadrangle maps.

The function classification of the road network is based upon 1992 Functional Classification Map of New Castle County prepared by DelDOT and last revised on 10/26/94.

Map prepared by the Institute for Public Administration at the Geographical Information Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

In this program elderly or disabled persons receive a 50 percent discount on taxi fares from participating companies.

Park-and-Ride Facilities

Park-and- Ride facilities are publicly or privately owned parking lots that interconnect into the transit systems. These facilities are typically located on major highways and major transit corridors. The existing and proposed Park-and-Ride Lots facilitate a shift from a single occupancy vehicle mode to a high occupancy vehicle mode. This high occupancy vehicle mode of transportation is achieved through the use of carpools, vanpools, or buses.

There is a Park-and-Ride lot located within Middletown at the Bethesda Methodist Church at 112 East Main Street which has 20 parking spaces. There is a park and ride at the State Highway Maintenance Yard at the south side of town. There are Park-and-Ride lots located along US Route 13 near Middletown at the intersection of Route 13 and Road 15, Boyd's Corner Road, and at Pine Tree Corners east of Townsend at the intersection of US Route 13 and Road 25. A new Park-and Ride lot has been planned to be built at the intersection of State Route 299 and new State Route 1.

Aviation

The Summit Aviation airport is the closest airport facility to the town of Middletown. Summit Aviation is located on US 301 north of town at Summit Bridge. The Summit Aviation services small planes and consists of a 4,500 foot paved runway. The closest larger facilities are the New Castle County Airport, with a 7,165 foot paved runway near Wilmington and the Dover Air Force Base Civil Air Terminal, with a 13,000 foot paved runway, in Dover. The nearest regular passenger air service is provided at the Philadelphia International Airport approximately 35 miles to the north of Middletown. In addition the Baltimore Washington Airport and the Dulles Airport are located approximately 70 and 90 miles to the southwest.

Long Range Transportation Planning Effecting the Town of Middletown

WILMAPCO

The town of Middletown belongs to the Wilmington Area Planning Council (WILMAPCO). WILMAPCO, in coordination with the Federal Government, the States of Delaware and Maryland, the governments of Cecil and New Castle Counties, and municipal governments, has developed a long range plan for transportation in New Castle County and Cecil County, Maryland. The WILMAPCO 2020 Metropolitan Transportation Plan: Connections to the 21st Century has adopted six goals which form the basis of our vision of the future. The goals are the following:

- ★ Better regional planning, with land use and transportation linked.
- ★ A healthy growing economy that is built on our geographic advantage and skills of the population.
- ★ Improved quality of life emphasizing a sound environment, less congestion, better use of land, instilling a sense of security, and providing opportunities for better education.
- ★ Enhancement and re-emergence of traditional communities and municipalities as centers of commerce and culture for the area.
- ★ Improved mobility and transportation alternatives to provide for efficient people and goods movement.
- ★ More effective intergovernmental relations, particularly at the state and local levels, and better public/private communication on issues of development and transportation.

The town of Middletown has incorporated the WILMAPCO goals into the development of the transportation and land use goals for Middletown. An important part of implementing the Middletown Comprehensive Plan and the WILMAPCO Metropolitan Transportation Plan will be the connection between land use decisions made by the town and the transportation decisions made in the WILMAPCO region.

Under the strategy to link transportation to land use, Middletown and the area surrounding it to the east and north has been designated by WILMAPCO and DeIDOT as a Management Transportation Investment Area (TIA). The Management TIA assumes continued maintenance of existing transportation facilities and services, and provides for safety improvements as required. In addition, it provides for intersection enhancements without major roadway widening and capacity additions. The Management TIA is the middle classification of investment areas.

The Preservation TIA focuses on the maintenance of existing transportation facilities and services. It also provides for safety improvements where required. Less long term investment is expected in

the Preservation TIAs than in the Management TIAs. The areas to the west and south of Middletown are designated as Preservation TIAs.

The area where major investment is expected to be placed is the Expansion TIA. This area also assumes continued maintenance of existing transportation facilities and services and provides for safety improvements as required, intersection improvements and traffic flow enhancements without major roadway widening and capacity addition. The investment areas also allow for major capacity improvement within the area boundaries to address congestion other mobility problems. These areas are all located north of the Chesapeake and Delaware Canal.

DelDOT

The Delaware Department of Transportation, along with WILMAPCO, has developed a Long - Range Transportation Plan for the State of Delaware. The goals of the Statewide Long - Range Transportation Plan are the following:

1. To provide a safe transportation system that sustains or improves 1995 levels of access and mobility.
2. To support the state's economic well-being while remaining sensitive to environmental needs and issues.
3. To achieve efficiency in operations and investments on the transportation system.

The DelDOT plan takes a multi-modal approaching emphasizing the movement of people and goods. The plan also recognizes the significant link between transportation and land use. It recommends strong coordination between DelDOT and county and municipal governments, developers, the communities and other government agencies. The plan assumes the development of strong partnerships in order to successfully implement its recommendations. DelDOT has recognized that practical and fiscal constraints will limit the investment capacity of the State and projects will need to be considered within those realistic limitations.

The strategies adopted by DelDOT to implement its Long Range Transportation Plan for the next 25 years are the following:

- * Direct transportation investment to support growth management goals of the counties and local governments and best use transportation services and facilities.
- * Better coordinate transportation and land use.
- * Expand the number of travel choices available, thereby reducing the number of individuals driving alone.
- * Capitalize on new technologies to increase the efficiency of transportation services and facilities.
- * Emphasize preservation of existing transportation facilities as a top priority.
- * Manage existing transportation services and facilities to get the most efficient and safest use from them.

- * Appropriately expand transportation facilities and services within a multi-modal framework that supports economic development and the redevelopment of existing communities and respects environmental and agricultural needs.

A part of the DelDOT Long-Range Transportation that will have important impact on Middletown will be the development of an Access Management Plan for the US 301 corridor. These Access Management Plans are part of DelDOT's strategy to manage existing transportation services and facilities to get the most efficient and safest use from them. These plans would be envisioned to protect the capacity of existing roadways, reduce or delay the need to expand roadways, and support the protection of open spaces, rural and agricultural lands, and critical natural areas.

The implementation of that Long Range Transportation Plan will occur through the Transportation Capital Improvement Program (TCIP). The TCIP provides information concerning the projects and programs approved for implementation and construction for the next six years.

Planned Improvements in the Regional and Statewide Transportation System

State Route 1

The completion of State Route 1 (SR1) from south of the Chesapeake and Delaware Canal to the Smyrna Bypass will dramatically impact Middletown and Southern New Castle County. SR1 has and will continue to reduce travel times from residences in Middletown to employment centers in the Churchman's Crossing-Christina-Stanton areas and the Wilmington and Dover metropolitan areas. The completion of the remaining section of SR1 from the Chesapeake and Delaware Canal to Smyrna will reduce travel times to Dover and further south. The placement of the SR1 interchange at SR 299 will provide direct access to SR1 by Middletown and Middletown-Odessa area residents.

The anticipated construction schedule for the sections between the Appoquinimink River and point N37 and between point N37 and the Scott Run Bridge authorizes construction to begin in Fiscal Year (FY) 97. This construction would complete SR1 to the Odessa Bypass in the next two years. The sections remaining between Odessa and Townsend have not been programmed as of the 1997 CIP. There has been discussion that the project would be completed in a private-public agreement. Any private construction of SR1 will cause the remaining sections to be built at a more rapid pace.

US 301 Major Investment Study

The improvement of SR 896 from US 40 to Interstate 95 will complete the construction of a dual highway from I-95 to the Chesapeake and Delaware Canal. The SR 896 improvements will be completed in Fiscal Year 1997.

WILMAPCO and DelDOT are currently completing a Major Investment Study for the US Route 301 Corridor project in 1996 which will review the transportation alternatives prior to the construction of a major federally funded transportation project. The study will examine the projected transportation needs for southwest New Castle County and the impacts of the existing and future land use in the US Route 301 corridor to determine the impacts of investment in a new transportation facility. The study also will examine a variety of alternatives to serve the study area.

The question for Middletown and southwestern New Castle County residents is where will the realignment of US Route 301 and SR 896 occur. The connection between US Route 301, a dual highway in Maryland, and I-95 has been considered for decades. The 1967 Delaware State Comprehensive Development Plan called for system improvements between the Maryland line and I-95. The route for an improved arterial to the west of town is indicated on the 1974 Comprehensive Development Plan for the town of Middletown.

Circulation Pattern within the Town of Middletown

The historic core of Middletown was laid out in a grid pattern with north-south streets intersecting east-west streets. The central crossroads of this system are Broad Street (SR 71) running north to south and Main Street (SR 299) running east to west. The properties annexed or developed in the 1950s and 1960s were added on to this grid network with interconnecting streets. The development and subdivision in the 1980s, 1990s, and anticipated in the future of subdivided parcels indicates a departure from this pattern. These developments have been added in a conventional stem and leaf pattern to the minor arterials of Broad Street and Main Street, the principal arterial of US 301 and the rural collector of Cedar Lane.

The issue of local transportation has become increasingly important as development has increased within Middletown and in the region in general. The 1974 Middletown Comprehensive Development Plan recommended the development of a loop system around Middletown which would have a major arterial function. Under this plan SR 71 and SR 299 would have been reduced to a minor collector function to reduce the traffic flow through the Broad and Main Street intersection.

According to the 1974 Plan portions of this loop had been purchased and the right-of-ways acquired. The road was never even partially completed and areas where the alignment was proposed have been developed into residential, commercial, and manufacturing uses. The use of a loop road as a solution to traffic problems has fallen out of favor and this particular proposal would most likely run into problems due the existing uses, wetlands and other environmental concerns, approved development proposals, the need for a new railroad crossings and limited state funding for expansion.

Transportation Strategies for Middletown

Strategies to link land use and transportation decisions:

Strategy: Require analysis of the transportation impacts of land use decisions arising from proposed rezoning or subdivisions.

Policy: Develop a policy for requiring developer funded transportation impact analysis of major annexations, rezonings or subdivision. This policy should be developed in collaboration with WILMAPCO and DelDOT.

Strategy: Develop and participate in formal studies of major and minor arterial roadways to determine the impacts of development along the US 301, SR 71 and SR 299 corridors.

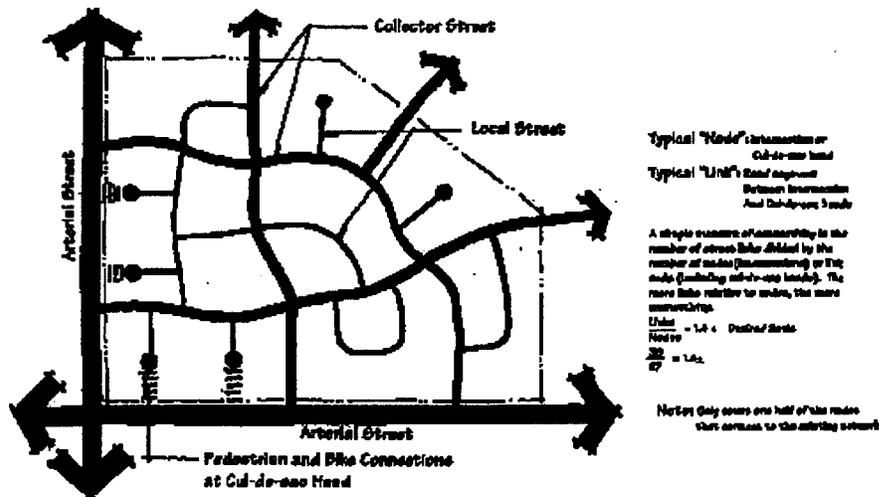
Policy: Continue to work with WILMAPCO and DelDOT on the US 301 Major Investment Study (MIS). Engage with WILMAPCO, DelDOT, New Castle County and the Town of Odessa in a joint planning study for the SR 299 corridor and SR 299 and SR 1 interchange as part of the US 301 MIS.

Strategy: Develop community design criteria in cooperation with other local, regional and state agencies to promote the aesthetic appeal and good use of transportation facilities. There are multiple major corridors that intersect in Middletown and by developing and implementing community design criteria the character of the roadways would allow the town to shape the visual character of entrances and exits to the town.

Policy: Continue to work with WILMAPCO on the development of mobility friendly design standards. Middletown should adopt appropriate additions to the Middletown Subdivision and Street Design Regulations.

Figure 4. Desired Development Pattern delineates a street network hierarchy that can serve as a guide for review of land decisions. The plan recommends the development of collector streets as properties are developed that provide additional routes to cross town. This figure also demonstrates the advantages of connectivity by design. A conventional subdivision pattern places a high impact on arterial roads. By providing additional options the capacity of arterial roads can be preserved. Connections for pedestrians and bikes are shown on this figure. These connections increase the options for alternative choice of modes of transportation.

Figure 4. Desired Development Pattern



Source: WILMAPCO

Strategies for encouraging mobility friendly design that promotes interconnection of new development and provides alternative routes for internally generated trips:

Strategy: Require interconnection of subdivisions.

Action: Revise subdivision regulations to encourage appropriate interconnections of subdivisions. These interconnections should serve to provide multiple entrances and exists for internally generated trips. In special cases the design of new roadways to interconnect collector roadways should be considered.

To implement this strategy it is recommended that Middletown foster the interconnection of the following roadways through the land development process of annexation, rezoning and subdivision of land:
 SR 71 to Road 442 (Broad Street to Silver Lake Road)
 Road 427 to Road 430 (Cedar Lane Road to Brick Mill Road)
 Road 442 to SR 299 (Silver Lake Road to SR 299)

Strategies to promote pedestrian and bike access:

Increase sidewalk size from five feet to six feet with high use sidewalks at eight feet.

Study the appropriate bikeways on existing streets and designate a bikeway network.

Develop bikeway standards for new construction or redesign and improvement of existing roadways. Bikeways can be developed either

as part of shared roadway on residential streets to bike lanes on minor roadways and a separated multi-use path separated from motor vehicle traffic.

Adopt policies or regulations which increase the provision of pedestrian and bikeway routes that interconnect into a townwide system. Revisions in the zoning code and subdivision regulations may be necessary to achieve.

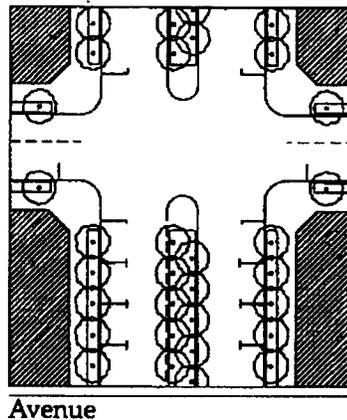
The examination of pedestrian access and separated bikeway access should be considered in the study of SR 299 and the US 301 MIS to determine how multiple mode of transportation will share these roadways.

Strategies that preserve and enhance the capacity and character of existing and proposed transportation investment.

Engage in a study with WILMAPCO and DelDOT to examine and make recommendations on how the SR 299 corridor can be planned to become an extension of Main Street. Middletown wants to continue a municipal character along SR 299 by creating either an urban boulevard or avenue from Catherine Street to the SR 299 and SR 1 interchange. The goal would be to prevent the development of a conventional strip commercial dual highway and replace that with a better designed traditional in character corridor.

Figure 5 demonstrates what the character of an avenue designed street would look like. The roadway could include trees in the right of way as a means of breaking up the visual aspects of the roadway that would encourage slower speeds similar to other areas of Middletown.

Figure 5. Preferred Arterial Street Design



Source: Site, Circulation, and Urban Planning, Gerry Glorioso, Andrew Dunsy, Elizabeth Fisher-Zybek, Kemal Zebarni.

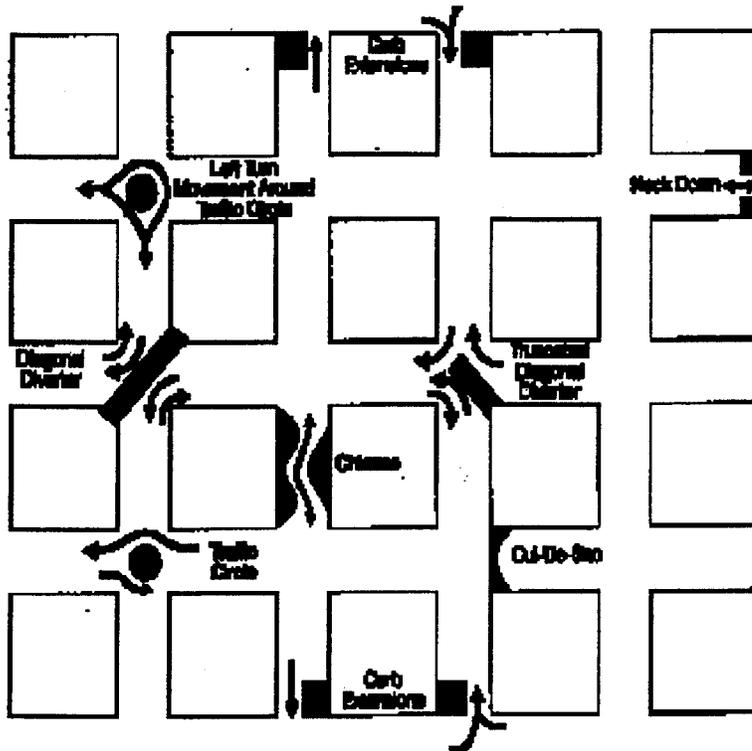
Strategies that increase the safety and livability of residential streets:

Revise street design standards in Subdivision Regulations to allow for appropriate traffic calming measures. Part of safely managing traffic flow will be the provision of appropriate traffic calming mechanisms to control both the speed and volume of traffic on residential streets. When traffic volumes are low to moderate the streets feel safer and people may be more likely to walk, bike and play along such streets. The primary traffic modification that has been conventionally used in residential development have been the liberal uses of cul-de-sacs. The lack of through streets focus the traffic in a conventional suburban development on to the few remaining interconnections.

Traffic calming measures are recommended to be added to the appropriate subdivision and street regulation to manage the traffic flow through existing neighborhoods.

Figure 6 displays a variety of traffic calming measures that Middletown will consider for use as traffic calming measures.

Figure 6. Traffic Calming Examples



Source: National Bicycling and Walking Study, Case Study No. 19, "Traffic Calming, Auto-Restricted Zones and Other Traffic Management Techniques - Effects on Bicycling and Pedestrians," FHWA-PD 93-028, 1993.

Map T-2. Proposed Transportation Network displays the existing roadways and proposed roadway interconnections. Map T-2 indicates the approximate interconnections indicated in the plan. These proposed interconnections are based on approximations of existing land uses, natural and man-made features and should only be used as a general guide for interconnections. Site design and roadway engineering will need to be completed prior to any determination of final alignments. In addition to the proposed interconnections this map displays the classification of existing roadways by functional classification.

Map T-2 delineates the location of the area of SR 299 recommended for further study to determine the future character and capacity of this road way. This map also indicates the approximate location of a new US 301 corridor on the Ridge Alternative as designated in the December 1994 Draft Environmental Impact Study conducted by DelDOT.

Economic Development

Economic Profile

Employment Characteristics of Middletown Residents

Slightly more than 75 percent of all Middletown residents over the age of 16 years old worked in 1989. This is similar to New Castle County where 76 percent of all residents 16 years old and over worked in 1989. The type of work for the majority (73%) of Middletown residents was working for private, for-profit enterprises.

The breakdown of residents into industry classification allows for an analysis of whether or not town residents are primarily employed in primary, secondary, or tertiary activities. Primary activities include activities such as agriculture, forestry, fishing, hunting, trapping, and mining and indicate that the local economy has a basis in rural type activities. As an area urbanizes the type of industries in which the residents work shifts into the secondary and tertiary activities. The seventeen categories used in the 1990 US Census can be grouped as follows:

- Primary: Agriculture
 Forestry and Fisheries
 Mining

- Secondary: Construction
 Manufacturing

- Tertiary: Transportation
 Communication
 Public Utilities
 Wholesale trade
 Retail trade
 FIRE (Finance, insurance, and real estate)
 Services (Business and repair services, Personal services, Entertainment and recreation, and Professional and related services)
 Public Administration

The industry breakdown for classified workers that reside in Middletown depicts a similar pattern to New Castle County. The number of Middletown residents employed in primary activities account for 1.8 percent of the total employed residents compared to 1.2 percent of all New Castle County residents. Both Middletown and New Castle County have a smaller share of their work force employed in the primary industries than other places in the state of Delaware. By comparison Kent County has 3.0 percent of its workforce in primary industries and Sussex County has 6.0 percent in primary industries. The

State of Delaware has 2.3 percent of its total work force employed in primary industries.

Middletown's employment picture deviates from that of the entire county in the secondary activities classification. The percentage of town residents employed in secondary activities is 31.3 percent compared to only 26.6 percent of all New Castle County employed residents. Middletown residents are disproportionately employed in the construction industry, 11 percent versus 7 percent for the county, which may be due to an increase in building activity in southern New Castle County.

In the tertiary industry group the Middletown workforce has a participation rate of 66.9 percent, slightly less than the county level of 72.2 percent of all employed persons. The type of employment opportunities available to Middletown residents and the type of workers who live in Middletown depends upon the available employment opportunities and the nature of the commute to work.

Employment Opportunities in Middletown and the M-O-T Planning District

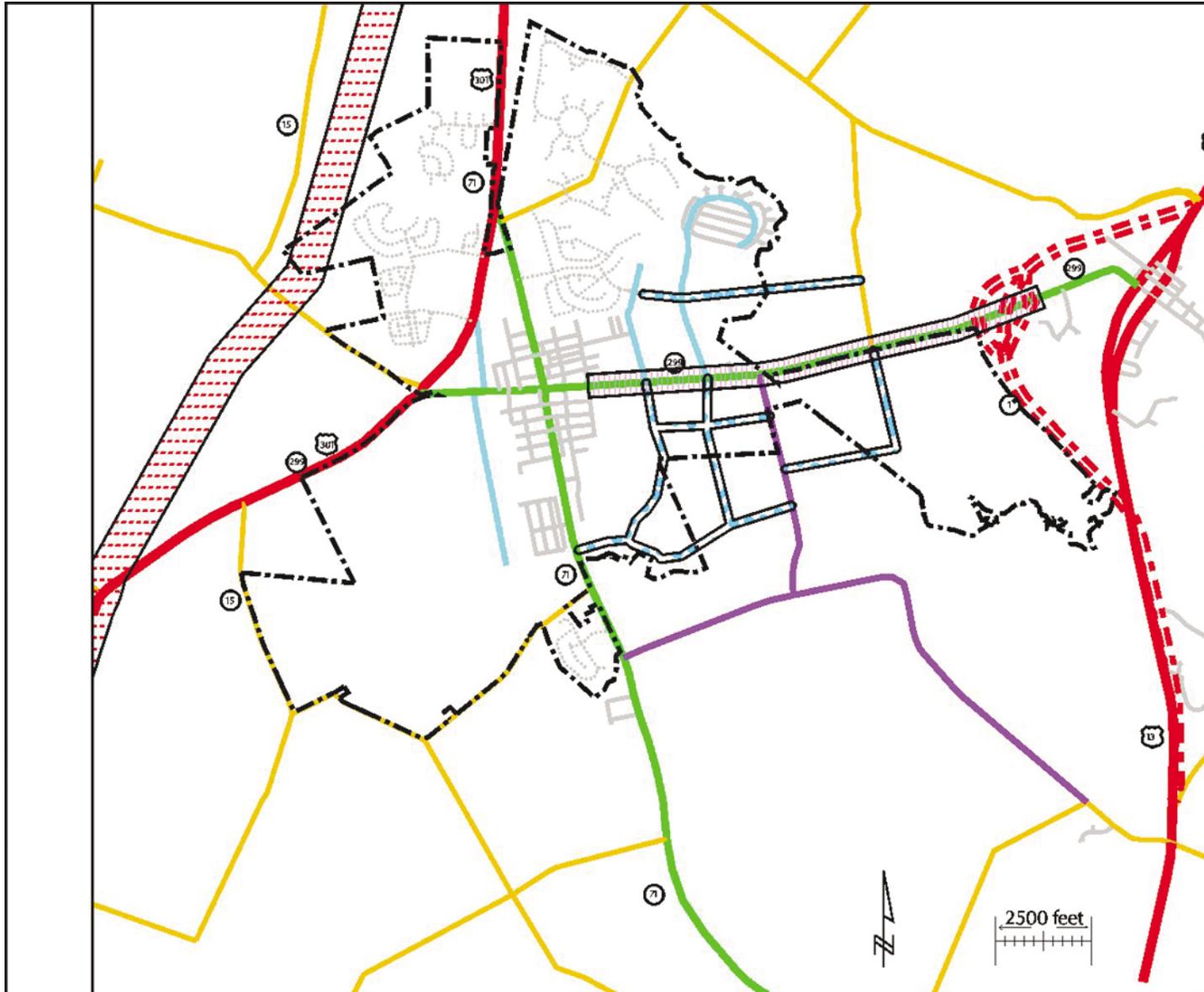
New Castle County has been projected to gain 54,220 new jobs between 1995 and 2020. Table 13 displays the projected net new jobs for that period. The net new jobs are the difference between the number of new jobs created and the number of jobs which are lost during the period in question. Even with the county, long term job projections are highly variable and are based on local, regional, and national trends. The amount of new jobs created within Middletown will vary even more than those in the whole county due the small current size of the town and lack of historical job creation in the area of New Castle County south of the C&D Canal in industries other than agriculture.

Table 13. Employment Change for New Castle County, DE 1995-2020

	1995	2000	2005	2010	2015	2020	1995-2020
Total Jobs	251,852	266,666	281,644	293,836	302,809	306,072	
Increase	n/a	14,814	14,978	12,192	8,973	3,263	54,220
Percentage Increase	n/a	6%	6%	4%	3%	1%	22%

Source: Delaware Population Consortium, 1996

Table 14 describes the projected change in jobs in each planning district in New Castle County for the period 1995 to 2020. This information demonstrates where the projected net job growth and loss is expected to occur. The change in the location and number of jobs by planning district should affect the location decision of current New Castle County residents and future immigration into the county. Table 14 also indicates that 622 jobs are projected to be created in the M-O-T Planning District



Town of Middletown



New Castle County

Map T-2

Future Transportation Network

- Principal Arterials
- Minor Arterials
- Minor Collectors
- Rural Collectors
- Subcollectors
- Residential Access Streets
- State Route 1
- Proposed Residential Access Streets
- Proposed US 301 Route
- Proposed Interconnections
- Proposed SR 299 Study



The data source for the roadway network is the USGS quadrangle maps.

The function classification of the road network is based upon 1992 Functional Classification Map of New Castle County prepared by DelDOT and last revised on 10/26/94.

Map prepared by the Institute for Public Administration at the Geographical Information Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

over the period of 1995 to 2020. The variability of the projected jobs are greater at the Planning District than the county-wide level. The job growth within Middletown will be dependent in addition to local, regional, and national economic growth, on a variety of localized conditions such as availability of suitable sites for manufacturing, industrial, and office park development, the land use decisions made by the county and other nearby municipalities, and the state, county and municipal investment in infrastructure.

Table 14: Employment Projections for New Castle County, DE 1995-2020 by Planning District

Planning District	Percentage of 1995 Total	Percentage of 2020 Total	Increase from 1995 -2020	Percentage increase from 1995 -2020
Brandywine	17%	16%	8,367	14%
New Castle	10%	10%	5,673	10%
Greater Newark	16%	16%	10,847	18%
Central Pencader	1%	1%	600	1%
Red Lion	1%	1%	42	0%
Piedmont	2%	2%	1,434	2%
M-O-T	1%	1%	622	1%
Lower Christina	11%	11%	5,436	9%
Pike Creek	4%	5%	3,438	6%
Upper Christina	11%	13%	13,281	22%
Wilmington	26%	24%	9,553	16%
Total	100%	100%	59,293	100%

Source: Center for Applied Demography and Survey Research, September 1994 and the New Castle County 1997 Comprehensive Plan Update

Income Profile

Table 15 compares selected income data from Middletown, New Castle County, and the State of Delaware.

Table 15: Selected 1989 Income Data

Item	Town of Middletown	New Castle County	State of Delaware
Median household income	\$30,044	\$38,617	\$34,875
Percentage of households with wage and salary income	80.2%	82.8%	80.8%
Percentage of households with social security income	28.8%	24.8%	26.4%
Mean social security income	\$7,455	\$8,312	\$8,083
Percentage of households with retirement income	18.1%	17.7%	18.6%
Mean retirement income	\$5,322	\$10,202	\$9,987
Percentage of households with public assistance income	7.2%	4.4%	5.2%
Mean public assistance income	\$3,518	\$7,296	\$4,012
Percentage of population below poverty level	9.0%	7.5%	8.1%
Percentage of families with children under 5 below poverty level	13.0%	7.3%	3.6%
Percentage of elderly below poverty level	15.0%	8.6%	10.1%

Source: 1990 US Census

Generally income levels for Middletown residents were lower than those of New Castle County and the State of Delaware. Due to the availability of lower cost housing and a higher percentage of residents 65 and over, a portion of the variation can be explained. The high proportion of mobile home housing units and lower cost gross rents for Middletown would allow individuals with moderate income access to lower cost housing units. In addition individuals over 65 are usually beyond the peak income earning period of their lives. Middletown reflects a higher percentage of residents receiving retirement income and social security income than New Castle County. This information verifies the trend of a higher percent of low income residents in Middletown than is dispersed throughout New Castle County. The lower mean retirement and social security incomes received by Middletown residents as compared with residents in New Castle County or the state may be connected to the higher percentage of elderly 65 years and older that are below the poverty level.

The percentage of Middletown residents that received wage and salary income was 80.3% and is similar to that of the county and the State, which were 82.8% and 80.8% respectively.

Middletown residents was \$30,044 which is 22 percent less than median income for the entire county. The mean retirement income for Middletown residents was similarly less than the mean retirement income for all county residents. Middletown residents received on average 47.8 percent lower mean retirement incomes than residents of New Castle County.

Future Economic Development Proposals

The plan recommends that Middletown comprehensively plan for the expansion of sites for manufacturing, fabrication, office park, and supporting uses through the designation of suitable sites and development of infrastructure plans to serve these sites. It recommends that specific sites be designated for a range of uses compatible with existing land uses and existing and planned transportation infrastructure. Economic development activities should remain self supporting and financial viable for the long run.

Goals for Future Economic Development

- * Attract and develop a diverse economic base which provides for a range of high quality employment opportunities at various skill levels for the citizens of Middletown and the State of Delaware.
- * Develop public - private partnerships to attract and retain high quality businesses and industries.
- * Create public - private partnerships to provide the necessary infrastructure needed for additional economic development.

Economic development activities will be contingent on the availability of suitable sites and the provision of adequate infrastructure. The plan recommends the addition of industrial sites and revision of land use regulations to allow for the creation of office parks. The provision of adequate infrastructure will be dependent on the financial viability of economic development projects.

The plan recommends that only limited start-up financial and technical assistance be provided. Major projects are currently out of the financial range of Middletown to construct or heavily subsidize infrastructure investment. The plan recommends that private sector infrastructure solution be sought in public - private partnerships with Middletown retaining ownership of facilities where possible.

Expansion of the Manufacturing and Industrial Area

The recommended economic development plan and land use plan for Middletown includes the expansion of manufacturing and industrial areas. The land use plan designates an area west of existing industrial

development along US 301 as a location for industrial development that incorporates the recommendations for sensitivity to natural features. These properties within this area are listed in table 16.

Table 16: Proposed Industrial Park Expansion Properties

Property	Location	Size	Land Use Recommendations and Comments
Cochran Farm	West of industrial park and south of US 301	351 acres	Manufacturing and Industrial with a designed overlay for natural areas. Historic, archeological, and natural features need to be addressed on this site.
Kohl Property	South of US 301 and east of SR 15	111 acres	Manufacturing and Industrial with a designed overlay for natural areas.
Rocks and Redding	East of SR 15 and north of Wiggins Mill Road (Road 447)	227 acres	Manufacturing and Industrial with a designed overlay for natural areas with special consideration for Deep Creek.
Woodela / Woodward Properties	North of Wiggins Road and west of Middletown	221 acres	Manufacturing and Industrial with a designed overlay for natural areas with special consideration for Deep Creek and the pond on Deep Creek.
447 Trust	South of the existing industrial park	43 acres	Manufacturing and Industrial with a designed overlay for natural areas with special consideration for Deep Creek.

The expansion of the industrial park will provide an area for campus style park development for large, medium and small firms. The Cochran farm parcel provides a 351 acre site (less areas for natural and cultural resource protection for a large campus environment). The expansion of the industrial park will locate an additional employment center less than 2 miles from both the current residential areas and future residential areas already within the boundaries of Middletown. A major portion of downtown residential and commercial areas are less than one-half mile from the site.

The proposed expansion of the industrial park is described on Map EC-1: Proposed Industrial Park Expansion. The area indicated in the land use plan for expansion for industrial uses is describe in more detail on this map. The properties have direct access to US 301 and indirect access through the existing industrial park to the Conrail rail line.

Within the proposed manufacturing and industrial expanded park there exist a series of natural, cultural, and historic resources that are in need of protection. The recommendation of the land use plan is to design an overlay for the protection of these resources. A 200 foot riparian buffer and protection of existing woodlands is proposed for the sites and is approximated on Map EC-1. Final determination of areas to be protected and preserved will be determined through the annexation, rezoning, subdivision and land development process.

Economic Development Recommendations

- † Coordinate Economic Development activities with the State of Delaware through the Delaware Economic Development Office and New Castle County.
- † Expand the industrial park on the west side of town as a site suitable for campus setting manufacturing and fabrication.
- † Designate areas for office park development based on the Future Land Use Plan.
- † Create a public-private partnership for the provision of infrastructure for future economic development.

Growth Management and Land-Use Plan

Existing Land-Use Pattern

Map LU-1 depicts the current development pattern for the town of Middletown and the surrounding area. As the map shows, the town contains large tracts of undeveloped land currently in agricultural uses. These areas are slated for development and consist of prime land suitable for town centered development. The remainder of the Town is nearly all developed.

Agricultural

There are multiple agricultural parcels in the town. The town has annexed approximately 1400 acres of land in agricultural use immediately adjacent to already developed areas within the town.

Residential

Residential land uses in Middletown include single-family detached homes, single-family attached homes, and multi-family dwelling units (homes). A dwelling unit consists of at least one room with its own cooking, sleeping, and sanitary facilities.

Single-Family, Detached Homes

As its name implies, a single-family home provides living quarters for one family. A single-family, detached home is not connected to any other home. It has a front, a rear, and two side yards and a door leading directly to the outside. Single-family, detached homes comprise a large portion of Middletown's existing residential housing stock. These housing units are found in all areas of the Town.

Single-Family, Attached Homes

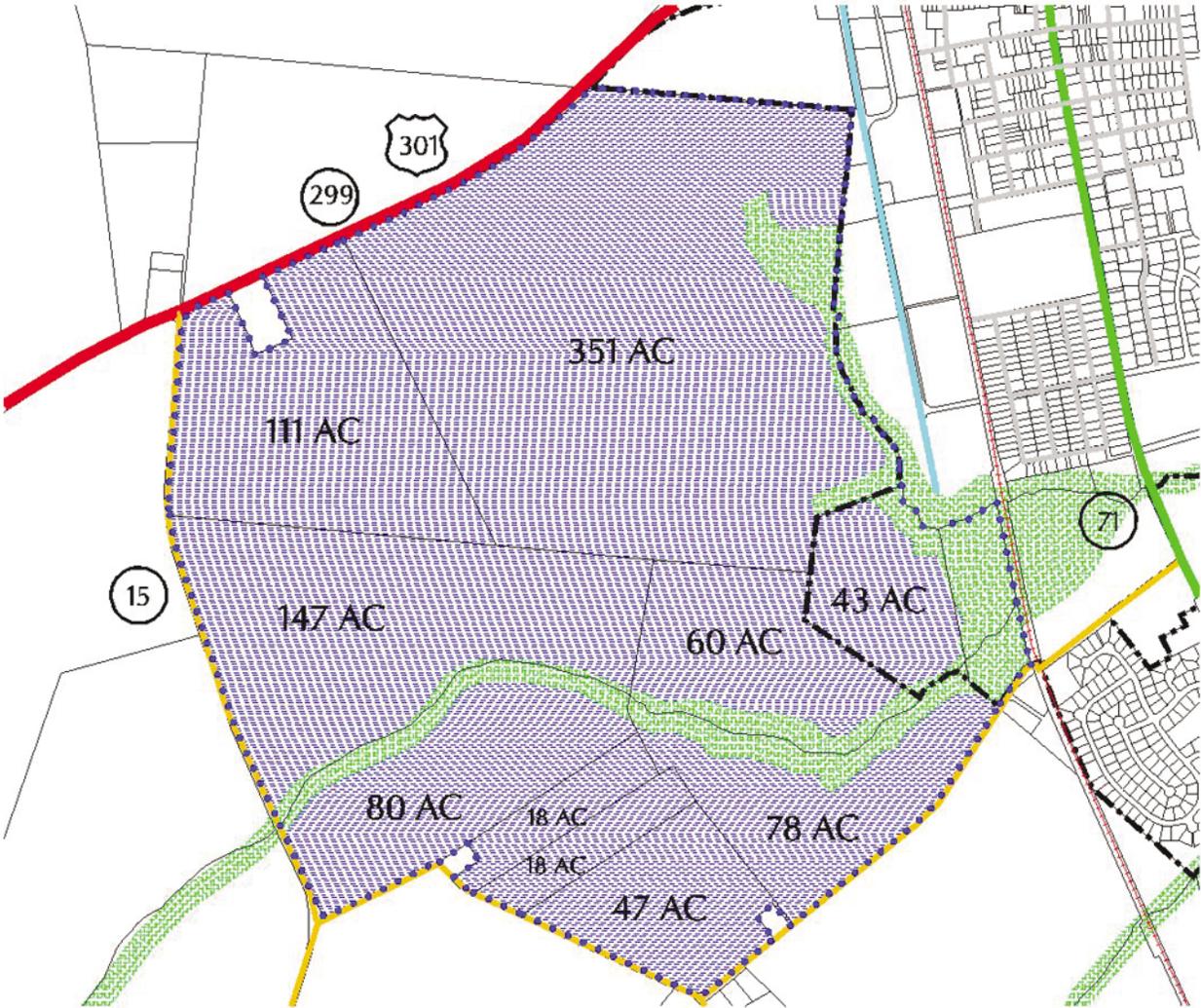
An attached home is a single-family home that shares at least one wall with an adjacent home. Single-family, attached homes take many forms. A semi-detached home, often called a duplex or a two-family home, is an single-family home that is attached to one other home either vertically or horizontally, i.e., either side-by-side or one on top of another. Another type of attached home, is a townhouse, which consists of at least 3 attached units in a row. Like a single-family detached home, each townhouse has a separate front and rear entrance to the outside.

In Middletown, attached homes are scattered throughout the older parts

Town of Middletown

New Castle County
Map EC-1

Proposed Expansion of the Industrial Park



- Area Proposed for Manufacturing
- Proposed Open Space
- Principal Arterials
- Minor Arterials
- Minor Collectors
- Rural Collectors
- Subcollectors
- Residential Access Streets
- State Route 1
- Proposed Residential Access Streets



Map prepared by the Institute for Public Administration
at the Geographical Informations Systems Lab of
the Center for Applied Demography and Survey Research in
the College of Human Resources, Education, and Public Policy
at the University of Delaware.

of town. It is not unusual to find a small group of semi-detached homes or three attached homes among single-family detached homes. There are attached and semi-detached homes along Main Street and examples of new duplexes and townhouse are those built in the Greenlawn development.

Multi-Family Homes

A multi-family home, often called an apartment, is located in a building containing 3 or more dwellings. Unlike a single-family home, which has an entrance leading directly to the outside, a multi-family home's entrance leads to a common stairway (e.g., a garden apartment development) or a common hall (e.g. a mid- or high-rise apartment building). Middletown has a small number of existing multifamily homes with the garden apartment type complex on Lake and Broad Streets. Multifamily complexes are planned to be built at the Legends and Ash Farm.

Commercial

Commercial refers to retail sales and service business areas. Middletown has a traditional small town downtown commercial area on Main Street. This commercial area consists of small businesses, professional offices, a small grocery store, restaurants and bars, public buildings including the post office, and community services. In addition to the traditional Main Street the town has three distinct commercial areas located at the edges of the existing town. North of Main Street on Broad there is a small strip commercial site and a an older grocery store centered commercial center. These both have small retail and restaurant users. There are two grocery store and drug store combination commercial centers. One is located at the north of town on Broad Street and the other is located at the intersection of US 301 and SR 299. In addition to the grocery store and drug store there are additional sites for small retailers and professional service providers in these complexes. Commercial uses have been located along Main Street / SR 299 to the east and west of the existing downtown.

Industrial

Industrial land uses include wholesale trade, storage, and contracting as well as manufacturing and processing activities. Middletown has a distinct industrial area located adjacent to the Conrail rail line on the west side of town. The area starts in the north at the intersection of US 301 and SR 71 and continues to the south until it reaches the industrial park commonly refereed to as the Kohl industrial park.

Government and Community Services

Land uses connected with government and community service include buildings owned by the Town, County, State, or federal governments, schools, religious facilities, facilities used by civic groups. They also include facilities related to the provision of water and sewerage, electricity, gas, refuse disposal, or communications. As noted in a previous section, many government and community facilities are located in Middletown. The construction of the new Middletown High School and library complex on the east side of town has reinforced Middletown as a center for government and community services. In addition New Castle County has located the Southern New Castle County Patrol Unit in Middletown on North Broad Street.

Open Space and Recreation

Open space is land that is not slated for development. The majority of this land is floodplain, marsh, or other types of wetlands that make it unsuitable for development. In the newer developments land has been set aside for passive open space and these areas have traditionally, in Middletown, followed stream corridors. An example of this kind of open space is the area at the north of the Greenlawn residential area.

Middletown has a large park and recreation area at the Silver Lake Park which is located at the Silver Lake Elementary School on the east side of town. An additional small park / tot lot is located on Lake Street.

Vacant Land

Vacant land refers to parcels that are either being developed or could be considered candidates for development. Open spaces, although often vacant, are not included. Lands that were once in agricultural uses that have had improvements made but have not been developed are considered vacant. Examples in Middletown include the Criklewood development and areas unbuilt in the Greenlawn development.

Growth Management Recommendations

The plan recommends that Middletown develop a set of policies to manage growth to maintain a high quality of growth and redevelopment while providing for adequate public facilities and protection of natural and agricultural resources. The town has many opportunities through existing and proposed ordinances and regulations to shape the pattern and character of development.

Growth Management Goals

- ★ Maintain the small town orientation of the character of development through requiring interconnection and mix of uses where appropriate.
- ★ Remain a center for growth and development in southern New Castle County through the proper management of the pattern of development and provision of adequate public facilities.
- ★ Facilitate a mix of uses through the provision of adequate sites for industrial, office, commercial, residential and community service uses.

Intergovernmental Coordination and Annexation Policy

The plan recommends that the town adopt an Intergovernmental Coordination and Annexation Policy to determine areas appropriate for development over the short, medium, and long term. This policy should also address areas where development should not occur at any time. This policy will provide a foundation for the staging and pattern of development in the Middletown and adjacent areas.

Annexation is a crucial component of growth and development of Middletown. The provision of employment centers for residents of Middletown and southern New Castle County will become increasingly important as residential development occurs. Through negotiation with the county this policy will decrease the uncertainty of the development market and provide for a concentration of development within a municipality with public water and wastewater services.

Adequacy of Public Facilities Policy

The plan recommends that an Adequate Public Facilities Policy be adopted to determine the staging of development and to connect land use decisions to the capital budgeting process. An Adequate Public Facilities policy that provides for concurrency between the land development and public facilities will allow Middletown to evaluate individual development proposals on cumulative basis.

The standards will allow the town decision makers to examine the

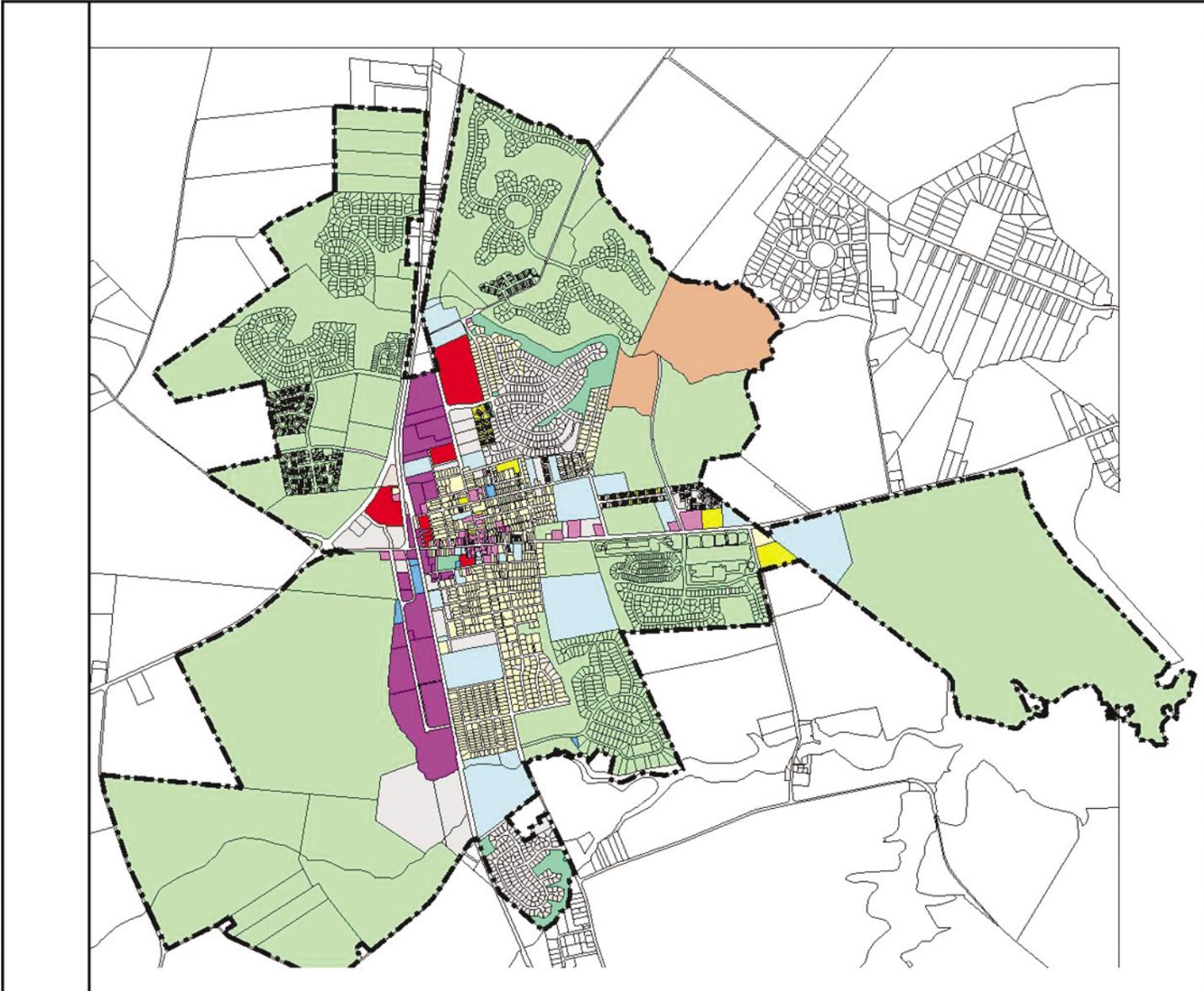
impact of development on town services and provide formal indicators of need for additional capital improvements.

The development of an Adequate Public Facilities Policy would require the town to develop standards for the provision of municipal street, water, wastewater, and electricity infrastructure as well as administrative and public safety services. In addition to town infrastructure and services the plan recommends the town adopt standards that would address issues concerning schools, libraries, parks and recreation and regional transportation.

The Adequate Public Facilities Policy is recommended to be flexible in application due to the small size of the town and the variations in market conditions within the town. Regional development has occurred at an increasing pace but development within town has occurred historically at a sporadic pace. The assignment of existing infrastructure capacity should be determined by the connection of development proposals to the plan recommendations and the market conditions.

Revision of the Zoning Code and Subdivision Ordinance to Implement Community Design Standards and Encourage Mobility-Friendly Mixed Use Development

The plan recommends that the town consider revising zoning and subdivision processes to encourage higher quality community design and to connect new development into the fabric of the existing community. These revisions shall foster interconnectivity and alternative modes of transportation while providing connections between new developments and the existing transportation network. This policy would reduce the impact of new development on major intersections and encourage pedestrian and public transit options. These new standards would be used to increase the preservation of open space through the encouragement of more compact development patterns similar to the existing developed areas in the town. The revisions shall also change the zoning code and subdivision regulations to allow for mixed use development which would permit, where appropriate, to mix neighborhood commercial and office uses with residential uses.



Town of Middletown



New Castle County
Map LU-1

Existing Land Use

- Low Density Residential
- Medium Density Residential
- Manufactured Homes
- Neighborhood Commercial
- Regional Commercial
- Community Uses
- Open Space
- Utilities
- Industrial
- Vacant Land
- Agriculture



Land use interpretations were developed by the Institute for Public Administration.

Tax parcel boundaries are based on tax parcel maps provided by the New Castle County Board of Assessment as of the fall of 1996. Boundaries have been added for projects currently under consideration or approved by the town of Middletown.

Map prepared by the Institute for Public Administration at the Geographical Informations Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

Adjacent Area Considerations and Intergovernmental Coordination

This section specifies the pattern of development, annexation and preservation of the areas surrounding the current boundaries of Middletown. The section incorporates the recommendations outlined in this chapter to manage growth and development in the Middletown area while detailing specific implementation actions. This section represents the initial draft of the Intergovernmental Coordination and Annexation Policy which will need to be negotiated with the Town of Odessa, New Castle County and the State of Delaware. The recommended pattern of development addresses the goal to develop a comprehensive plan for major parcels of land immediately adjacent to the town. Middletown has recognized the need for comprehensive planning at a detailed level due to the increasing land development pressures in southern New Castle County.

The town has defined a study area 2 miles from the existing 1996 town boundary as a starting point for study and intergovernmental coordination. This distance was specified because it includes the majority of immediate and mid range development concerns for the town. The designation of the 2 mile area does not and should be implied to be an area suitable for annexation.

Land use recommendations made by Middletown in the study area to the county and state are solely to implement the goal of the preservation of a distinct town identify and to preserve important agricultural and natural areas.

Map LU-2: Intergovernmental Coordination Zone depicts the 2 mile study area. The map identifies areas that are within Middletown and developed and areas within the town that are under development consideration. In areas adjacent to Middletown a hierarchy of future uses are specified. East of Middletown to the SR 1 Interchange a town centered growth area is specified. In the southwest of town the expansion of the industrial park is recommended.

Growth Area East of Middletown

The recommended development plan for adjacent areas specifies that areas east of Middletown to the SR 1 interchange with SR 299 be annexed and developed in a town centered pattern of development. As specified in the transportation plan SR 299 should be developed in a manner consistent with a municipal or town setting and interconnections should be made on both the north and south of SR 299.

The land use recommendations for the area within the proposed growth area call for a mix of residential, commercial, office, government and community service uses. The new interchange with SR 1 presents an

important opportunity for the development of a new employment center located on the east side of town. The location of the new Middletown High School on SR 299 presents the possibility of developing a community uses concentration center in the proposed growth area.

Area Proposed for Expansion of Industrial Development

The recommendations in this plan for providing the opportunity for increased industrial development require the provision of land for industrial development. The majority of existing land zoned for manufacturing uses is currently in use with the exception of medium sized parcels, 40 to 50 acres, at the south of the Kohl industrial park and the property west of US 301 and north of SR 299. The supply of property for small, medium and large manufacturing and industrial firms is currently limited and therefore it is recommended that additional properties be considered for annexation for manufacturing and industrial uses. The area indicated as proposed for industrial development includes approximately 900 acres of land west of the current boundaries of Middletown and south of US 301. The economic development section of this plan describes in detail the proposed expansion of the industrial areas.

Intergovernmental Coordination Area

There are areas adjacent to Middletown where increased intergovernmental coordination and consideration for annexation has been recommended to take place when development proposals are submitted. All areas within the two mile study area will be subject to intergovernmental review but certain areas have been recognized to have heightened need to coordination prior to development. The areas proposed for heightened intergovernmental coordination are divided into two subareas.

The area immediately north of Middletown on Cedar Lane and Marl Pit Road should be reviewed by the town and county prior to development either in county or within the town. This area is adjacent to areas currently being developed for residential uses within the town and in the county and might be better served by public facilities such as water and wastewater if incorporated into the town. The current pattern of residential development should be considered and incorporated into the review of proposals for development. This area also provides a reserve for development in the ten to fifteen year period. As Middletown develops, a reserve for residential development will provide a wider range of options once the area with the Current Growth Area within Middletown is developed.

The second subarea is located west of town between the Current Growth Area within Middletown and a possible US 301 realignment. This area will be of particular interest when the analysis is completed and a decision of the US 301 realignment has been decided. The concerns on

these properties if US 301 is realigned would include the location and type of land uses along this corridor and the interconnection between US 301 and the town. The plan recommends limiting development along the Ridge Alignment and to limit commercial development at the interchange between US 301 and Middletown.

Study Area for Service Extension

The plan recommends investigating the extension of public service through annexation to two areas adjacent to Middletown. The first area is located to the south of town along SR 71. This area includes the DelDOT maintenance area, the Justice of the Peace Court, and a residential neighborhood on Deep Branch and Rheim Drives. The second area is located to the north of town along SR 71 and US 301 continuing to Armstrong Corner. This area includes already developed commercial and residential areas.

Proposed Greenbelt

The plan recommends a clear separation of urban and rural uses between the town of Middletown and agricultural areas in New Castle County. Middletown is located on and surrounded by prime agricultural and natural resource lands. To implement the recommendation for a clear separation of urban and rural land uses and to facilitate orderly and efficient development, the town will work with the county to limit and staged development within the greenbelt as appropriate.

The Greenbelt consists primarily of the area ranked as the highest suitability for agricultural lands preservation by the Delaware Agricultural Lands Preservation Foundation. Within the southern portion of the Greenbelt, the St. Andrews School properties are currently in the Delaware Department of Agriculture's Agricultural Preservation District. The area to the southwest and west is commonly referred to as the "Levels" area and is almost all ranked as the highest classification of agricultural lands.

There is limited low density residential development and the plan recommends that the county consider methods to ensure limited development to preserve the agricultural uses. Areas in the northern portion of the Greenbelt have experienced some limited development and should remain in agricultural uses. This area serves as separator between the development occurring in the Summit Bridge and Boyd's Corner areas. The plan recommends that nonagricultural development be limited to existing the existing development.

The implementation of the Proposed Greenbelt will require the coordination of town, county, and state efforts to preserve farmlands and natural resource areas. The definition of the greenbelt area where limitations are placed on short to medium term development will allow

for the more effective application of farmland preservation efforts. The town would not under this plan expect to extend water or sewer infrastructure to the areas within the greenbelt.

The plan recognizes the need to preserve the economic value of the properties in the Greenbelt Area and recommends that by preserving a sufficiently large enough area to sustainability support agricultural uses the agricultural industry will continue to be strong in the Middletown area. The use of the State of Delaware Preservation of Development Rights Program and a possible New Castle County transfer of development rights program will provide for additional incentives for preservation of farmlands within the greenbelt area.

Other Areas

Areas within the study area there are sites developed as residential areas and are displayed on Map LU-2 as Developed Areas in the County.

In recognition of the importance of the new SR 1 interchange with SR 299 the interchange is described on the map LU-2 as the State Route 1 Right of Way.

Future Land Use Plan

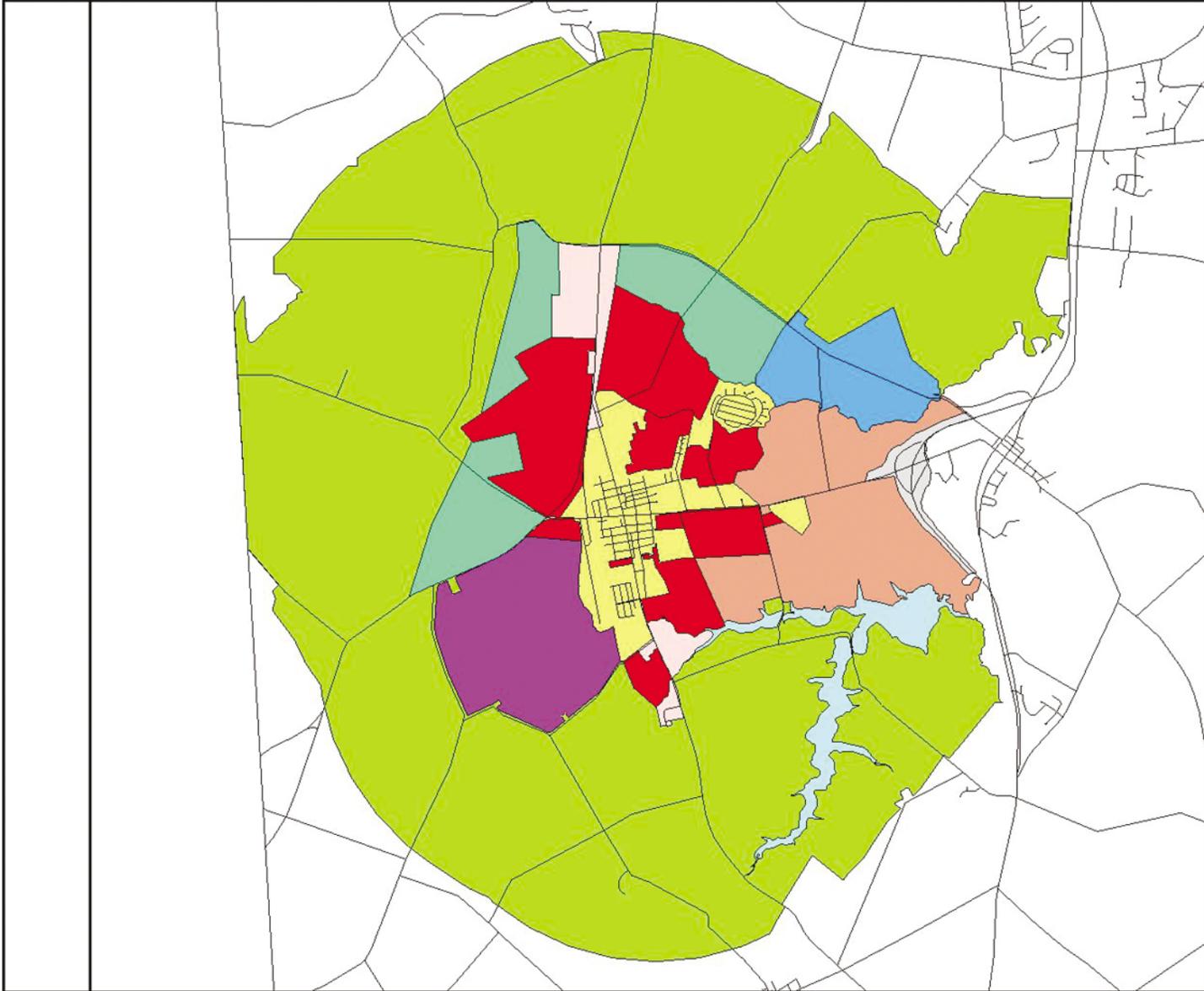
This section presents the development pattern that helps Middletown address the issues outlined in this plan and to implement recommendations detailed in this plan.

The Future Land Use Plan is detailed on Map LU-3. Recommended Land Uses. This map recommends land uses within the town and areas under consideration for annexation.

These recommended land uses are especially important for revising Middletown's zoning and subdivision ordinances and for guiding rezoning decisions. The land use plan discussion is divided into two parts. The first makes recommendations for land uses within the current city boundaries. The second makes recommendations regarding parcels within the Proposed Growth Area.

Land Use in Middletown

This section highlights major land use recommendations for areas within Middletown's current corporate limits. The land use pattern within the already developed areas within the town are already well defined. The Land Use Plan recommends the retention of the majority of existing land uses within the developed area. Changes include recommendations for land uses if existing community service uses are relocated and the addition of office type uses as a change from possible retail commercial uses.



Town of Middletown



New Castle County

Map LU-2

Intergovernmental Coordination Zone

- Developed Area
- Current Growth
- Developed Area in the County
- Proposed Growth Area
- Intergovernmental Coordination Area
- Study Area for Service Extension
- Area Proposed for Industrial Development
- Area Proposed for Greenbelt
- State Route 1 Right of Way
- Water
- Outside of Area of Concern



Map prepared by the Institute for Public Administration at the Geographical Informations Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

The Land Use Plan recommends four major areas of commercial and office use activity. The existing downtown area is defined and reinforced and two existing commercial areas on the north and west side of town are defined. The area within the SR 299 corridor is recognized as an area for town centered development with clearly defined activity areas.

Open Space and Recreation

Goals for Open Space and Recreation Land Uses

- ◆ Preservation of stream corridors
- ◆ Development of greenway network
- ◆ Provision of adequate passive and active open space areas as part of the development process
- ◆ Expansion of park and recreation resources to meet the needs of current and future town residents

The recommended development plan for Middletown features significant open spaces. The plan recommends that existing open spaces remain and proposes extensions to and connections among them. These wedges are connected by a linear pattern of open space along the major stream corridors and Silver Lake. This open space pattern provides an opportunity to develop trails in possible connection with the state resource areas and Coastal Heritage Greenway where feasible.

The designation of areas for open space is based upon a set of natural feature limitations including stream bed buffers, soil type analysis, slope and topography, and existing forested areas. The plan recommends riparian buffers of a minimum of 200 feet surrounding stream corridors and existing bodies of water. These stream corridor buffers were included in the development of the open space designation. The stream corridor buffers will extend at minimum to the width of the flood plain. The plan further recommends that the designated open space be incorporated into the design of stormwater management systems for new development.

An analysis of the 1970 Soil Survey of New Castle County, Delaware was completed. Areas with soil types with designations of Serve and Moderate limitations for Homes with Basements were generally designated for open space uses. These areas were primarily located along stream corridors and in areas with steep slopes. Areas were also included that were judged to have steep slopes as based on the USGS Topographic information contained in the Digital Line Graphic file for the Middletown Quadrangle. The majority of Middletown has limited slopes except in stream and swale areas.

The preservation of existing natural resources is a goal of the Plan and to accomplish this goal forested areas in general were included in areas for open space. There exist areas inside and outside current boundaries that are forested, and these areas were included as open space wherever possible. In areas that are currently forested and not designated as open

space the design of new development shall preserve forested areas and incorporate them into the lay out of lots.

The designation of open space and park land for greenways and active and passive recreation uses is incorporated with preserving naturally sensitive areas in the designation of open space. The development of a major park in addition to the existing park at Silver Lake Elementary School is a recommendation of the Plan. An opportunity exists to coordinate with New Castle County to develop a joint county regional and major town park in the southeastern part of town. New Castle County has purchased land adjacent to the existing park at the Silver Lake Elementary School and on Silver Lake Road. The plan recommends placing this regional park along Silver Lake through swapping land with the owners of the property along the lake. The Plan further recommends that the park be interconnected with open space and the greenway network from the existing Silver Lake park through the Green property greenway and then interconnect along Deep Creek and the north shore of Silver Lake to the SR 1 - US 13 corridor.

Actions

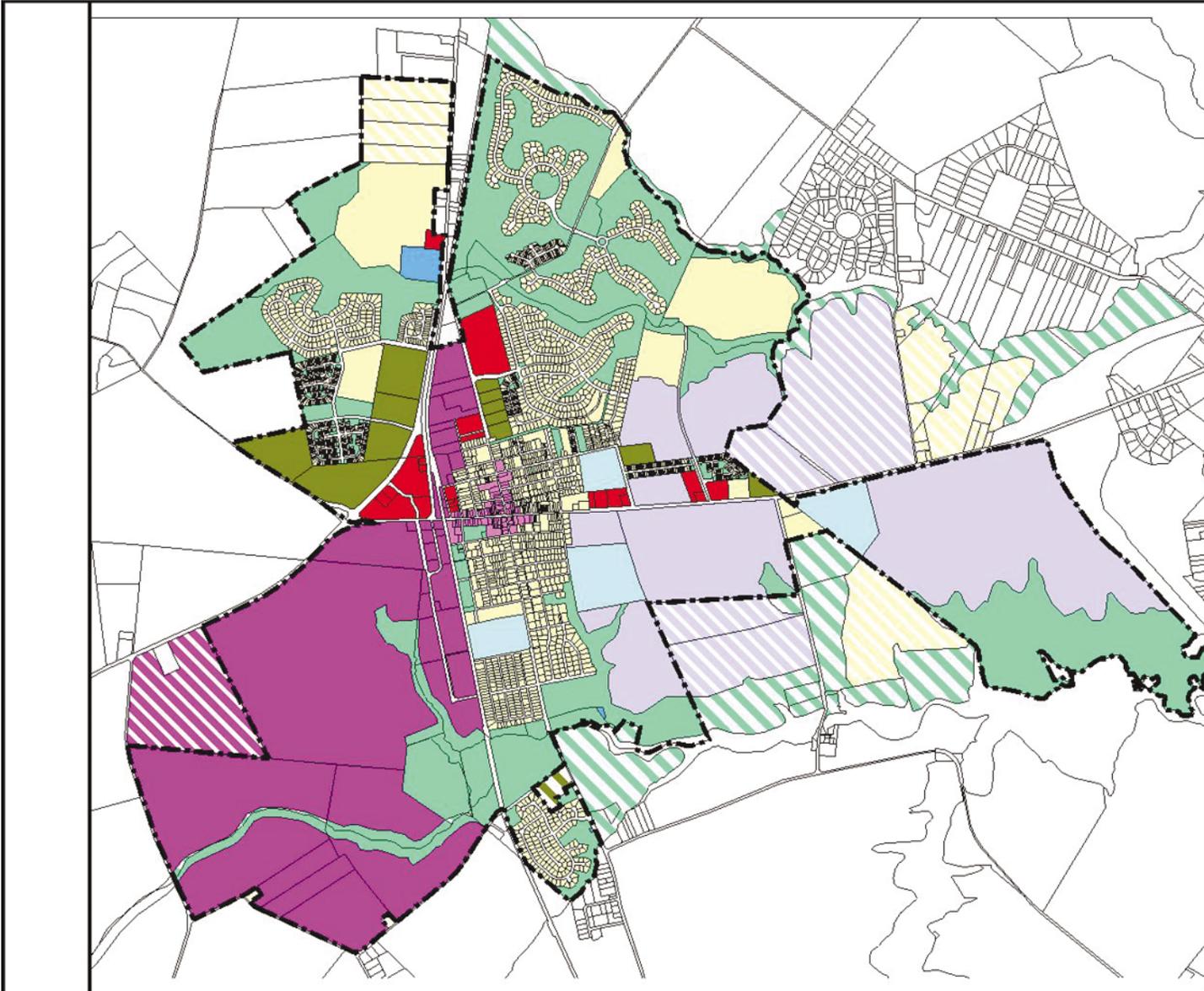
- ◆ Coordinate the development of a regional park network in town to serve both Middletown and southern New Castle County with New Castle County and the State of Delaware.
- ◆ Designate stream corridors for open space protection.
- ◆ Implement the greenway network as recommended in the transportation and parks and recreation sections.
- ◆ Revise Zoning Code and Subdivision Regulations to increase the amount of public open space required in residential areas and to set standards for the amount and condition of the portion of open space dedicated for public recreation uses.
- ◆ Revise Subdivision Regulations to include delineation of wetlands.

Residential Land Uses

Goals for Residential Land Uses

- ◆ Develop and maintain an adequate supply of housing that provides a range of sizes, types, densities, and levels of affordability
- ◆ Integrate residential, commercial and employment land uses to provide the opportunities to work, shop and live in close proximity while providing an adequate buffer through distance and landscaping from incompatible land uses

Middletown has a wide range and mix of housing types within the



Town of Middletown



New Castle County Map LU-3 Recommended Land Use

- | Outside Town | Inside Town |
|--------------|---|
| | Residential |
| | Commerical |
| | Town Center |
| | Regional Employment and Retail Commerical |
| | SR 299 - Mixed Use |
| | Open Space |
| | Industrial |
| | Community Services |
| | Utilities |



Land use interpretations were developed by the Institute for Public Administration.

Tax parcel boundaries are based on tax parcel maps provided by the New Castle County Board of Assessment as of the fall of 1996. Boundaries have been added for projects currently under consideration or approved by the town of Middletown.

Map prepared by the Institute for Public Administration at the Geographical Informations Systems Lab of the Center for Applied Demography and Survey Research in the College of Human Resources, Education, and Public Policy at the University of Delaware.

already developed areas of town. Areas are currently zoned for single family detached and attached housing, duplexes, townhouses and apartments.

Description of Residential Densities Used in the Plan

High residential density land uses consist of gross densities, 8 or more dwelling units per acre and may include apartment complexes, apartment uses over commercial uses, or townhouses. Medium residential density land uses consist of a maximum gross density of 8 dwelling units per acre. This type of development includes single family detached, semi-detached housing units, duplexes and townhouses. Low density residential consists of gross densities of 3.5 to 4 units per acre and primarily includes single family detached homes.

The plan recommends that high and medium density development occur in proximity to commercial and community uses. These uses should be located to facilitate the interconnection to alternative modes of transportation such as transit, pedestrian walkways and bikeways. The medium density residential land uses should be incorporated into the development of parcels along Main Street.

The plan recommends that low density residential land uses should be located at the edge of town and in areas with environmental constraints. The recommended density of 3.5 to 4 units is significantly higher than development occurring the surrounding areas in the county. Clustering of low density development is recommended to preserve natural features and provide open space and alternative stormwater management strategies.

The plan recommends that the majority of existing residential uses within the already developed areas remain as they currently are. There are a limited number of vacant parcels within the areas of the town that could receive infill or redevelopment. The plan recommends that development of these parcels remain in character with existing patterns of residential densities and types.

Actions

- ◆ Coordinate with Delaware State Housing Authority and the New Castle County Department of Community Development and Housing to develop and implement regional affordable housing plans for Middletown and southern New Castle County.
- ◆ Continue to provide appropriately zoned parcels for a mix of housing types including higher density units.
- ◆ Revise Zoning Code to add accessory uses where appropriate.
- ◆ Revise Zoning Code to add an additional classification for very low density residential uses to add a larger lot and larger floor plan residential area.

Commercial

The plan recommends maintaining the majority of existing commercial properties. It provides for a consolidation of commercial, office and residential uses in the area designated as the Middletown Center at the intersection of Main and Broad Streets. It recommends areas along US 301, Broad Street, and Main Street to be considered for employment centers as office parks. The town already has a substantial amount of area zoned for large scale retail commercial uses.

Town Center

The plan recommends that the downtown area at the intersection of Broad and Main Streets be designated as the Town Center. A recurring theme of the public input process during the development of the comprehensive plan was how to maintain the small town character. A crucial component of small town character is its downtown commercial area. On a typical Main Street traffic flows freely at slow speeds and there is convenient on street parking for patrons of small commercial enterprises. There are sidewalks so that customers can walk easily from store to store. A common mix of stores might include a small market, a bakery, restaurants, a bank, a drug store, a variety store, a few specialty shops, and a dry cleaners. The stores are typically 1 or 2 stories and not more than three stories tall. The upper levels of the stores often are used as offices or apartments. In addition to commercial and residential uses, main streets are typically anchored by civic uses such as town halls, post offices, and places of worship. In addition to the compact mix of uses characteristic of small town centers, these centers frequently have a civic focal point that serves as a gathering point.

The plan recommends a reinforcement of the existing downtown by allowing the continuation of a mix of uses and the encouragement of locating community uses in the downtown. As development pressures increase the flow of traffic along Main and Broad Streets the town shall use traffic calming measures to regulate the speed and flow of traffic. To maintain the downtown nature of the Town Center, new development shall be located with a minimum of setback and be in character with design standards set by the town. The provision of landscaping shall be encouraged and the improvement of public spaces as gathering places shall be implemented.

Actions

- ◆ Delineate the area to be designated as the Town Center
- ◆ Revise Zoning Code to encourage a mix of uses and small town downtown uses. These revisions would be to the Downtown Commercial District C-2. The changes would include a reduction or elimination of setbacks, limitation of building height to 3 stories, provision of pedestrian walkways, and encouragement of second floor residential uses.

- ◆ Encourage or initiate the planting of street trees where appropriate.
- ◆ Develop sign standards for the town center.
- ◆ Complete a parking study for the downtown to determine long term parking needs for a mix of commercial and residential uses.

Neighborhood Commercial

The plan recommends that provisions for neighborhood commercial sites should be encouraged in appropriate areas within residential districts. The goal to allow for a mix of neighborhood commercial within residential districts as market condition allow, which should have the effect of adding convenience and reducing trips for residents. The commercial uses should be appropriate to the residential characteristics and not be regional destinations. This recommendation would allow for a replication of neighborhood commercial sites currently in residential areas in undeveloped areas.

Actions

- ◆ Revise Zoning Code to allow for neighborhood commercial uses as a conditional use within residential districts. These commercial uses would need to have site and architectural designs that are compatible with the surrounding land uses.

Regional Employment and Retail Commercial Uses

The town of Middletown has a substantial amount of existing properties zoned C-3 Shopping Center Commercial that would allow a variety of high density and impact commercial uses. The development of two new supermarket based retail centers in the previous five years and the current development of an additional regional commercial center has provided a variety and quantity of regional retail commercial opportunities. The plan recommends that to better manage the supply of regional retail commercial sites the Zoning Code be revised to allow for employment centers such as office parks or light manufacturing uses, where appropriate, to be located on existing large undeveloped commercial sites.

The purpose of redefining the intent and application of the Shopping Center Commercial District into the Regional Employment - Retail District would be to expand the possible uses beyond retail commercial and allow for the development of office park employment center settings. A major goal of the plan is to foster the attraction of employment centers to Middletown to provide for a better jobs to housing balance and provide for a diverse tax base. Middletown has traditionally developed in a manner with a mix of employment and housing and only in recent years has development been primarily residential and commercial. Ensuring a long run balance between

employment, retail, and residential uses will become increasingly important as the southern New Castle County region develops.

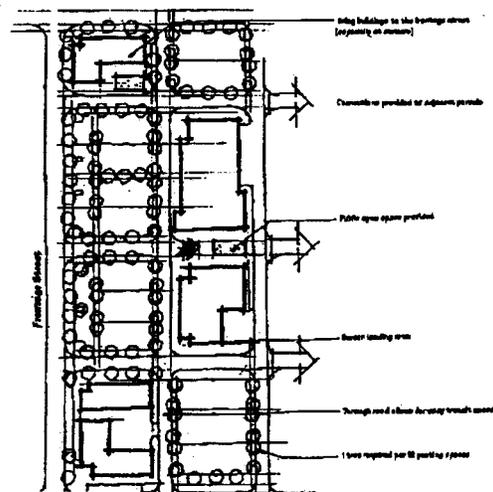
The plan recommends that areas along US 301 and SR 71 be considered for Regional Employment and Retail Commercial designation. The properties near the US 301 and SR 299 intersection which are currently zoned C-3 and M-I should be rezoned as Regional Employment and Retail Commercial areas. The application of this district should also be considered in the planning of the SR 299 corridor.

Actions

- ◆ Revise Zoning Code to change C-3 Shopping Center Commercial District to the OP-RC Regional Employment and Retail Commercial District to allow for the formation of office park development.

The plan recommends that as commercial and office uses are developed that attention be paid to the site plan and architectural design of the development. Figure 7 graphically indicates some of the preferred commercial center design criteria. The building are divided along the frontage road and parking has be set on the side and to the rear of the structures. The design incorporates public open spaces and landscaping. The center is designed to have easy access to transit.

Figure 7. Preferred Commercial Center Design

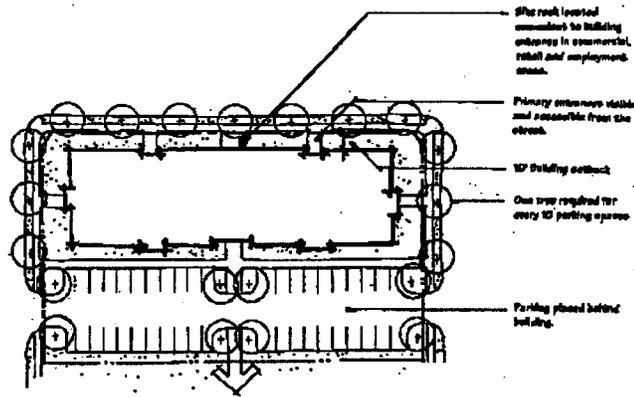


The plan recommends that commercial sites should be designed to incorporate features that increase the pedestrian and transit amenities. Commercial buildings should be designed and sited in a human scale with buildings located at the front of the lot with parking on the side and in the rear. The plan further recommends that commercial and office sites incorporate buffer areas, landscape screening, and increase the incorporation of planted medians in parking areas.

The site plans are recommended to include areas for public gatherings, seating areas, additional lighting, and special paving materials.

Figure 8 demonstrates a preferred building and parking layout.

Figure 8. Preferred Building and Parking Layout



Source: LDR International

Existing Development Proposals

Goals for Area with Existing Development Proposals

- ◆ Connect land use decisions to maintaining the transportation system.
- ◆ Incorporate mobility friendly design standards into review of existing proposals.
- ◆ Stage development to meet adequate public facility standards.

The development of parcels within the existing town limits depends on the use of sunset provisions for existing development plans. The plan recommends that parcels that are eligible for sunseting be considered for sunseting and redesign based upon recommendations within the plan.

The development of properties to the north of town and south of Armstrong Corner and Marl Pit Road as low density residential fits within the plan recommendation. The area of most concern, which may not be able to be sunsetted, is the Ash Farm - Ramono Development on the west side of town. Construction has already commenced which would mean that a change in design could only be made through voluntary rezoning and re-subdivision. The plan recommends that the developer and land owner consider re-subdivision and site plan rewrite under any new zoning or subdivision regulations adopted under the recommendations of this Plan.

Actions

- ◆ Allow for the sunseting of existing development plans and implement the revised and updated Zoning Code, Subdivision Regulations and site plan review process to incorporate plan recommendations.
- ◆ Encourage property owners in area already under construction to consider incorporating design recommendation into existing projects.

SR 299 Corridor

The development of properties along the SR 299 Corridor from Middletown to the new SR 1 interchange will have a significant impact of the future character of the town and possibly on the pattern of development in southern New Castle County. This area is a subset of the Middletown-Odessa Growth Area adopted and modified by New Castle County in 1994 and 1995.

Goal for SR299 Corridor

- ◆ Control development along corridor to preserve the existing town center and provide a variety of residential, commercial and employment opportunities.

The area has previous been indicated in the 1988 New Castle County Comprehensive Development Plan, the 1974 Middletown Comprehensive Development Plan and the Draft 1967 State of Delaware Comprehensive Development Plan as a focus for development. The plan recommends focusing new development into this corridor as opposed to encouraging medium or high density residential or commercial development on the west, south or north sides of town.

The proper development of the SR 299 corridor will be contingent on the provision of adequate infrastructure and a clear connection between land use and transportation planning. The corridor has been further enhanced for development by the construction of the SR 1 and SR 299 interchange just west of Odessa. This interchange will dramatically reduce the travel time to Wilmington and Dover from Middletown, thus providing an attractor for development.

The Plan recommends that a master plan be developed for parcels within town boundaries as well as parcels currently in the County along SR 299. The plan contains guiding planning principles for these parcels but remains flexible for changing market conditions.

The plan recommends in the transportation section that SR 299 be developed as tree-lined boulevard with integrated bike and pedestrian pathways. The designation of land use and site design along this

corridor will affect both the character of development and the probability that new development will be effectively integrated. The plan recommends setting aside of open space corridors to the north and south of the Proposed Growth Area with the southern area designated as a site for a regional park. The land uses with the Proposed Growth Area include a mix of residential, retail commercial and office park uses.

Residential Uses

The plan recommends that residential uses within the SR 299 corridor are to be developed in a manner which provides for mix of residential densities and types of housing. The character of existing Middletown with a mix of types and densities should be maintained. Residential neighborhoods should be interconnected by roadways, pedestrian and bike paths, and greenway corridors. Residential development shall be integrated with the development of public open space along natural feature corridors. Residential development should be clustered and have limited impact on existing natural features when possible to encourage environmentally sensitive site design.

The plan recommends that residential densities be structure in a hierarchy within options, from a mix of residential and commercial uses by floor of the structure along Main Street, to high and medium density residential in the area behind the main corridor and then to low density residential development adjacent to open space and park land corridors. The area adjacent to Silver Lake and Appoquinimink Creek should be considered for low density development that provides for protection of environmental sensitive areas.

Commercial Uses

The plan recommends that the design of commercial centers along the SR 299 corridor be phased from a traditional small town scale to the larger scale commercial and office uses that could be attracted to the SR 1 and SR 299 interchange. The goal of the recommendations is to avoid strip commercial development. The functionality of SR 299 as both a municipal street and a connector to two major highways should be preserved. Strip commercial design will reduce the capacity of the road.

The plan recommends that commercial uses be concentrated in two activity clusters. The first cluster would be located at the intersection of SR 299 and Silver Lake Road. The uses would reinforce the existing commercial and civic uses and provide for definition of an activity center. A strip commercial pattern of development in the area between the existing downtown and the Silver Lake Road intersection would reduce the efficiency of SR 299 and the visual character of this gateway to the town. The plan recommends that when the parcel bordered by Main Street (SR 299) and Silver Lake Road, commonly known as Middletown Crossing, is re-subdivided that particular attention should be paid to addressing the street scape and the creation of a commercial and civic node at this intersection.

The second activity center in the Proposed Growth Area would involve the properties to the south of SR 299 at the SR 1 interchange. The plan recommends that attention be given to the type, design and location of commercial activities at the SR 1 interchange because this area is the primary eastern gateway into the town and because of the natural opportunities the site presents. The opportunity exists for the site to be used for high value office park uses and high value residential uses. Due to its location the site could also be used as the location for a hotel. The plan recommends that large box retail commercial proposals, if any, be evaluated in the context of other possible medium term higher value uses and the surplus of available but unbuilt commercial sites within the town.

The recommendations for commercial site plan and building design revolve around establishing a human-scaled size that maintains a pedestrian friendly atmosphere. Large facades should be segmented into smaller elements with the use of human scaled detailing elements such as doors, windows and awnings on the street facade.

Commercial buildings are recommended to be built with smaller set backs where parking is located on the side and in the rear and in some cases shared across uses. Avoidance of large box retail with large set-backs is particularly important in the length of Main Street from the existing town center to the new Middletown High School. Commercial uses should reinforce the evolution of SR 299 from a rural collector into an urban boulevard by providing an adequate roadway for pedestrian and bike pathways and street trees as part of site design.

The plan further recommends that retail commercial uses be integrated with residential uses to the level that the market can absorb. The advantage of mixing commercial into future residential areas would be the possible reduction in trips for convenience items outside of the neighborhood. In Middletown's established neighborhoods there exist convenience and neighborhood commercial sites that can meet daily needs. The location of a supermarket in the town center provides for further opportunities for residents of the town center. Middletown should continue the mix of commercial uses into the undeveloped areas within town and those considered for annexation.

Employment Uses

The plan recommends that a jobs to housing balance be developed in the SR 299 corridor. Both the individual size and the cumulative size of the parcels would allow for minor and major employment centers to be created in the corridor. The location of the property along SR 1, the natural setting, and the availability of planned and existing infrastructure provide an opportunity for economic development. The plan recommends that an employment center be considered for the eastern portion of the parcel south of SR 299 and west of the SR 1 interchange.

The recommended uses for this area include the development of a office park campus environment which is interconnected to residential and commercial areas and connected to the preserved open space along Appoquinimink Creek.

Community Services Uses

The Appoquinimink School District has a substantial presence in the town of Middletown with the location of an elementary, middle and high school in the town. The district has reinforced this presence with the recent opening of the new Middletown High School in the middle of what this plan recommends as the Proposed Growth Area. The need for new schools will continue as the district grows and as the recommendations of this plan are implemented. The plan recommends that a school site be set aside for the Appoquinimink School District adjacent to the new Middletown High.

Additional sites in the Proposed Growth Area and undeveloped areas within the town limits are recommended to be set aside for municipal and community services. As the town grows, sites along the SR 299 corridor will become increasingly important for community uses. The U.S. Postal Service has communicated to town officials the future need for a larger site. The plan recommends that the Green Property north of the Silver Lake Elementary School and one parcel east of South Catherine Street to be examined for the site of a new post office if no other sites are possible in the town center.

Proposed Expansion of the Industrial Area

The plan recommends that the area west of the existing industrial park and south of US 301 be designated as an industrial site. The designation of this area for industrial uses will provide sites for small, medium, and large manufacturing and fabrication uses. The community identified during the public input process that the long term financial health of Middletown will rely on attracting high quality employers to town which will continue a balance between housing and jobs and provide for a diverse tax base.

Goals

- ◆ Provide for sufficient industrial sites with either existing or proposed infrastructure facilities to attract economic development

Action

- ◆ Annex and Rezone Manufacturing - Industrial with a conditional use or the appropriate use.