Southern New Castle County Master Plan

• This rough draft of the Southern New Castle County Master Plan is based on a year’s work. This work included eight public meetings, three advisory committee meetings, online engagement, and various other communications with stakeholders. While it represents a lot of work, there is more to do.

• Feedback on this plan is encouraged. Please submit comments by December 16, 2019 to rnovakoff@wilmapco.org

• The next public workshop will be held in January or February 2020 to discuss this rough draft plan.

• A final plan is expected in Spring 2020.
About This Rough Draft Plan:

Status

The rough draft plan is a work in progress and reflects more than a year’s worth of collaborative effort, including land use modeling, link-level transportation analysis, and public input. Some parts of this document are further developed than others, such as land use modeling and related recommendations.

There is more work to be done to complete the Southern New Castle County Master Plan. However, some clear direction is emerging: lack of consistent land use planning and sewer service provisions, supporting policies, and rules have led to current land use challenges; better intergovernmental coordination could help achieve better outcomes; and growth needs to be done in a more sustainable way. Feedback through this process indicates that all agree “business as usual” is not desirable.

Consideration of those challenges along with community goals point to the need to plan better going forward, including: directing growth to areas planned for development; preserving rural lands and agricultural industry; addressing the desire for more diverse local jobs and economic development; targeting growth into the municipalities; and improving transportation options.

Background

The planning process has including public workshops, advisory committee meetings and online participation options, beginning with a kickoff meeting in October 2018 to introduce the community to the planning study and share/gather preliminary information. More information about current conditions and growth trends were gathered both through technical analysis and through public engagement activities about goals, challenges, and assets. Much of the information, analysis, and input came together initially in the rough draft scenarios, which were shared with the advisory committee and public in June 2019. Feedback was received, compiled and shared with the public in a summary document in early September 2019. Refined scenarios and preliminary findings and recommendations were presented and discussed at a public workshop on October 7, 2019, as well as through the online project story map. An Advisory Committee meeting was held two weeks later to review and discuss plan progress to date, including public feedback, which were factored into the development of this rough draft plan.

Next Steps

Comments will be received on this draft until December 16, 2019. Through the winter, more detailed transportation analyses will be conducted. There will be a public meeting to discuss comments and the results of the transportation analyses in January or February of 2020. The plan will be finalized throughout spring 2020 and then brought to the Planning Board and County Council for adoption.
Acknowledgements

[To be included in final plan]
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Executive Summary

Placeholder section title page
This Southern New Castle County Master Plan is a subarea plan to the county-wide Comprehensive Plan, which was adopted in 2012. As the name suggests, it focuses only on that part of the county south of the Chesapeake and Delaware Canal (Figure i-1). While the county-wide plan is not due for a State-mandated update until 2022, the Meyer Administration is developing a more community-based, fine-grained approach to updating and improving county plans.

This Master Plan focuses on the fastest growing part of the County. Unlike most of the area north of the Canal, southern New Castle County has a significant mix of established communities, rural communities, sprawling development, and rural / resource lands. Many of the key issues raised in the planning process are consistent with such a setting. They include:

- where and how to develop, and how that relates to protecting environmental and agricultural lands;
- whether future development should be dispersed on individual septic systems or concentrated on central sewer;
- transportation, including some form of public transportation;
- community character and economic development;
- community services, including healthcare, schools, and emergency services; and
- coordinating with the municipalities in the area.

These and other issues were discussed and analyzed through a community-engaged planning process. The following goals of the plan were developed based on feedback from the public:

- **Quality of Life / Health**: Residents of southern New Castle County have access to the amenities and services that help them to maintain a high quality of life.
- **Environment**: Environmental protection and farmland preservation are considered a priority in Southern New Castle County, and residents and visitors alike have access to trails, parks, and other natural spaces.
- **Community Character**: Development and redevelopment in southern New Castle County are compatible with, and enhance, the existing community character, including historic properties and design features, the scale of development, and presence of farmland and open space.
- **Transportation**: People in southern New Castle County can use a variety of transportation modes (car, public transportation, walking, and bicycling) to reach their destination in safe, comfortable, and convenient matter.
- **Economy / Jobs**: Southern New Castle County has a strong and diversified economy.

The plan includes background data and information about the area; details about the plan development process; information regarding the scenario that was used to identify, highlight, and analyze issues and to develop potential actions or policies; and recommendations to achieve the goals of this plan.
Figure i-1: Map of Southern New Castle County Master Plan Study Area
The following key factors and findings drive much of the plan.

- Prior to 1997, there was very limited sewer availability in southern New Castle County, and most or all growth in the area was occurring in Middletown.
- During the early to mid 2000s, the County planned growth, including sewer service, in the Central Core. Little growth was anticipated in the rest of the study area, except for in the municipalities, which have their own planning authority. However, sewer service in the East and West Wings was not disallowed. Since the two wings have the same zoning as the Central Core, which was planned for growth, this created a situation where there was not a clear distinction between areas planned for growth and those planned to remain rural or preserved.
- Since the 2000s, a significant amount of growth has occurred in Middletown and the Central Core, along with rural sprawl on individual septic systems in other areas. The West Wing experienced limited growth.
- In the past two years, the development pressure in the West Wing has increased significantly, and there have been multiple lawsuits about extension of sewer service in the two wings.
- Today, development pressure continues. Many of this rough draft plan’s recommendations speak to directing growth to occur on central sewer in limited, planned growth areas, while more clearly protecting rural areas by limiting growth in strategic areas.

The Southern New Castle County Master Plan effort builds on multiple past studies and planning efforts, with proposed growth patterns and strategies which are tied to population growth, housing needs, preservation efforts, and transportation improvements. It ties together the plans of the past with a clear set of objectives for the future.

Key recommendations to achieve the plan goals include:

- establishing clear policies for future growth and sewer service;
- enhancing existing and developing new policies and mechanisms to preserve agricultural and natural resources;
- focusing on enhancing and infilling existing towns, with an emphasis on economic development; and
- preparing for the shift in the age of the population toward a population with greater share of people 65 and older, including housing, local community services, and multi-modal transportation infrastructure.

This approach will help set a realistic and sustainable path forward for existing and future residents and for the environment.
1. Introduction

Placeholder section title page
**Purpose**

This Master Plan establishes a long-term, publicly-supported vision for land use and infrastructure in southern New Castle County (NCC), as shown in Figure 1-1. It will inform development and preservation decisions and recommend physical improvements and governmental policies regarding infrastructure and land use. These improvements and policy changes will be implemented through the New Castle County Comprehensive Plan and other programs including the Wilmington Area Planning Council (WILMAPCO) Regional Transportation Plan and the Delaware Department of Transportation (DelDOT) Capital Transportation Program.

**Overview**

The southern New Castle County study area is composed of the area south of the Chesapeake and Delaware Canal, amounting to roughly 40 percent of the land area of the County (Figure 1-2). The area has experienced rapid population growth in the past two decades. That growth has transformed the area from an agricultural and natural resource-dominated landscape with a few very small towns into a suburban bedroom community of predominantly single-family homes with most residents commuting to jobs outside of the area. This growth in population spurred growth of local retail and service-oriented business, particularly in the Town of Middletown. However, growth of local employment has not been commensurate with residential growth.

In many ways this area has many of the classic characteristics of a former rural area becoming a bedroom community. This characterization applies to most of the area in and north of Middletown in southern New Castle County. However, there are significant areas along the Delaware River and south of Middletown, Odessa, and Townsend that are preserved or otherwise protected by the county’s stronger rural zoning district.
Looking to the future, the southern New Castle County area faces opportunities and challenges. The area continues to be sought after by young families and others for the high quality of schools; low cost of land/housing; location in the Mid-Atlantic, with proximity to regional destinations, resources, and amenities; and agricultural, natural, and historic character. However, much of what has been so attractive to those who have moved to this area is also increasingly at risk:

- More people and more sprawling development consume the open space, natural areas, and farmland that has made the area attractive.
- More people living in a dispersed development pattern generally requires greater car use and, thus, results in more congestion.
- Lagging economic growth limits opportunities for local employment, which perpetuates longer average commutes for residents willing and able to drive.

The study area is expected to experience additional residential growth over the next 30 years, with a slowing of that growth as we approach 2050. The development of the Southern New Castle County Master Plan has involved a creative and collaborative exploration of questions about how to best achieve a sustainable and attractive future for members of the community, including how to work together with the incorporated municipalities within this part of New Castle County. The plan also considers how the southern and northern parts of the county, though with a range of differences, must be considered together; policies and programs have countywide dynamics and this plan will inform development of the County’s comprehensive plan update due in 2022.

The following are some of the questions explored in the development of this plan:

- Are the right things being built in the right places?
- Are we adequately protecting environmental, agricultural, cultural, and historic resources?
• How will changes in climate, energy production, and transportation affect our communities?
• Are we supporting communities that need reinvestment and revitalization?
• Will our infrastructure adequately serve our current and future needs?
• In 20 or 30 years will New Castle County and its communities be a place where we and others will want to live, work, play, and learn?
• Is development and growth sustainable with respect to its impacts on the environment, communities we create, the industry we attract or displace and the tax burden to supply necessary infrastructure, schools, roads sewer and emergency services.

**Background and Planning Context**

The 2012 Comprehensive Plan defines objectives and strategies specifically related to southern New Castle County to achieve efficiency and sustainability goals. Those include:

• Promoting redevelopment and infill and guiding new residential development to New Community Development Areas (a Future Land Use Map category) served by sewer, thereby supporting more compact development patterns and efficient/cost-effective delivery of public infrastructure and services.
• Recommending incentives and regulatory mechanisms, such as Transfer of Development Rights, to minimize impacts to the historic/rural character and preserve natural and agricultural resources
• Achieving an “overall density of 3-5 dwelling units per acre that provides a variety of housing and employment options, accommodating future growth by using less land and providing more opportunities for residents to work, shop, and meet other needs nearby.”
• Continuing to support and facilitate the location of schools, parks, libraries and other public services in designated growth areas and centers.
• Using multi-modal strategies to enhance mobility and accessibility for people, not just those using motor vehicles.

The development of this Master Plan will be in accordance with the current 2012 Comprehensive Plan. This Master Plan, once completed and formally adopted by New Castle County Council, will be incorporated into the Comprehensive Plan.

The development of this Master Plan coordinates with other current public policy documents, such as Delaware’s State Strategies for Policies and Spending, as well as recent planning studies such as the “2019 Southern New Castle County Wastewater Plan” and the “Water Supply and Demand in Southern New Castle County through 2050”

Much work has been done in southern New Castle County over the past fifteen years, ranging from scenic resources and parks studies to the 2009 Southern New Castle County Infrastructure Master Plan, for which this plan serves to update. (A complete list of studies is listed in the Appendix.)

The provision of sewer and water service in southern New Castle County has long been of interest to the County and State of Delaware, largely because the anticipation of growth will have long-term irrevocable impacts on both the sensitive natural features of the region and the prime agricultural soils upon which the County’s agricultural economy

1 “Water Supply and Demand in Southern New Castle County through 2050” is currently in draft form and under final review; it serves as an update to the 2006 “Estimates of Water Supply and Demand in Southern New Castle County through 2030”.
depends. The evaluation of existing service and planned expansion must be closely tied to identified growth areas in order to make service practical and affordable. At the same time, land consumptive growth must be curtailed outside service areas in order to minimize impacts to groundwater (from nitrogen loading) and reduce development pressure on agricultural lands.

This planning study is an effort to build upon and associate these past plans with growth trends for southern New Castle County that are tied to population growth, housing needs, preservation efforts, and transportation improvements. In a meaningful sense, this study ties together the plans of the past with a clear set of objectives for the future.

**Process**

The master planning process for southern New Castle County (Table 1-1) involved extensive public engagement, including several iterations of public meetings, meetings with an Advisory Committee, and collaboration with municipal representatives. The process kicked off in October 2018 with a public meeting that provided a project overview, preliminary baseline information, and mapping activities.

<table>
<thead>
<tr>
<th>October 2018</th>
<th>Spring / Summer 2019</th>
<th>Fall / Winter 2020</th>
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<tr>
<td>Project Kickoff</td>
<td>Visioning/Existing Conditions</td>
<td>Preliminary Land Use Scenarios</td>
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<td>Scenario Analysis</td>
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<td>Draft Plan</td>
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<td>Detailed Analysis &amp; Final Plan</td>
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![Process Image](image-url)
Visioning workshops took place in early 2019 in both Odessa (January) and Middletown (March). A web-based MetroQuest survey was used to extend engagement in the visioning process beyond in-person meetings.

Following the visioning workshops and online engagement, the project team compiled input and feedback to develop draft goals and objectives for the plan, which were used as the basis for three draft land use scenarios to begin exploring how the community’s goals and objectives could best be achieved. Those goals and objectives, along with the preliminary land use scenarios were shared at a community workshop in June 2019 and made available in an online form for review and comment. Further evaluation and refinement of the scenarios followed and included in-depth exploration of land capacity within municipalities through collaboration with municipal representatives of Middletown, Odessa, Townsend, Smyrna, and Clayton.

Complete plan scenarios and preliminary recommendations were shared at a public workshop in October 2019 at which participants were encouraged to ask questions of the project team and other agency representatives and provide their feedback. Additionally, workshop materials were presented through an online “story map” depicting the scenarios with supplemental information and providing an online opportunity for public comment.

Advisory Committee meetings were held during the visioning, preliminary land use scenario development, and scenario analysis stages to provide an additional forum for discussion on key plan elements.

The rough draft plan was published in early November 2019, containing the preferred scenario, draft recommendations and strategies, and a full digest of the planning process and findings to date.

Table 1-1: Process Timeline

<table>
<thead>
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<th>Detailed Timeline of Engagement Activities</th>
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<tr>
<td><strong>Project Phase</strong></td>
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<td>Kickoff</td>
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<td>Visioning/Existing Conditions</td>
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<td>Preliminary Land Use Scenarios</td>
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<td>Scenario Analysis</td>
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<td>FUTURE: Draft Plan</td>
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<td></td>
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<tr>
<td>FUTURE: Detailed Analysis and Final Plan</td>
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2. Where We Are
Overview of Existing Conditions

Southern New Castle County experienced significant population growth in the last several decades, with the share of the Countywide population living in southern New Castle County increasing from 3% to 10% in the last 50 years. The region can be described as having a larger than average household size and higher median household income than New Castle County as a whole, as well as the State of Delaware.

Existing development is concentrated in and around Middletown and areas to the North of MOT, which represents the existing growth area for the region. Development patterns can be generally described as being dominated by relatively low density single-family residential development, with little non-residential development. Several developments in the Central Core (see Figure 1-2) have included more dense housing with a greater diversity in housing type (e.g. Village of Bayberry). Even with the rapid increase in population, there is still a significant amount of undeveloped resource lands in southern New Castle County, many of which are developable under County Code. Protected resource lands are mostly located in areas South and East of the Middletown-Odessa-Townsend (MOT) area and aim to protect environmental resources and agricultural lands. There are also significant environmental resource lands in the eastern portion of the region that are near the Delaware River. Sea level rise, as a result of climate change, will have a significant impact on the eastern portion of the region, making these areas less suited for development in the future. Agriculture as an industry is an important resource in southern New Castle County and continues to be threatened by development.

Based on the future land use and zoning maps, development patterns could continue as they have in the past. Based on the Population Consortium and WILMAPCO, southern New Castle County is projected to get an additional 11,000 new households by 2050. Based on an analysis of existing subdivisions with development potential, there is enough capacity within these areas to accommodate the full projection. However, there is potential for an additional 12,000 – 17,000 new housing units in the region.

Existing central water and wastewater infrastructure is concentrated in portions of the northern area of the region. Although the entire northern growth area of the region is within the sewer service area as described in the 2012 Southern New Castle County Master Plan, public sewer exists only within the Central Core of the growth area. Existing development in the East and West Wings are mainly only septic systems. There is not currently a clear path forward for sewer service in the growth area of southern New Castle County.

Transportation continues to be a predominate issue in southern New Castle County. There are several transportation corridors that experience significant congestion within the region, including DE-199 near Middletown. The majority of workers from southern New Castle County commute to jobs located outside of the region. Pedestrian networks are disconnected, transit options are extremely limited, and trail systems are incomplete, making alternatives to driving trips extremely limited. This lack of alternative transportation modes is a concern among the aging population in the region.

Southern New Castle County has largely retained its rural and agricultural character. There are many historic resources in southern New Castle County, largely focused on agricultural history. Scenic roads are located throughout the region and are also important resources.

Most jobs in southern New Castle County are concentrated in service industries that serve the local community. Since 1990, there has been a steady increase in the number of jobs in southern New Castle County, but the region’s share of New Castle County’s total jobs remains very low. The highest concentration of jobs is located in Middletown.
**Population & Demographics**

Over the last 50 years, the population of southern New Castle County has grown from 10,040 (3% of the total countywide population) to 60,600 (11% of the countywide total) in 2015. In particular, the last 19 years were a period of rapid population growth. In 2000, southern New Castle County accounted for 6% of the County’s population. In 2019, approximately 65,000 people – 11% of the County’s residents – resided in southern New Castle County (Table 2-1). Projections indicate that while there is an expected growth in population, households, and jobs in southern New Castle County between 2015-2050, it is expected to occur at a slower rate than previously experienced (Table 2-2).

Table 2-1: Population Trends, 2000-2019 (Source: ACS 2017)

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<tbody>
<tr>
<td>Delaware</td>
<td>29,751</td>
<td>52,545</td>
<td>65,132</td>
<td>22,794</td>
</tr>
<tr>
<td>New Castle County</td>
<td>500,265</td>
<td>538,479</td>
<td>572,970</td>
<td>38,214</td>
</tr>
<tr>
<td>So. New Castle County</td>
<td>783,600</td>
<td>897,934</td>
<td>999,941</td>
<td>114,334</td>
</tr>
</tbody>
</table>

| Change in Population and Households 2015-2050 for Southern NCC |
|-----------------|-----------------|-----------------|
| People          | Households      | Jobs            |
| 2015            | 60,600          | 20,213*         | 10,000          |
| 2050            | 92,300          | 31,351          | 13,200          |
| Change          | 31,700          | 11,138          | 3,200           |

Source: WILMAPCO TAZ estimates and projections
*2019 estimate, based on current trend data from WILMAPCO CCD Projections

2 The United States Census Decennial Census and American Community Survey serve as the primary source for existing population and demographic trends for the Southern New Castle County Master Plan study area. As required by Delaware State Code, the most recent officially approved projections by the Delaware Population Consortium are used to evaluate future demographic changes in the study area.
Southern NCC is less racially diverse than the County as a whole (Figure 2-1).

The average household in southern New Castle County includes 3.03 persons; in New Castle County the average household included 2.59 people, and the state average was 2.56 people (Figure 2-2). The national average is 2.6 persons per household.

Approximately 40% of households in the ZIP codes that approximate the southern New Castle County area (19709, 19730, and 19734) have children under the age of 18; this compares to 25% in Delaware and 26% in New Castle County as a whole.

Southern New Castle County’s residents are middle-aged and getting older (Figure 2-3). The median age in southern New Castle County is 37.8 – below the averages for the state and county. As compared to the State and the County, southern New Castle County has a smaller share of its households headed by young people and older people (Figure 2-4). Households in the study area have gotten older since 2011; there are hardly any households under the age of 25 years old in southern New Castle County (Figure 2-5). Household age will continue to increase in the future, and as households age, their housing and travel preferences change. These are important considerations for this master plan.

Figure 2-1: Racial Composition (County and Study Area) (Source: ACS 2017)

![Chart of Racial Composition]

3 2017 American Community Survey 5-Year Estimates
4 Ibid.
5 Ibid.
Figure 2-2: Age Cohorts (Percent of Population (Source: ACS 2017))

Figure 2-3: Average Household Size (Source: ACS 2017)
Southern New Castle County households have higher than average incomes. Both household median income and per capita income are higher in southern New Castle County as compared to the County and State averages (Figure 2-6).
Land Use

EXISTING LAND USE

The total land area of southern New Castle County is approximately 122,000 acres, nearly 40% of the 316,000 acres countywide. Although some overlap exists, according to the 2012 land use/land cover data from the State, agricultural land use and wetlands account for approximately 70% of the land area, and approximately 18% of the area is developed (Table 2-3).

Figure 2-7 shows the geographic distribution of development (in red) and the other major categories of land use/land cover. Notably, development is most concentrated along the Route 1 corridor, in and around the incorporated municipalities, and dispersed in the central and northwestern portions of the study area. The map and numbers represent a snapshot in time.

Of the total 122,000 acres in southern New Castle County, there are approximately 29,440 acres of unprotected, undeveloped, and unconstrained lands, the majority of which are developable (Figure 2-8). Of these acres, approximately 25,707 (87%) are in agriculture, 3,020 (10%) are forest, and approximately 713 (3%) are rangeland. There are approximately 37,358 acres of protected lands, including easements, parks, and other land permanently preserved as resource land preservation in the study area. These areas are expected to remain constant, given their protections. However, the percentage of agricultural land is anticipated to go down while developed land increases as farms are converted to residential and other development. The exact degree of change will be contingent upon growth management and preservation strategies going forward.

The transition of agricultural land to subdivisions and development has generally occurred in and around Middletown, the central core, and the north and west portions of the study area.

Table 2-3: Share of Land Use / Land Cover Categories in Southern New Castle County

<table>
<thead>
<tr>
<th>Category</th>
<th>2012 Percent</th>
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<tbody>
<tr>
<td>Developed</td>
<td>18%</td>
</tr>
<tr>
<td>Agricultural</td>
<td>43%</td>
</tr>
<tr>
<td>Forested</td>
<td>9%</td>
</tr>
<tr>
<td>Rangeland</td>
<td>3%</td>
</tr>
<tr>
<td>Wetland</td>
<td>27%</td>
</tr>
<tr>
<td>Other (transitional, recreational, extractive, clear-cut, etc.)</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: 2012 Land Use/Land Cover Map (State of Delaware)

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6 The land use/land cover data characterizes land based on use and physical characteristics as opposed to specific zoning districts or other designations as defined by the UDC. It should be noted that discretion was taken when determining the land cover categories as there is some overlap in types of land (ex. forested wetlands versus wetlands).

7 The 2012 land use/land cover dataset from the State is the most recent; figures of developed land are likely to be higher as of 2019 than what is shown, given additional development of land that has occurred during the intervening years. Updated land use/land cover data is expected to be available in the next 6 months to 1 year and should be used going forward to evaluate and better understand land use change over time.

8 Includes land that may be constrained by less than 100%; WRPA, CNA, Forest, and Steep Slopes
Figure 2-7: 2012 Land Use/Land Cover (Source: 2012 Land Use/Land Cover Map, State of Delaware)
Figure 2-8: Developable Lands* (Source: New Castle County Department of Land Use)

*Includes land that may be constrained by less than 100%; WRPA, CNA, Forest, and Steep Slopes
FUTURE LAND USE

The current Future Land Use Map designates more than 65% of the Southern New Castle County Master Plan study area as Resource and Rural Preservation (Figure 2-9). About 30% of the area is designated for New Community Development (Suburban zoning) and Low Density Residential (mostly Suburban zoning). Land classified as high, medium, and very low density makes up just under 2% of the study area. The remaining 3% of land is classified for non-residential development.

The Current Future Land Use map (Figure 2-10) is both overly general in some designations and overly specific in others (e.g. Low Density Residential applied to individual parcels across the Rural Resource and Preservation areas). Consequently, it is not as effectively guiding land use decisions in a way that will achieve the community’s vision. Updates will help better coordinate the community’s vision and guide growth and development through 2050 in southern New Castle County.

Figure 2-9: Breakdown of Future Land Use Map Area Designations
**ZONING**

The Southern New Castle County study area zoning districts are shown in Figure 2-11. The study area is made up primarily of land zoned Suburban and Suburban Reserve. More than 60% of the study area is designated Suburban Reserve (SR)—a district defined by low density development where preservation of large amounts of open space and agricultural land is encouraged. The SR zoned areas do not currently have sewer, but the current description in the Unified Development Code (UDC) indicates that sewer service will be available to areas with this designation at some point in the future, and these areas will be rezoned to Suburban zoning when sewer construction is imminent. Suburban Reserve zoning is intended to permit limited development that does not prevent ultimate sewering of the area and preserves available farm land and consolidates development to minimize impact on the land. The countryside character of the Suburban Reserve district is intended to facilitate residential and agricultural use.

About 26% of the area is designated as Suburban (S) zoning, which includes all the newly developing areas designated as growth areas in the Comprehensive Development Plan. Suburban zoning consists of moderate to high density and a full range of residential uses, and significant areas of open space and/or landscaping.

Nearly 14% of the area consists of existing residential developments comprising the “Neighborhood Conservation” categories recognizing existing neighborhood areas development that existed prior to the 1998 adoption of the UDC, a small amount of Suburban Transition (ST) (moderately high density residential/limited nonresidential development with enhanced pedestrian linkage, limited to specific areas and densities) and non-residentially zoned land.
Figure 2-11: Zoning Map
Housing development in southern New Castle County hasn’t always been coordinated with sewer availability, resulting in scattered development patterns, overall lack of easily accessible daily needs, and associated affordability challenges.

Southern New Castle County’s housing stock comprises nearly 80% single-family detached homes, according to 2017 American Community Survey (ACS) data. The majority, 88.4% of housing units were owner occupied and 11.6% were renter occupied. In addition, the housing stock is relatively newer as many housing units were built within the past 20 years. Most housing built in Southern New Castle County, 38.7%, was built between 2000 and 2009. In contrast, 44% moved into their current home during the same timeframe.

Approximately 2/3 of residential units recorded in the last 20 years are single family detached (5,492). Figure 2-12 reflects the percentages of different types of residential units recorded since 1998, including 352 semidetached, 198 duplex, 2044 townhouse, and 660 apartment units.

![Figure 2-12: Breakdown (%) of Subdivision Residential Types Since 1998 (Source: New Castle County)](image)

Additional details regarding housing, affordability, and related programs and resources are provided in the Appendices.
DEVELOPMENT ACTIVITY

Historical

Since the adoption of the Unified Development Code in 1998, New Castle County has recorded 33 residential subdivision plans within the Southern New Castle County Master Plan study area, totaling 8,904 residential dwellings (Figure 2-13.). Since the 2012 Comprehensive Development Plan was adopted, 3,396 residential units and 3,484,561 square feet of nonresidential gross floor area has been recorded. That amounts to not quite 400 residential units and 500,000 square feet of non-residential gross floor area per year, which does not include the incorporated portions of the study area.

Patterns of single-family residential development in the study area have changed over time (Figure 2-14). Between 1954 and 1970, most single-family development happened north of the C&D Canal; development in southern New Castle County was largely focused in Middletown. As single-family residential development shifted from north of the Canal to south, more intense concentrations of single-family development were seen in the northern part of the Southern New Castle County Master Plan study area, and within/around Middletown, Odessa, and Townsend.

Active Plans

The New Castle County Department of Land Use is currently processing 13 plans within the Southern New Castle County Master Plan study area (Figure 2-15). Four of these plans are non-residential Land Development Plans proposing: a 10-bedroom group home, a 127-unit senior living facility, a mini-warehouse facility and a place of worship. The nine residential developments include one Minor Land Development and eight Major Land Developments consisting of 1,152 lots.
Figure 2-14: Heat Maps of Development of Single-Family Residential Dwellings South of the Canal (1954-2018)
Figure 2-15: Residential Development Activity in the Study Area from 1998 to Present Day
Development Capacity (Potential Supply) & Forecasts (Projected Demand)

When evaluating the current development capacity, the plan evaluates zoning and subdivision regulations as well as existing sewer infrastructure. Protected resources are evaluated based on protections provided by the Unified Development Code. Additional information as to the analytical processes can be found the Appendix. It is important to note that this analysis is only performed within unincorporated areas of southern New Castle County.

Assuming no change in sewer availability, a development capacity analysis of the unincorporated areas shows a yield of 12,024 new households. Should sewer service be extended to the East and West Wings, as depicted in the Sewer Service Map in the 2012 New Castle County Comprehensive Development Plan, the analysis yields 17,223 new households within the unincorporated areas.

It is essential to differentiate development capacity from the numbers of households forecasted by the Population Consortium. Forecasts & projections examine demographic and economic trends to provide an assessment of where residential and nonresidential growth will occur within a fixed period of time. Development capacity, as described above, is a measurement of the potential for development, as opposed to the likelihood that it will occur. Although a property owner may subdivide their property, a household would not be established if demand does not exist. Good land use planning balances projected growth with development capacity. As such, it is imperative to compare housing supply (existing households), development potential (development capacity analysis), and household demand (projected households, provided here by the Population Consortium).

The 2019 estimated households in the Southern New Castle County Master Plan study area is 20,213 (unincorporated and municipal areas). The study area household total is forecasted to grow by 11,138 new households to 31,351 by 2050. As of June 2019, comparing recorded plans with building permits and assessment data, there are about 11,486 unbuilt lots within recorded developments in the study area.

If all property owners were to take advantage of development rights, the study area could have between about 12,000 and 17,000 houses more than what is currently forecasted for the area (Figure 2-16).

Figure 2-16: Potential Housing Supply Compared to Forecasted Household Demand Across Southern New Castle County
Sewer & Water

OVERVIEW

Located in the Atlantic Coastal Plain, southern New Castle County is topographically flat, with low elevation and abundant waterbodies, marshes, and wetlands. Southern New Castle County is bordered by the Delaware River to the east with the Chesapeake and Delaware Canal to the north. The basic geographic units for water resources planning and management are watersheds. The study area is divided into the two main drainage basins with the Chesapeake Bay to the west and the Delaware River to the east (Figure 2-17). Southern New Castle County’s waterways and groundwater are a vital part of the environment and supporting livable communities.

In contrast to northern NCC, where many dwellings are connected to a central sewer system, southern NCC is primarily served by sanitary sewer only within the core study area. This distinction is further exaggerated through southern NCC’s reliance on ground supplies for domestic water, whereas northern NCC receives their drinking water from surface sources. With a significant increase in population projected in areas currently not served by sanitary sewer, extreme measures need to be taken to protect groundwater resources essential to healthy communities.

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9 Delaware has the lowest mean elevation of all the states in the U.S., at 60 feet.
Figure 2-17: Sub-Watersheds of the Delaware and Chesapeake Bay Basins (Source: Water Supply and Demand in Southern New Castle County through 2050 Draft Report. Water Supply Coordinating Council / U of D WRA, 2019)
WATER SUPPLY

Availability

At present, all sources of potable water in the study area are from groundwater aquifers. The hydrologic characteristics of southern NCC, such as the shallow, unconfined Columbia aquifer and higher water table, on average relative to northern NCC, make it likely that groundwater is more exposed and sensitive to what happens on the landscape. That is, surface contaminants generally would be more likely to reach ground and surface water faster and more directly than areas in northern New Castle County.

In the study area, two private companies—Artesian Water Company and Tidewater Utilities—as well as the Town of Middletown are the main public water suppliers (Figure 2-18). According to DNREC records, there are over 4,600 individual wells in southern New Castle County, with the majority located in the areas north of Middletown, Odessa, and Townsend. Other public community wells in the area are the Mount Pleasant Trailer Park and Cantwell Water Company. Roughly 50 non-community wells also exist to serve area businesses, farms, golf courses, and nurseries.

The anticipated demand for individual wells is low; development is trending toward larger subdivisions (greater than 25 units), which are required by the UDC to be served by public water. The number of individual wells is anticipated to only increase by 0.5 percent through 2050. The anticipated increase in demand for public water corresponds with the projected increase in population over time. The demand for public

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10 Further information on hydrology and water supply is found in the Appendix.

11 “Water Supply and Demand in Southern New Castle County through 2050” draft white paper. Water Supply Coordinating Council / U of D WRA, 2019
water is anticipated to peak in 2020 and decrease into 2050, and based on the population projections there is adequate groundwater available to service the increase in population and associated households.12

Sufficient availability of groundwater is expected to meet peak demands from public water supply uses provided that:

- Public water supply and irrigation wells are pumped in accordance with Delaware Department of Natural Resources and Environmental Control (DNREC) water allocation limits. DNREC should continue to monitor demands and water levels from allocated public water supply wells and irrigation wells so as not to diminish the capacity of irrigation wells for producers that wish to sustain farming in southern New Castle County; and
- Water purveyors interconnect between and within systems, add new finished water storage and aquifer storage and recovery, and transport water from aquifers with excess availability south of Townsend to growth areas between Middletown/Odessa and the Chesapeake & Delaware Canal.

Quality

While supply would seem to be sufficient for the duration of the planning period, quality of groundwater sources has been the subject of interest among governmental authorities in recent decades. In southern New Castle County the conversion of agricultural lands has given rise to the desire to monitor groundwater quality. In 1996, the Delaware Geologic Survey began a study entitled "Design, Development and Implementation of a Ground-Water Quality Monitoring Network for Southern New Castle County, Delaware".

The DGS study initially identified the location of existing wellheads in the study area and established monitoring criteria. The study area included the more than 200 square miles of New Castle County south of the C & D Canal. Past research documented elevated nitrate concentrations in the unconfined aquifer system. The DGS study indeed found higher levels of nitrate-nitrogen, evidence of two herbicides, atrazine and triazine, and higher than desirable pH levels, all of which are likely the result of human activity.

These issues existed prior to the County taking steps to protect wellhead areas, and as such it is anticipated that the Water Resource Protection Area regulations the County put in place and subsequently revised (as discussed below) are adequately addressing water quality problems.

Delaware has established targeted reductions for watersheds that are impaired by contaminants and that do not meet water quality standards set to protect waterways for designated uses such as recreational contact, drinking water or to support aquatic life. These targets, or Total Maximum Daily Loads (TMDLs), have also been established for the Chesapeake Bay and its tributaries through the Chesapeake Bay Program under EPA, in cooperation with member states and for tributaries of the Delaware Estuary (Table 2-4). All major watersheds within southern NCC experience impairment due to excess nitrogen and phosphorous.
The DNREC program with a goal for improving surface water quality is the Surface Water Discharges Section (SWDS). The SWDS regulates point sources of pollution including municipal and industrial wastewater treatment systems and their construction, biosolids applications, and stormwater discharges associated with industrial activities. The SWDS is also responsible for issuing regulatory permits under the NPDES, which require permittees to establish Water Quality Improvement Plans to achieve TMDL’s.

The DNREC program tasked with protecting groundwater is the Groundwater Discharges Section (GWDS). The GWDS oversees all aspects of the siting, design and installation of onsite wastewater treatment and disposal systems (known as septic systems).

Despite the recharge of stormwater and on-site wastewater treatment systems to the Columbia aquifer which provides base flow to surface water, there is currently no regulatory connection between the GWDS and the NPDES TMDL requirements.

<table>
<thead>
<tr>
<th>Watershed</th>
<th>TMDL Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appoquinimink River</td>
<td>60% reduction in Nitrogen and Phosphorus loading; bacteria reduction of between 11-15% in freshwater areas and 72-73% in marine areas</td>
</tr>
<tr>
<td>Blackbird Creek</td>
<td>40% reduction in Nitrogen and Phosphorus loading; 80% reduction in bacteria loads</td>
</tr>
<tr>
<td>Bohemia River</td>
<td>24% reduction in Nitrogen; 20% reduction in Phosphorus; Sediment loads from Delaware’s portion of the Chesapeake must remain at 2009 levels under this TMDL.</td>
</tr>
<tr>
<td>C&amp;D Canal</td>
<td>24% reduction in Nitrogen; 20% reduction in Phosphorus; Sediment loads from Delaware’s portion of the Chesapeake must remain at 2009 levels under this TMDL.</td>
</tr>
<tr>
<td>Sassafras River</td>
<td>24% reduction in Nitrogen; 20% reduction in Phosphorus; Sediment loads from Delaware’s portion of the Chesapeake must remain at 2009 levels under this TMDL.</td>
</tr>
<tr>
<td>Chester River</td>
<td>24% reduction in Nitrogen; 20% reduction in Phosphorus; Sediment loads from Delaware’s portion of the Chesapeake must remain at 2009 levels under this TMDL.</td>
</tr>
</tbody>
</table>
PROVISION OF SANITARY SEWER AND CURRENT CAPACITY

New Castle County owns and operates a public wastewater system that provides sewer service to the residential, commercial, and industrial establishments within the County’s sewer service areas. Currently, sewer service is available in the central core, municipalities, and a few other areas in southern New Castle County (Figure 2-19). The majority of the Southern New Castle County Master Plan study area is not developed and thus is not sewered. However, of the development that exists in the study area, the majority is served by sewer (Figure 2-20).

Figure 2-21 illustrates the area where sewer is available today as well as the full extent of the future sewer service (the current Sewer Service Area) per the 2012 Comprehensive Plan.

Currently, the capacity of the existing treatment plant is at approximately 65% capacity, with more committed development in the pipeline. Studies are currently underway with DNREC & Duffield Associates to review options and plan for future demand, looking at geographic constraints, costs, timing, and coordination with other entities.

Town of Townsend is served by County-managed sewer infrastructure through an agreement for services. The Town of Odessa is also served by sewer and the associated regional pump station, which is operated by New Castle County. The other three municipalities in southern New Castle County, Middletown, Smyrna, and Clayton, construct and manage their own sewer infrastructure; however, the County continues to maintain interconnections with the Town of Middletown’s sewer infrastructure and coordinates sewer services through agreements with the Town of Middletown.
Figure 2-20: Estimates of Sewered and Non-sewered Parcels in Southern NCC Planning Areas (Source: Duffield Associates. 2019. "Use of On-Site Wastewater Treatment Systems in Southern New Castle County.")

Note: Totals do not include the areas of southern NCC that are currently zoned Suburban Reserve (SR) (i.e. the areas that are outside of the West Wing, Core, and East Wing and not in incorporated towns)
Figure 2-21: Existing Sewered Area and 2012 Comprehensive Plan Future Sewer Areas
SEWER PLANNING AND EXPANSION

Prior to the adoption of the Unified Development Code (UDC) in December 1997, County sanitary sewer service below the Chesapeake and Delaware (C&D) Canal was limited to Port Penn and the M-O-T treatment facility, which serviced the area around Odessa and Townsend. With the adoption of the UDC and the 1996 Comprehensive Development Plan (“Comp Plan”), the County increased emphasis on centralized sewer service by expanding the sewer service area and by limiting septic systems to a minimum of two-acre lots. These decisions were based on studies indicating concerns with nitrogen in the groundwater, the high cost of County septic elimination projects and the anticipated growth in this area. The Southern Sewer Service Area (SSSA) was then created, which encompassed all Suburban-zoned land below the C&D Canal. The SSSA was bounded by the C&D Canal to the north, Maryland to the west, the Delaware River to the east and Middletown to the south.

In the early 2000s, the County designed a centralized sewer system for the SSSA, which included an extensive collection system and a new spray irrigation treatment facility on over 900 acres of land north of Middletown. The plan was to build the spray irrigation facility and the central core infrastructure first, moving next to the western wing and finally to the eastern wing. It would have taken 5-10 years to fully build-out all of this planned infrastructure. At this time, the UDC allowed development plans to continue through the record plan process anywhere in the SSSA, regardless of the timing of the County’s sewer infrastructure.

In 2006, the County hired a consultant to evaluate and update its plans for the SSSA. This study was initiated in large part due to the concern with the high upfront costs of the original plan and a reduction in the growth rate projections due to an economic downturn. The study resulted in a decision to purchase treatment capacity from Middletown rather than construct a new spray irrigation facility, to limit sewer infrastructure to the central core and to coordinate infrastructure investments with other governments. This plan was anticipated to meet the projected growth of the area until approximately 2025. To effectuate this plan, it was recognized that the County would have to settle claims from a handful of developers who had development plans outside of the central core. The 2007 Comp Plan generally reflected this plan.

The County completed construction of the central core collection system in 2009 and development progressed in this area until present day. In 2012, the County completed an updated Comp Plan. This Comp Plan did not adequately reflect the County’s intent to limit sewer infrastructure and growth to the central core for the next ten years. Around this time the UDC was amended to eliminate NCC septic requirements such as two-acres lot sizes and the installation of dry sewer lines. The County now defers to DNREC for septic standards.

In 2018, the County suddenly received numerous proposals for major development plans to be serviced by septic systems in the western wing of the SSSA. This was likely due to the construction of Route 301, an upturn in the economy, inconsistent sewer/growth policies and the decreased County regulation of septic systems. A majority of the western wing is located within the Chesapeake Bay Watershed, where efforts to limit the number of future septic systems and even reduce the number of existing septic systems are expected by the Delaware Chesapeake Bay Watershed Implementation Plan.

Managing and coordinating growth and development, as well as preservation, is closely related to planning, policies, and installation of sewer infrastructure. The approach to planning and development of sewer infrastructure in the past has had limited success in achieving intended results of sustainable growth and preserving important environmental and agricultural resources.
SEPTIC SYSTEMS AND PACKAGE PLANTS

The University of Delaware completed a comparison of the effect on groundwater infiltration of total nitrogen (TN) from on-site septic systems versus sewered parcels between two hypothetical scenarios for residential development within the study areas: (1) a development of 500 single-family residential ½ acre parcels with new on-site septic disposal, and (2) the same new development connected to the central sewer service. Using the conceptual model developed in the 2016 Tetra Tech report (D’Amato et al. 2016) to estimate the delivery of nutrients (TN) to the environment, the following conclusions were reached:

- The average lot on septic will deliver 12.1 lb/yr. of TN to the environment
- The average lot on sanitary sewer will deliver 0.55 lb/yr. of TN to the environment

These results indicate that a typical lot with a septic system can potentially deliver 95% more nitrogen to groundwater than that same lot on sewer.

Delaware’s revised Septic System Regulations (2014) require that new and replaced septic systems, called BAT, or Best Available Technology, be installed within 1,000 feet from streams draining to Chesapeake Bay tidal waters. However, because this technology is not required for all Delaware streams, there exist nearly 1,800 septic systems located within 1,000 feet of streams in the East Wing, Central Core, and West Wing of the study area and only a very few meet these higher standards (Figure 2-22). Nearly 1/3 of septic systems in these planning areas are 20 years or older with the greatest total number located in the West Wing (Figure 2-23). The useful life of septic systems

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13 Section 3.30 indicates that new and replacement systems within 1,000-feet of Chesapeake Bay tidal water shall meet performance standards for N and P. Enforcement ostensibly occurs through DNREC during property transfer processes when application is made to install or replace an existing system.
is usually around 20 years old and then these systems require replacement or renovation. These are important factors to consider in planning for growth and infrastructure.

The potential for environmental pollution associated with septic systems, along with the current level of development pressure seen in southern New Castle County, led to the passing of a moratorium prohibiting no major developments (more than 5 lots) to be on septic systems. This moratorium went into effect in early 2019 and will be in place for one year from the date of signing.

A septic elimination program exists for developments that wish to connect to the public sewer system. The process is voluntary and initiated by homeowners, typically when their system is at the point of failure. Since the program was revised in the mid-2000s, Public Works has not completed a septic elimination project, mostly due to high costs. In 1992 the cost of septic system relief was $10,000 per home. The 2012 Comprehensive Plan lists the septic relief cost at $25,000 per dwelling.14 Public Works is currently revising the existing septic elimination program. (Source: White Paper, Southern New Castle County Wastewater Plan, 2019.)

The Department of Land Use estimates that there could be an additional 4,932 lots on septic in the East and West Wing study areas if the current regulations governing on-lot wastewater treatment are not revised. Based upon the University of Delaware findings, the potential reduction in TN delivered to groundwater if these lots were connected to a sewer system is nearly 57,000 lb./yr.

Figure 2-23: Age of Septic Systems in Southern NCC (Source: White Paper, Southern New Castle County Wastewater Plan, 2019)

14 This estimate was generated in 2012; NCC has not completed a project under the current septic elimination program. That estimate is for collection system construction, does not include on-lot work (lateral, septic system abandonment).
TRANSPORTATION & MOBILITY

The transportation network utilized by southern New Castle County residents and workers consists of roadways, bicycle and pedestrian facilities, and transit. Analysis of existing conditions and public input have identified challenges for each of those modes of travel:

- There are areas of roadway congestion. In particular, DE 299, the primary east-west route through Middletown, is congested. Other congestion occurs at intersections during peak commuter periods, such as the DE 1 ramps to DE 299 and at DE 71 and Middletown-Warwick Road.
- Pedestrian networks are disconnected and disjointed. Gaps in sidewalks force pedestrians to walk in or alongside the road.
- Trail segments are limited, and on-road bicycle facilities are disconnected. A New Castle County bike plan, referenced later in this document, is under development.
- Bus service throughout New Castle County is provided by Delaware Transit Corporation (DTC). Service in southern New Castle County is relatively infrequent and is focused toward Wilmington, Newark, and Dover. DTC is currently planning for expanded service to Middletown and improved bus routes to better serve demand.
- An issue of growing concern is mobility for residents who don’t have access to transit and cannot drive because of age, disability, or lack of car ownership. The population of senior citizens is increasing in southern New Castle County, and many live in areas that lack alternatives to driving.

COMMUTING PATTERNS

In 2015, there were 26,485 total workers living in southern New Castle County. Over 75% of southern New Castle County residents who work travel north to work destinations in northern New Castle County, Pennsylvania, New Jersey, and nearby parts of Maryland (Figure 2-24), mainly via DE 896, US 13, and DE 1. About 12% travel south to work destinations in Kent and Sussex Counties and elsewhere in Maryland, using US 301, US 13, and DE 1. Eighty-five percent of commuters drive to work in single occupant vehicles, and less than one percent use public transportation to travel to work (Figure 2-25).

Figure 2-24: Southern NCC Residents Work Location, 2015 (Source: US Census Longitudinal Employer-Household Dynamics)

Figure 2-25: Mode Share to Work, 2016 (Sources: US Census, American Community Survey 2012-2016 5-year estimate)
ROAD NETWORK

The road network provides functions of land access and mobility. Roadways are grouped into classes or systems according to the character of service they are intended to provide (Figure 2-26). As specified by the Federal Highway Administration, the role that a particular roadway should play in serving the flow of trips through the network is defined by its functional classification. The classifications include the following, listed order of increasing importance of land access and in order of decreasing emphasis on travel speed: Freeway, Expressway, Principal or Major Arterial, Minor Arterial, Collector, Local.

Arterials provide a high level of mobility and a greater degree of access control, while local facilities provide a high level of access to adjacent properties but a low level of mobility. Collector roadways provide a balance between mobility and land access and connect the arterial roads to local roads and destinations.

In southern New Castle County, several of the collector roads are in areas that have experienced (or will experience) significant amounts of residential development, mainly in the area to the north of Middletown. Nearly half of all roads in the study area are classified as local roads, most of which consist of subdivision streets.

US 301 is a new limited-access toll highway that opened to traffic in January 2019. US 301 has a partial interchange with DE 1 providing for movements to and from the north on DE 1. US 301 runs southwest to the Maryland border east of Warwick, with interchanges at Jamison Corner Road, DE 71, and DE 299. The roadway is tolled with all-electronic tolling. At the time of opening, the toll for vehicles travelling through all four interchanges is $4.00 for passenger vehicles and $12.00 for trucks.

SCENIC ROADWAYS

Several of the local and collector roads are scenic roadways that, together with other scenic, historic, and natural resources, form the core components of the character of southern New Castle County. The 2008 Southern New Castle County Scenic River and Highway Study by the New Castle County Department of Land Use identified 43 roads or portions of roads that are considered worthy of scenic road designation and first-priority targets for protection. The study locates important visual accents and vista points along those corridors.

These roads are integral to the scenic fabric of southern New Castle County. Each road possesses qualities worth protecting. Together, they serve as a means of public enjoyment of the area. The section on Community Character includes more detail on scenic roadways.
EXISTING TRAFFIC VOLUMES

The major roads in southern New Castle County carry an Average Annual Daily Traffic volume (AADT) in excess of 10,000 vehicles per day. However, many study area roadways carry very low daily volume, less than 4,000 AADT (Figure 2-27).\textsuperscript{15}

\textsuperscript{15} These volumes pre-date the construction of the new US 301 limited access road.
PLANNED ROAD IMPROVEMENT PROJECTS

WILMAPCO’s Regional Transportation Plan (RTP) serves as the County’s transportation plan. The plan identifies regional challenges, goals, and transportation investments to meet mobility, accessibility, and safety needs. The 2050 RTP is a fiscally constrained plan with Financially Reasonable Projects for New Castle County planned for 2020-2050. Additionally, the County partners with DelDOT to evaluate transportation facilities and ensure a safe, efficient, and environmentally-sound transportation network to move people and goods throughout the County. DelDOT prepares both a Long-Range Transportation Plan (LRTP) and a six-year Capital Transportation Program (CTP) to implement the LRTP and is responsible for road construction in line with the LRTP and the CTP.

In addition, the County and the Town of Middletown have created three Transportation Improvement Districts (TID) and a fourth TID is under development. TIDs are created for the purpose of comprehensively coordinating land use and transportation within the specific geographical area of each TID and to secure required improvements to transportation facilities within the TID area. TIDs are created by agreement between DelDOT and the relevant local government or governments. WILMAPCO is also a party to each agreement. DelDOT performs the traffic study that identifies transportation improvements based on development within the TID area.

There are 23 road improvement projects that are in the pipeline as a result of all of these planning processes (Figure 2-28). These identified improvements are expected to be in place by 2050. Many of the projects include pedestrian and bicycle facilities adjacent to the roadway. More information about these projects can be found in the Appendix.
BICYCLE AND PEDESTRIAN FACILITIES

Much of the work to develop improved pedestrian and bicycle facilities has been provided through the ongoing New Castle County Bicycle Plan. In summer 2018, WILMAPCO launched development of the Plan, and throughout the past year and a half, staff has worked with New Castle County, local and state agencies, and the community to develop a Bicycle Plan that builds upon past planning and new feedback to establish recommendations for:

- Improved safety, access and comfort of bicycling
- Prioritization of infrastructure improvements including pathways, on-street routes, and end of trip needs such as bike parking.
- Identification of programs and policies for education, enforcement and encouragement

WILMAPCO has worked with DelDOT to map existing bicycle routes and score their “level of traffic stress” (LTS) to show places that are and aren’t comfortable for most cyclists. LTS is used to categorize roads by the type of riders who are willing to use them based on conditions such as traffic volume and speed, presence of bike lanes, bike lane width, and presence of a physical barrier between the bike lane and traffic (Figure 2-29). Ideally, a person will eventually be able to comfortably ride a bike to most of their daily destinations on a network of low-stress streets and trails.

More information on the New Castle County Bicycle Plan is provided in the Appendix.

Figure 2-29: Existing Non-motorized Facilities (Source: WILMAPCO)
TRANSIT

Currently, southern New Castle County is served by six transit routes (Figure 2-30).

The Route 301 Intercounty service (Wilmington to Dover) is the most popular route for commuters, with strong ridership at the park and ride lots at Boyds Corner Road, SR 299 in Odessa, and in Smyrna. Route 302 is another Intercounty Route that operates between Newark and Dover and connects with Middletown. Route 43 operates as a circulator with local service between the SR 299 Odessa park and ride and western Middletown, with stops at Christiana Care, Dove Run, Middletown Crossing, Marketplace, Westown, and Amazon. Route 45 is another commuter route with service from the SR 299 Odessa park and ride to Christiana Mall and Wilmington. Route 47 is a recent addition to DART’s Middletown service and operates as an employee shuttle for Amazon, originating in Wilmington and stopping along the US 13 corridor. Route 120 provides direct service between the Smyrna park and ride and Dover. Cursory information on ridership may be found in the Appendix.

At this time, DART planners are working on proposals to modify and/or enhance some of the routes serving southern New Castle County. DART’s planners attended the Master Plan public workshop on October 7, 2019 to share these ideas with residents and record their comments. A more detailed presentation has been planned as part of a Community Conversation at the Appoquinimink Library on October 30, after which DART will solidify their service proposal for their next service change, which will occur in May 2020. Another public hearing will be held in early 2020 to present the final proposal.
AVIATION

Summit Airport is a privately owned, public-use airport located on Summit Bridge Road five miles north of Middletown. Summit Airport is included in the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems. The airport is a general aviation facility (serving private and corporate customers rather than commercial airlines) with two runways. The airport has a secured area of 550 acres and provides fixed based operations services and maintenance, repair, and overhaul services.

While adjacent roadways and developments constrain physical expansion of the airport, the airport is capable of expansion in operations. Also, there is an ability to increase helicopter operations, which aren't constrained by runway capacity.

The airport supports good local jobs and can be a generator of new jobs. Coordination of local land use is important to support the airport’s successful operations as well as ensure compatibility with surrounding uses.
Environment, Natural Resources & Conservation

OVERVIEW
The interrelationship between the natural environment, human activity, and land development are central to land use planning in southern New Castle County, where the pressure to preserve resources and open space and the pressure for new housing and development are both strong.

An understanding of an area’s natural resources helps in planning for their protection, orderly growth and development, and achieving a community’s livability and quality of life goals. The importance of taking inventory of the natural resources of southern New Castle County stems from the need to understand the relationships among the region’s resources and how they impact land use, as well as how land use affects achievement of community livability and quality of life.

Natural resources seldom exist or function independently. A good example of this is the relationship between an area’s soils and its vegetation. Terms such as “productivity” and “carrying capacity” relate strongly to the use of land, particularly in areas experiencing continued and evolving growth pressures. The existence of natural resources presents potential limitations to land development, such as when a floodplain area restricts development, or benefits, such as the existence of prime agricultural soils that lends themselves to high crop yields.

The following sections highlight current conditions of key resources related to the community vision and goals.

WATER RESOURCES & PROTECTION
New Castle County continues to be the leader in the State in the preservation of and enhancements to natural resources. The County continues to ensure that effective stormwater management is a critical component of the health, safety and welfare in our communities through updates to our stormwater code for the promotion of green technology best management practices in site development in compliance with the County’s NPDES MS4 permit for stormwater quality.

New Castle County has partnered with DNREC on numerous issues including the update of their Sediment and Stormwater Regulations and as a participating member of the Water Supply Coordinating Council. The County has also entered into partnerships with other non-profit organizations, such as the Delaware Nature Society and the National Wildlife Federation for the preservation of water resource and wildlife habitats.

Southern New Castle County contains many types of water resources:

- **Watersheds:** The Coastal Plain is a geologic province characterized by broad, flat drainage basins with complex water courses. Within the study area of Southern New Castle County, there are eleven distinct watershed areas with the larger drainage basins of the Delaware and Chesapeake Bays.
- **Rivers & Creeks:** The eastern boundary of the study area is the Delaware River. Major creeks and rivers of the study area include the Appoquinimink River, Smyrna River, Blackbird Creek, Drawyers Creek, and the Chesapeake and Delaware Canal (formerly St, Georges Creek). Each one of these has an elaborate system of tributaries that have affected the way land has been used.
- **Floodplains:** Floodplains are typically defined as that portion of a stream valley that is covered in water when a river of stream overflows its banks. Such flooding can occur as a result of heavy rains of melting snow. Floodplains in the study area are characterized as being either coastal or inland (riverine).
• **Wetlands.** Two forms of wetlands are generally found in Southern New Castle County. Tidal Marsh wetlands correlate with the existence of streams and drainageways associated with the Delaware River. The second type is found in the southwest corner of the study area where a diverse, but "spotty" pattern of wetlands is found. These are known as Delmarva Bays or Coastal Plain wetlands. Coastal plain wetlands are generally made up of low permeability soils coupled with a high-water table. Correspondingly, wetland plant communities are also prevalent in the area.

Approximately 6,000 acres of wetlands, 5,000 areas of natural areas, and 7,000 acres of floodplain would be impacted under current planning policies. Existing protections for these resources include Water Resource Protection Areas (WRPAs) and Riparian Buffer Areas, which are described in the Appendix.

**AIR QUALITY**

While the County has generally been in attainment for sulfur dioxide, total suspended particulate matter, carbon monoxide and nitrogen dioxide (EPA and State air quality monitoring network, Division of Air Quality 2017 Annual Report), ozone (O₃) is a different matter. Currently, NCC is non-attainment for ozone (high toxic air releases – EPA data). In fact, the County has been in non-attainment for ozone as far back as 1988.

Ozone is formed when volatile organic compounds and oxides of nitrogen are emitted to the atmosphere in the presence of sunlight (the energy of sunlight drives the oxidant-forming reactions that cause Ozone). Ozone is linked to automobile emissions and certain industrial and commercial operations and is the main component of smog. Ozone is a strong respiratory irritant that affects healthy individuals as well as those with impaired respiratory systems. It can cause respiratory inflammation and reduce lung function. It can also damage vegetation, including trees and agricultural crops.

While the levels of ozone have been falling since the 1990’s, ozone remains a problem for Delaware. Controlling ozone is a complex task due to the wide variety of sources as well as the long-distance transport of ozone from other states. Delaware’s continued vigilance in inspecting motor vehicle exhausts and gasoline vapor emissions, as well as regulation of emissions from industrial sources, will continue to show improvements over time.

**AGRICULTURAL RESOURCES AND LAND PRESERVATION**

Southern New Castle County possesses some of the most productive agricultural land in the state (Figure 2-31). Historically, Delaware has contained the highest percentage of Class I and II soils of any state in the nation.¹⁶ Large expanses of farmland covered the landscape and coexisted with small agrarian towns and crossroads. Productivity was high and contributed significantly to the state’s economy.

As the northern portion of the County built out and transportation improvements made access to southern New Castle County easier, the building industry availed itself of cheap land and began subdividing prime agricultural land. As of

¹⁶ Prime agricultural soils are classified according to land capability and limitations for cultivation: Class I contains soils having few limitations for cultivation and generally considered the best soils for crop production; Class II contains soils having some limitations for cultivation but are second only to Class I in terms of crop production. USDA Natural Resources Conservation Service (NRCS), [https://www.nrcs.usda.gov/wps/portal/nrcs/site/soils/home/](https://www.nrcs.usda.gov/wps/portal/nrcs/site/soils/home/)
2017, approximately 21% of the County was farmland, the majority of which was in southern New Castle County (2017 Census of Agriculture, USDA).

Between 2002 and 2017, the County lost 5% of its remaining farmland. The loss of agricultural land is permanent and leads to fragmentation of farms and the loss of supporting farm industries and businesses. As farms become more fragmented and isolated, conflicts can arise from increased traffic, complaints of odors, concerns over hours of operation, and a whole host of other issues arising from a suburbanizing landscape. Important distinctions between the highly productive agricultural soils and coastal-influenced soils offer guidance on appropriate uses of land. Prime agricultural soils remaining in southern New Castle County (i.e., not subdivided) total 67,893 acres.

**AGRICULTURAL PROTECTION EFFORTS**

Efforts to preserve the States’ agricultural industries remain strong and significant preservation tools exist both at the State and County levels. One of these tools is the Delaware Agricultural Lands Preservation Foundation (DALPF). Established in 1991, DALPF has two major components: agricultural preservation districts and agricultural conservation easements. Districts are created by a voluntary agreement to keep land in agricultural use for at least ten years. Lands are selected under a review and approval process that includes satisfying a scoring system standard. No payment is made to the landowner, but he/she benefits by exemption from real estate transfer, county, and school taxes, as well as protection against nuisance lawsuits.

New Castle County established a volunteer farmland preservation program in 2003 to purchase easements that restrict subdivision of land, and in 2006 began a partnership with DALPF by donating County funds for farmland preservation on a one-to-one matching basis. The County currently holds approximately 940 acres of agricultural easements and in partnership with DALPF another 13,000 acres have been eased. While the County program is no longer in effect, the County initiated a Land Preservation Task Force in 2019 to examine ways to protect open space and agricultural land. The outcomes from that Task Force remain to be determined.

Of the more than 122,000 acres of land in the study area about 34% is protected as open space, parkland or under agricultural easement. Open space has also been established in conjunction with the recordation of residential development plans and is classified as private (maintained by a maintenance corporation) or public (owned and maintained by New Castle County). Of historic significance is the County’s rezoning of approximately 80,000 acres in southern New Castle County to SR (Suburban Reserve) to encourage preservation. SR zoning is a low-density district permitting a minimum lot size of 5 acres for individual residential lots, or “open space” subdivisions requiring 60% open space. Sewer service has not been available in this area and development activity has been limited as a result.

In addition, although the County adopted a Transfer of Development Rights (TDR) program as part of the UDC, the program has not been widely used. Consequently, the County should consider reevaluating its TDR provisions to offer...
further incentives and bring the program in line with its growth management and sewer services planning. Doing so may well make the program more responsive to landowner interests and needs.

**ECOSYSTEMS AND HABITAT**

The presence of forests and other vegetative resources in the study area is principally the product of two factors: the reduction of vegetative cover for agricultural purposes and the preservation of natural areas by governmental and conservation organizations. Together, these factors have created a pattern of vegetative cover that is diverse, fragmented, and often related to other natural systems.

Due to the lack of extensive naturally vegetated areas in the study area, wildlife is correspondingly limited. This does not mean there are no wildlife to be found, however; mammals, reptiles, birds, fish or insects are abundant in most of the areas not in agriculture or development.

Over the years, the State and County have had modest success in protecting both forested areas and other critical natural areas through both purchase and regulatory programs. Today, tree canopy cover ranges widely, from 0% cover on farms and wetlands to more than 40% in mature neighborhoods and 70% in forests.\(^\text{17}\)

**Critical Natural Areas**

The identification of significant natural areas in New Castle County began in 1972 with a statewide inventory conducted by the Delaware Nature Society (DNS). In 1975 The New Castle County Natural Areas Study was prepared in conjunction with the County’s Department of Parks and Recreation. Kent and Sussex Counties were also inventoried in 1976 and the combined three-county study was published by DNS in 1978 as Delaware's Outstanding Natural Areas and Their Preservation. This document contained goals, criteria, and priorities for a program of natural areas preservation. Shortly after the document’s publication, legislation was enacted at the State level assigning responsibility for managing a Natural Areas Preservation System to the Delaware Department of Natural Resources and Environmental Control (DNREC).

**State Resource Areas**

State Resource Areas (SRAs) comprise some of Delaware’s most environmentally valuable undeveloped lands and include parks, natural areas, conservation areas, certain wetlands, forests, cultural and geological resource areas. SRAs are important as they provide vital economic benefits, provide wildlife and plant habitat, protect water and air quality and generally enhance the quality of life of the people of Delaware. Such areas were originally designated by the state as a part of the implementation of the 1990 Delaware Land Protection Act (7 Del. C. §75).

\(^\text{17}\) Delaware Forest Service Community Tree Canopy Inventory. Accessed August 2019 at [www.de.gov/treecanopy](http://www.de.gov/treecanopy).
SEA LEVEL RISE VULNERABILITY

Sea level rise (SLR) is one of the most significant consequences of climate change, Delaware is especially vulnerable to the effects of SLR due to its flat topography, low mean elevation, and significant community development and infrastructure investments along the coast. Currently Delaware statewide SLR planning outlines three possible scenarios that correspond to increases of mean sea elevation by the year 2100: 1.53 m / 5.02 ft (high scenario), 0.99 m / 3.25 ft (intermediate scenario), and 0.52 M / 1.71 ft (low scenario).

Land east of Route 1 and adjacent to the Delaware River has high concentrations of environmental resources and is at risk of inundation resulting from sea level rise (Figure 2-32). Much of this land is protected by provisions in the Unified Development Code (Table 40.10.010), as well as through existing conservation easements.

Figure 2-32: Sea Level Rise Impact Areas (Source: Delaware Geologic Survey, Inundation Model, 2017)

18 https://www.dgs.udel.edu/datasets/delaware-coastal-inundation-maps
**Parks & Recreation**

**OVERVIEW**

Historically, New Castle County’s approach to recreation and parks has focused on active recreation—providing and maintaining the space and facilities where the recreational use generally involves physical exertion, such as organized sports, structured play areas, etc. However, providing for a range of recreational opportunities, including passive recreation such as birding and walking, is also important. As southern New Castle County has developed and become home to significantly more people than in the past, access to recreational facilities and a provision for a wider range of activities has become more critical.

When compared to the northern portion of the County, southern New Castle County is lacking in County-owned parkland. While the UDC requires open space for major subdivisions, these spaces are privately owned and maintained and may only be open to residents of the subdivision. Therefore, there is a need for public parks open to the general public. According to the New Castle County Long Range Park Acquisition and Development Plan from 2017, the area will need eight additional Neighborhood Parks and 1¾ additional District Parks. Currently, there are only two County parks within unincorporated southern New Castle County: Wiggins Mill and Back Creek (Figure 2-33). A third regional park is planned for the east side of Shallcross Lake Road north of Marl Pit Road (shown in Figure 2-33).

There are also other open spaces in southern New Castle County owned by the State. However, these function primarily as a means of land conservation and habitat preservation. These include Blackbird State Forest, Cedar Swamp Wildlife Area, and Augustine Wildlife Area. While these areas are not intended for active recreation, there may be opportunities to include passive recreational activities such as walking trails or bird watching. While there are trails along the north side of the C & D Canal, the C & D Wildlife Area located in the study area is federal land.

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) outlines the State’s planning and policy for parks and trail facilities throughout the State, with funding tied to the Strategies for State Policies and Spending/State Strategies Map. The SCORP defines planning regions; the study area is located within Statewide Region 2, which also contains portions of the County north of the C & D Canal, south of the City of Newark. Around 17% of the State’s publicly assessible outdoor recreation and conservation lands within District 2 (including local, County, State, and Federal public lands). Approximately 15% of the population lives within a 1-mile drive of a park, 45% within a 3-mile drive, and 65% within a 5-mile drive (Figure 2-34). Therefore, this indicates that 35% of the population of the study area lives somewhere further than a 5-mile drive from any public parks.
Figure 2-33: Active and Passive Open Space
Figure 2-34: Driveshed Analysis of Public Parks in Southern New Castle County
TRAILS & PATHWAYS

The expansion of the County’s trail network has gained interest in recent years. The County, along with the State, WILMAPCO, and other organizations such as Delaware Greenways, has worked to expand the trail network within New Castle County, including in the Southern New Castle County Master Plan study area. The expansion of the trail system is, in and of itself, will serve active recreation purposes. It is also an opportunity to provide interconnection to County parks.

There are continuing efforts for the planning of Delaware’s trail system. In 2011, then Governor Markell, along with the General Assembly and State Senate, passed a resolution requesting a study for non-motorized connections in Delaware. DNREC and DelDOT were tasked with preparing a trails plan known as the First State Trails and Pathways Plan. While this plan identified several locations for trails in New Castle County, none of those locations are within the study area. In 2017, DelDOT prepared the Blueprint for a Bicycle-Friendly Delaware, a statewide bicycle policy plan. The Blueprint outlines strategies for maintaining, expanding, and funding Delaware’s bicycle infrastructure, including trails; it calls for locally generated trail master planning. Beginning in 2018, the New Castle County Bicycle Plan is currently being prepared by WILMAPCO.

Figure 2-35: Driveshed Level of Service Analysis for Trail Access in Region 2 (SCORP, page 47)
Community Facilities & Character

OVERVIEW

The character of a community is the product of myriad features of the built and natural environments that together create what is often referred to as a “sense of place”. Residents of southern NCC enjoy the small town and rural character of the area. Increasingly, communities across the country recognize the role that good community design plays in attractiveness and appeal of an area, civic pride, tourism, etc. New Castle County has a number of zoning policies in place which can be utilized as tools to protect character in southern NCC.

Ensuring that services and infrastructure exist for residents in established communities as well as growth areas requires not only coordination between State, County and local governments but also coordination between all departments within the County. Since 2007, the Land Use Department has worked with Community Services to review their updated housing strategies and incorporate stated needs into the Comprehensive Plan and with Special Services to ensure that growth areas are targeted for sewer service and that areas with sewer service agreements are incorporated into growth plans. Both the Parks Plan updated by Public Works and the Library Plan updated by Community Services reflect the growth strategies of the Comprehensive Plan.

CHARACTER

Southern New Castle County has retained much of its rural and agricultural character, in contrast to northern New Castle County, though it is increasingly threatened by development. With the Chesapeake and Delaware Canal serving as a boundary to the north, southern NCC is includes a number of aspects that contribute to its character. The Delaware Bayshore Byway serves as a north to south road corridor, formally designated for its scenic coastal lands and historic coastal towns such as Port Penn. West of the marshlands adjacent to the Delaware Bay are rich, agricultural lands which have operated in such a manner as far back as the late eighteenth century. Historic buildings, towns, and structures dot the landscape and contributing to southern NCC’s community identity.

HISTORIC AND CULTURAL RESOURCES

Prior to early colonial settlement, southern New Castle County was occupied by the Lenape peoples, who lived by fishing, hunting, and farming. Early colonial settlement in Southern New Castle County largely grew in the beginning of the eighteenth century, when development in the region, particularly in agriculture, was encouraged by William Penn. Settlement during this period was largely sporadic around main transportation routes. Over the years, agriculturally related industry and development have occurred. Southern New Castle County’s historic character is largely rooted in its strong agricultural history dating from the early eighteenth century. Agricultural complexes, belonging to both the rural elite and tenant farmers, dot the rural landscape, while more dense, historic population centers are concentrated in the towns such as Middletown, Odessa, and Townsend. There are currently over 650 National Register resources in Southern New Castle County (individually listed and/or contributing to a National Register Historic District), six National Register Historic Districts, and two properties zoned Historic (NCC designation). Figure 2-36 shows historic resources and scenic roads in the study area. Further detail of area history is included in the appendix.

HISTORIC REVIEW BOARD PROCESS

New Castle County’s Historic Review Board process provides for the identification and review of both the preservation of and changes to historic resources. Development plans and demolition permits are reviewed by the New Castle County Department of Land Use to determine if an historically significant structure may be impacted.
Should an application propose work that causes a potential impact to a historically significant resource, the Historic Review Board reviews the application and works with an applicant to encourage preservation while also meeting a development project’s goal.

The Historic Review Board also maintains the ability to recommend properties eligible for Historic Overlay Zoning, a strong historic preservation tool in New Castle County. Once a property is zoned Historic, proposed exterior modifications and changes to historic structures are reviewed in accordance with both the Secretary of the Interior’s Standards for the Treatment of Historic Properties and the New Castle County Historic and Cultural Resource Design Guidelines. Properties with an H Overlay designation are also protected to under the Demolition by Neglect provisions, which ensure historically significant structures do not undergo severe deterioration or neglect.

There are currently efforts to promote and strengthen historic preservation efforts on a County-level. In May of 2018, a Councilmember-formed Historic Preservation Working Group began evaluating ways to encourage and incentivize historic preservation, as well as strengthen current polices to protect the County’s historic resources.

Figure 2-36: Historic and Cultural Resources (Source: New Castle County)
SCENIC ROADS

Part of what contributes to a region’s community character are the historic and scenic roads that formed the basis for early transportation. While such roads change over time, they often become part of and contribute to a community’s “sense of place.” Such is the case with the network of scenic roads identified in two studies: the 2008 Southern New Castle County Scenic River and Highway Study and the 2013 Delaware’s Bayshore Byway Corridor Management Plan. The 2008 study evaluated the whole of Southern New Castle County’s road network in the context of the National Scenic Byways’ Program and its criteria for scenic roads designation in the FHWA publication, Scenic Byways. Roads were evaluated for their scale and size, characteristics such as terrain and topography, the existence of scenic visual accents and vista points, natural resources and habitat, and recreation along or adjacent to the roads. The result was a network of 43 identified scenic road segments suitable for nomination under the State of Delaware Scenic Byways Program, as well as that for the National Scenic Byways Program. The Bayshore Byway built on the 2008 study to further evaluate and nominate for designation a portion of Rt. 9 in New Castle County from the City of New Castle to its junction with State Route 1 east of the City of Dover, Delaware and onward to the City of Lewes (approximately 100 miles). This corridor offers exposure to the largest preserved coastal marshlands and historic river town’s along the east coast, including a variety of wildlife and bird migratory flyway zones & resting areas.

COMMUNITY FACILITIES

Figure 2-37 shows the study area schools and school district boundaries, as well as library locations.

Schools / Educational Resources

Three public school districts exist in the study area. Appoquinimink School District serves most of the area, and Colonial and Smyrna School Districts serve portions. There are 17 public schools in the study area, nine of which which are in Middletown and two in Townsend. In addition, there are five private schools in the study area. While public schools are operated independently from the County by the school districts, it is imperative that the school districts, State, and County work together for sustainable future growth.

Population growth is anticipated in this area in the coming decades. However, forecasts for slowing growth and an aging population would suggest that planning and development of new school facilities should be done cautiously so as to avoid spending to construct facilities that will be a cost burden long beyond the period of actual demand.

No higher education facilities exist in the study area. This could be important in future efforts to expand the job base, diversify industries, and provide access to more training/educational opportunities.
Figure 2-37: Libraries, Schools, and School Districts
Libraries and Community Centers

There are two libraries in southern New Castle County. New Castle County is planning to open a new 26,300 square foot library facility at the corner of Main Street and Catherine Street in the heart of Middletown, which will replace the existing leased 10,000 square foot facility on Broad Street. 19

The Corbit-Calloway Memorial Library in Odessa has existed for over 150 years in various locations in the town and was one of the first free lending libraries in the Middle Atlantic States. The present library is at 2nd & High Streets and has been in operation since 1968. The library is an independent, non-profit institution and operates as part of the New Castle County Library System under an annually renewable contract through which it receives a share of operating funds. These funds are supplemented by State, grant, and charitable funds.

Located in the heart of Middletown, the Middletown-Odessa-Townsend Senior Center is a non-profit, non-residential community center serving adults age 50 and over. The Mamie A. Warren Senior Center provides similar services nearby in Smyrna (Kent County, DE). Several private, senior, assisted, and/or age-restricted living facilities are also located throughout the study area.

Emergency and Medical Services

Emergency services include police, paramedic/EMS, 911 communications, fire, and emergency management. The Office of Emergency Management is charged with preparing New Castle County and the public to manage activities before, during, and after the impact of natural and technological disaster agents to protect lives and property within the county. Figure 2-38 shows the locations of public safety facilities within southern New Castle County.

There are currently two paramedic stations in the study area. Paramedic Station #10 is located between Route 13 and Route 1 on Boyds Corner Road and Paramedic Station #5, which is currently being renovated, is located in Middletown on Broad Street.

There are six fire stations in the study area, three of which are in unincorporated New Castle County. The Volunteer Hose Station 1 is located off DE 896 on Churchtown Road, the Odessa Station 4 is located next to Paramedic Station #10 on Boyds Corner Road, and Port Penn Station 29 is located on Market Street in Port Penn. The Volunteer Hose Station 27 is located in Middletown, and the Odessa Station 24 and Townsend Station 26 are located within Odessa and Townsend, respectively.

There are three police stations in the study area. The County Police maintain a station in Middletown, which also has its own police force. The Delaware State Police also maintain a station in Odessa.

19 The $24,000,000 project, funded at about 45% by the State, will include a maker space, STEM room, video and audio recording studios, modern presentation rooms, group study rooms and community meeting rooms, as well as a materials collection expanded from 50,000 volumes to 90,000 volumes. The hours of operation will expand from 45 to 51 hours and include Sunday. The building will incorporate a number of environmentally progressive features including solar-powered electrical vehicle chargers, parking lot lighting and lanterns.
Medical services available within the study area are predominantly in Middletown and include a handful of outpatient clinics and emergency/medical aid facilities, as well as the recently opened Christiana Care free-standing emergency department on the north side of DE 299 just west of its interchange with DE 1. The nearest facilities with in-patient and urgent care services are Christiana Hospital, approximately 20 miles north on DE 1, and Bayhealth/Kent General Hospital in Dover, about 30 miles to the south.

Figure 2-38: Public Safety Facility Locations (Source: New Castle County)
Economic Development

INDUSTRIES

Jobs in southern New Castle County are largely concentrated in industries that service the local population (Table 2-5). These industries include retail, health care, education, and construction, or “non-traded industries.” The dollars exchanged in non-traded industries are local in their origin, making the opportunity for wealth creation limited. Traded industries (e.g., manufacturing) produce locally but sell elsewhere, resulting in new dollars flowing into the local economy, contributing to wealth creation.

The national average for employment in traded industries is 36%. In southern New Castle County, it is estimated to be 21%. Though this number is expected to be low in a mostly rural area, there is room for improvement.

JOB GROWTH

Between 1990 and 2015, southern New Castle County added over 7,000 new jobs (Figure 2-39). Between 2005 and 2015, southern New Castle County saw a 67% increase in employment, growing from 5,936 to 9,927 jobs in the study area. Projections indicate that southern NCC will add over 10,000 jobs from 1970 to 2050, and the share of the jobs will grow from 1.2% in 1970 to 4.6% in 2050.

Table 2-5: Employed Population by Industry, 2019 (Source: ESRI)

<table>
<thead>
<tr>
<th>Industry</th>
<th>County</th>
<th>SNNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Mining</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Construction</td>
<td>5.7%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>7.2%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Wholesale</td>
<td>2.3%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Retail</td>
<td>10.4%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Transportation &amp; Utilities</td>
<td>7.0%</td>
<td>9.4%</td>
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<td>Information</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Finance, Insurance and Real Estate</td>
<td>14.5%</td>
<td>13.4%</td>
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<td>Services</td>
<td>44.9%</td>
<td>42.6%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>5.2%</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

Figure 2-39: Share of Southern NCC Employment vs. Rest of New Castle County (1990-2050)

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Sources: US Census, American Community Survey, Delaware Population Consortium, WILMAPCO

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20 Source: WILMAPCO TAZ estimates and projections
Most southern New Castle County employment growth between 2005 to 2015 occurred in non-traded industries serving household growth (Table 2-6). Healthcare employment increased significantly, more than tripling its totals since 2005. There was, however, growth in the accommodation, manufacturing, arts and entertainment, and transportation industries over this period. These industries contribute to community wealth generation.

In determining where to locate a business, a chief criterion used by investors is the quality of the workforce. Educational attainment, industries where employed, and commuting patterns are factors considered. For the most part, southern New Castle County is well educated. One-third of southern New Castle County residents over the age of 25 have a bachelor’s degree or higher. Southern New Castle County residents’ educational attainment is not as high as the overall County, but higher than the State (Table 2-7).

**EMPLOYMENT LOCATIONS**

There is a mismatch between where people live and where they work (Figure 2-40). Most residents commute elsewhere for employment, with most commuting to northern New Castle County. Approximately 86.4% of residents work elsewhere and only 13.5% live and work within southern New Castle County. Conversely, regarding the jobs located within southern New Castle County, most workers live elsewhere. Approximately 63.8% of jobs in the study area are filled by people living outside of the area.

**Table 2-6: Jobs by Place of Employment, Southern NCC, 2005-2015 (Source: U.S. Census, County Business Patterns Zip Code Data 2005 and 2015; W-ZHA)**

<table>
<thead>
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<th>Industry</th>
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<th>2015</th>
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<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Retail</td>
<td>972</td>
<td>1,854</td>
<td>882</td>
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<tr>
<td>Health Care</td>
<td>241</td>
<td>1,044</td>
<td>803</td>
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<tr>
<td>Accomodation</td>
<td>419</td>
<td>1,044</td>
<td>625</td>
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<tr>
<td>Education</td>
<td>951</td>
<td>1,542</td>
<td>591</td>
</tr>
<tr>
<td>Construction</td>
<td>856</td>
<td>910</td>
<td>54</td>
</tr>
<tr>
<td>Professional/Business Services</td>
<td>535</td>
<td>872</td>
<td>337</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>586</td>
<td>792</td>
<td>206</td>
</tr>
<tr>
<td>Other</td>
<td>290</td>
<td>439</td>
<td>149</td>
</tr>
<tr>
<td>Other Services</td>
<td>160</td>
<td>386</td>
<td>226</td>
</tr>
<tr>
<td>Transportation/Warehousing</td>
<td>260</td>
<td>345</td>
<td>85</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation</td>
<td>107</td>
<td>246</td>
<td>139</td>
</tr>
<tr>
<td>Wholesale</td>
<td>453</td>
<td>246</td>
<td>-207</td>
</tr>
<tr>
<td>Public Administration</td>
<td>106</td>
<td>207</td>
<td>101</td>
</tr>
<tr>
<td>Total</td>
<td>5936</td>
<td>9,927</td>
<td>3,991</td>
</tr>
</tbody>
</table>

**Table 2-7: Educational Attainment of Persons 25+ (Source: ESRI)**

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Delaware</th>
<th>New Castle County</th>
<th>Southern New Castle County</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Degree</td>
<td>29.7%</td>
<td>28.3%</td>
<td>30.1%</td>
</tr>
<tr>
<td>Bachelor’s Degree or Higher</td>
<td>31.6%</td>
<td>36.5%</td>
<td>33.2%</td>
</tr>
</tbody>
</table>

**Figure 2-40: Illustration of Jobs and Worker Flows In/Out of southern NCC (Source: Longitudinal Employment-Household Dynamics, US Census Bureau)**

Employed in SNCC but live elsewhere: 6,332
Live in SNCC but Employed elsewhere: 22,890

Living and Working in SNCC: 3,595
The disconnect between where people live and work has implications for transportation, traffic, and the environment, and was mentioned as a topic of major concern by many community members. Benefits attributed to a better jobs-housing balance are:

- Reduced driving and congestion
- Fewer air pollution emissions
- Lower costs to businesses and commuters
- Lower expenditures on facilities and services
- Greater family stability
- Higher quality of life

Middletown is the largest employment center in the study area, with approximately 55% of the study area’s jobs located there (Figure 2-41).
Figure 2-41: Employment Locations: 2015 (Source: Longitudinal Employment-Household Dynamics, US Census Bureau)
RETAIL SALES

There is retail sales leakage occurring in southern New Castle County (Figure 2-42). Residents of southern New Castle County generally travel outside of the area to shop. There is considerable retail sales leakage among most store types, particularly motor vehicles and parts dealers. Sales outflow is not unusual for lower density communities. However, having convenient access to goods and services contributes to quality of life.

![Figure 2-42: Southern NCC Retail Sales Inflow/Outflow (Source: ESRI; W-ZHA)](image)

SUMMIT AIRPORT

Summit Airport is an economic development asset in Southern New Castle County. The airport is southern NCC's only public-use airport and its maintenance as an airport is key to retaining and supported the growth of its operator, Summit Aviation. Between 2013 and 2018, Summit Aviation, a Maintenance, Repair, and Overhaul (MRO) facility, added more than 100 jobs at the airport due to aggressive market expansion. It is one of several employment success stories in southern NCC, employing more than 250 people. Total economic impact of the airport was estimated at $65,615,700 by the DelDOT Office of Aeronautics in 2018. Potential exists for continued aviation-related economic development with access to the airport’s paved runway by Summit Aviation and its tenants.
3. Where We Want to Be

Placeholder section title page
Community Vision, Goals & Objectives

DEVELOPMENT PROCESS

The southern New Castle County community has been involved in developing goals and objectives for the plan since the early stages of the planning process. The public informational kick-off meeting occurred on October 17, 2018 and entailed a project overview presentation, followed by preliminary baseline information and simple mapping activities. Visioning workshops took place in early 2019 in both Odessa and Middletown. The project’s Advisory Committee was engaged throughout this process to review draft materials and provide feedback.

During the visioning workshops, participants first watched a presentation providing an overview of the project background and summarizing existing conditions. Then, working in facilitated small groups of about 8-10 people, participants walked through a series of questions meant to provide the project team with community input related to issues related to five categories:

- Environment
- Quality of Life / Health
- Community Character / Development Patterns
- Transportation
- Economy / Jobs

Each group had a notetaker recording the top 1-2 issues provided by each person in each topic area. Participants also individually provided feedback on a worksheet. After each topic-area discussion, the project team gathered a summary sheet with the comments and compiled the results. Following all discussions, each person reviewed the compiled list of concerns from all tables (provided on the presentation screen) and provided their “vote” for which of the issues they believed to be most important in each category. This allowed the project team to get a sense of prioritization of the issues. There were 106 worksheets submitted after the workshop in Odessa and 24 in Middletown.

A web-based MetroQuest survey was also used to extend engagement in the visioning process beyond the in-person options, with a similar set of issue-identification and prioritization questions. There were 217 responses to the MetroQuest survey.

The graphic to the left shows the words most frequently used during the visioning process.
**Resulting Goals and Objectives**

Based on the community’s input, the project team developed a set of five goals for the project, each with a set of related objectives.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality of Life / Health</strong></td>
<td>Residents of southern New Castle County have access to the amenities and services that help them to maintain a high quality of life.</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Environmental protection and farmland preservation are considered a priority in Southern New Castle County, and residents and visitors alike have access to trails, parks, and other natural spaces.</td>
</tr>
<tr>
<td><strong>Community Character</strong></td>
<td>Development and redevelopment in southern New Castle County are compatible with, and enhance, the existing community character, including historic properties and design features, the scale of development, and presence of farmland and open space.</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>People in southern New Castle County can use a variety of transportation modes (car, public transportation, walking, and bicycling) to reach their destination in safe, comfortable, and convenient matter.</td>
</tr>
<tr>
<td><strong>Economy / Jobs</strong></td>
<td>Southern New Castle County has a strong and diversified economy.</td>
</tr>
</tbody>
</table>
GOAL 1. QUALITY OF LIFE/HEALTH: Residents of Southern New Castle County have access to the amenities and services that help them to maintain a high quality of life.

Objectives
- Achieve access to recreation for all ages, both indoor and outdoor
- Increase access to quality healthcare
- Improve access to graduated care for aging population, including transportation
- Continued improvement of emergency services; types of equipment and response time
- Increase locally grown food (production and consumption)

GOAL 2. ENVIRONMENT: Environmental protection and farmland preservation are considered a priority in Southern New Castle County, and residents and visitors alike have access to trails, parks, and other natural spaces.

Objectives
- Improve air quality
- Improve surface water and groundwater quality
- Protect important, quality natural resources, including open space for wildlife
- Prepare for impacts of sea level rise
- Preserve farmland
- Enhance landscape through street trees, reforestation, etc.

GOAL 3. COMMUNITY CHARACTER: Development and redevelopment in Southern New Castle County are compatible with, and enhance, the existing community character, including historic properties and design features, the scale of development, and presence of farmland and open space.

Objectives
- Preservation of rural/small-town/historical character
- Denser, more walkable development with mixed use
- More opportunities for family-oriented cultural attractions, entertainment, recreation (museums, YMCAs, etc.)

GOAL 4. TRANSPORTATION: People in Southern New Castle County can use a variety of transportation modes (car, public transportation, walking, and bicycling) to reach their destinations in a safe, comfortable, and convenient manner.

Objectives
- Expanded public transportation
- Congestion management in Middletown
- Better east-west connections (in Middletown and beyond)
- More/safer walking and biking paths/connections

GOAL 5. ECONOMY/JOBS: Southern New Castle County has a strong and diversified economy.

Objectives
- More local, diverse job centers, facilitating shorter commutes
- Support small local businesses
- Diversification of industries
- Higher income jobs
- Living wage/trade/union jobs with retirement benefits
- Access to more training and education opportunities
4. Scenarios
Overview

Using the land use-related goals and objectives developed with the community, and working within the constraints of existing and expected conditions, the project team developed three initial scenarios, which were presented to the community in June 2019 and then revised prior to final presentation in September 2019. The scenarios included three potential futures:

- Scenario 1: As Planned (“Business as Usual”)
- Scenario 2: Planned Growth and Preservation
- Scenario 3: Town Infill and Preservation

These scenarios, including assumptions and constraints, are described further on the pages that follow. These scenarios present varying conditions related to environmental and agricultural preservation, provision of sewer infrastructure, and assumptions about the location of future growth in households and employment. There are many elements which have goals and objectives that are not addressed in the scenarios themselves; this is because not all of the goals were directly related to land use. However, this plan does include recommendations to address these other elements.

POTENTIAL PRIORITY NATURAL RESOURCE AREAS AND AGRICULTURAL AREAS

A careful comparison of resource protection mapping overlaid and evaluated the following resources: prime agricultural soils, identified Critical Natural Areas, Water Resource Protection Areas, floodplain, wetland, riparian areas, and impacts of seal level rise (1 m / 3.25 ft coastal areas). This mapping was then compared with mapped sewer service areas (proposal identified for this study), public lands (including easements), and areas of unsuitable soils (necessitates low density for septic systems). A synthesis of these components resulted in the identification of distinct areas most appropriate for natural resource protection and agricultural production.

The resulting mapping (Figure 4-1) identifies Priority Natural Resource Areas (areas comprised of Critical Natural Areas, select Water Resource Protection Areas, floodplain, wetland, riparian areas, impacts of seal level rise, select public lands, areas of unsuitable soils, and areas outside projected sewer service areas) and Agricultural Areas (areas comprised of prime agricultural soils and select Water Resource Protection Areas, public lands (including easements), and areas outside projected sewer service areas). Those areas are features of Scenarios 2 and 3.
Figure 4-1: Potential Priority Natural Resource Areas and Agricultural Areas (Scenarios 2 and 3)
Scenario 1: As Planned ("Business as Usual")

Scenario 1 (Figure 4-2) explores continuation of development in the way it has occurred in the past. Under this scenario, the growth area covers the entire northern portion of southern New Castle County (which would be the future sewered area, per the 2012 Comprehensive Plan). While the areas outside the Central Core are planned for future sewer service, it is uncertain when and where sewer will go. Current trends suggest that residential development outside the Central Core is primarily being built on septic systems.

Figure 4-2: Scenario 1

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21 See Figure 1-2 for a map delineating the East and West Wings and Central Core
This scenario assumes that the County and municipalities make no land use changes or expansion to sewer infrastructure (see page Provision of Sanitary Sewer and Current Capacity). The East and West Wings will remain Suburban (S) zoned, unsewered, permitting a gross density of either 0.67 dwelling units (d.u.) per acre (Single Family or Single-Family Conservation design) or 0.80 d.u. per acre (Age-Restricted Single-Family). Although the 2012 Comprehensive Plan Update designates the East and West Wings as sewer service areas, sewer service does not exist in these areas as of the date of this Master Plan. The 2012 plan is not specific on timing and phasing of the extension of sewer services into the East and West Wings. For the purpose of a business as usual scenario, it is reasonable to assume future development in the East and West Wings will be on individual septic systems. Suburban Reserve (SR) will remain unsewered permitting a gross density of up to 0.3 d.u. per acre (Open Space Subdivision). Since there are no changes proposed, projected households remain as allocated by WILMAPCO (see Appendix for more details). The largest increases in households under this scenario are in TAZs located in the Core Area and in Middletown.

### Explanation of Map Categories

- **Large Planned Developments**: For the Bayberry and Whitehall developments, finer-grained details exist, per recorded plans.

- **Village / Town Center Growth Area**: This scenario includes the mixed-use centers, already recorded, for Bayberry and Whitehall. Buildings are 1-5 stories.

- **Other Growth Areas (Future Sewered Areas)**: These areas will be largely residential, with some areas of commercial or limited mixed uses.

- **Constrained Areas and Easements**: Areas protected under the New Castle County Unified Development Code (UDC): Class A Water Resource Protection Areas, Wetlands, Floodplains, Riparian buffer area, Permanently protected lands (public and private)

- **Municipalities**: Growth as projected, including both residential and commercial activity within the municipalities.

- **Existing Sewered Area**: Areas currently sewered by New Castle County.
Scenario 2: Planned Growth and Preservation

As explained in the Existing Conditions/"Where We Are" section (page 16), land east of Route 1 and adjacent to the Delaware River has high concentrations of environmental resources and is at risk of inundation resulting from sea level rise. Environmental resources are also concentrated in the southwest portion of the study area. Prime soils are concentrated in the central and northwestern portions of the study area. Scenario 2 (Figure 4-3) strives to achieve preservation of these resources and achievement of plan objectives. In this scenario, the County would disincentivize development in and adjacent to environmental resources and prime farmland, while providing for future growth.

Figure 4-3: Scenario 2

Map Key

- Large Planned Developments
- Village / Town Center Growth Area
- Corridor Hub Growth Area
- Existing Sewered Area
- Other Growth Area (Future Sewered Area)
- Priority Natural Resource Area
- Priority Agricultural Area
- Municipalities

A. Potential School Complex
B. Whitehall (Recorded Plan)
C. Bayberry (Recorded Plan)
D. Areas shown in darker green are constrained areas and easements, which are areas protected under the New Castle County Unified Development Code, as well as other permanently protected lands (public and private).
Scenario 2 restricts Major Residential Subdivisions (the division of a parcel to more than five lots) to parcels with access to sewer service. It facilitates future growth within the scope of the Southern New Castle County Master Plan time horizon (through 2050) by expanding sewer service into the West Wing, while reducing the development capacity for parcels identified as prime farmland and priority resource areas in the East Wing and Suburban Reserve (SR) zoning district.

Scenario 2 identifies about 7,418 acres as a Future Sewer Area (shown in light yellow), approximately 3,024 acres of which are existing subdivisions with on-lot septic facilities. Existing septic subdivisions would only be provided sewer service should they reach a level of septic system failure that requires such a transition by law. This scenario predicts up to 348 fewer forecasted households in the East Wing, which would likely be accommodated in the West Wing where development trends suggest there is demand. Since there are no proposed residential land use changes in the Core area, projected households for that area are assumed to remain consistent with WILMAPCO allocations. Scenario 2 also assumes that forecasted growth in municipal areas remains consistent with projections by the Population Consortium.

**Explanation of Map Categories**

- **Large Planned Developments**: For the Bayberry and Whitehall developments, finer-grained details exist, per recorded plans.

- **Village / Town Center Growth Area**: Consideration of potential enhancements to planned developments at Whitehall and Bayberry to allow for greater levels of activity (residential + commercial development). Mix of housing types, with commercial activity; balance landscape and buildings (2-5 stories).

- **Corridor Hub Growth Area**: Potential neighborhood centers formed around an amenity (e.g., a bus park-and-ride) or heavily-traveled road. Could include residences as well as commercial (restaurants, shops, services), with buildings up to 2-3 stories.

- **Other Growth Areas (Future Sewered Areas)**: Largely residential, with some areas of commercial or limited mixed uses. Reduction in future sewered area to remove the potential for sewer ing environmentally-sensitive areas.

- **Priority Natural Resource Area**: Concentrations of significant natural resources and/or environmentally sensitive lands. Partially protected through ownership, easements, or by county, state, and federal law. Limited development is anticipated; the County’s policies and actions are intended to further protect these areas in the future.

- **Priority Agricultural Area**: Contain the County’s best prime agricultural soils and related farming practices. Some development is anticipated; the County’s policies and actions are intended to keep these lands in agricultural production.

- **Municipalities**: Growth as projected, including both residential and commercial activity within the municipalities.

- **Existing Sewered Area**: Areas currently sewered by New Castle County.
Scenario 3: Town Infill and Preservation

Scenario 3 (Figure 4-4) explores a future where additional economic growth is absorbed within the existing municipal boundaries and a larger amount of the total household growth projected for the study area through 2050 fills into the incorporated towns. Additional growth in Scenario 3 is based on the community goals and objectives that would be most achievable through concentrated population and economic activity in Middletown, Townsend, and Smyrna. (Odessa has very little developable land and Clayton is located almost entirely in Kent County.) The total study-area-wide household projections for all three scenarios are consistent with DPC forecasts for all three areas and total jobs numbers throughout the study area are consistent with DPC projections for scenarios 1 and 2. However, the jobs numbers assumed for Scenario 3 were roughly doubled and assigned to Middletown as a way to explore how an

Figure 4-4: Scenario 3

Map Key

- Large Planned Developments
- Village / Town Center Growth Area
- Town Infill
- Existing Sewered Area
- Other Growth Area (Future Sewered Area)
- Priority Natural Resource Area
- Priority Agricultural Area
- Municipalities

A. Potential School Complex
B. Whitehall (Recorded Plan)
C. Bayberry (Recorded Plan)
D. Areas shown in darker green are constrained areas and easements, which are areas protected under the New Castle County Unified Development Code, as well as other permanently protected lands (public and private).
option to achieve some of the community goals that in principle rely on more dense and concentrated development might be achieved.

Job numbers for Scenario 3 were informed by discussions with the municipalities and figures used in current Transportation Improvement District plans to estimate how many jobs might be expected with fully realized development of non-residentially zoned land within the current boundaries of Middletown. Achieving the jobs aspect of Scenario 3 and associated community objectives would likely require strong emphasis on policy and other recommendations.

### Explanation of Map Categories

- **Large Planned Developments:** For the Bayberry and Whitehall developments, finer-grained details exist, per recorded plans.

- **Village / Town Center Growth Area:** This scenario considers some potential enhancements to planned developments at Whitehall and Bayberry to allow for greater levels of activity (residential + commercial development). Mix of housing types, with commercial activity; balance landscape and buildings (2-5 stories).

- **Other Growth Areas (Future Sewered Areas):** Detached single-family houses (1-2 stories, some 3) with landscaped areas. Reduction in future sewered area to remove the potential for sewering environmentally-sensitive areas.

- **Priority Natural Resource Area:** Concentrations of significant natural resources and/or environmentally sensitive lands. Partially protected through ownership, easements, or by county, state, and federal law. Limited development is anticipated; the County’s policies and actions are intended to further protect these areas in the future.

- **Priority Agricultural Area:** These are areas that contain the County’s best prime agricultural soils and related farming practices. While some development is anticipated in these areas, the County’s policies and actions are intended to keep these lands in agricultural production.

- **Municipalities / Town Infill:** This scenario assumes total job growth in the study area for the 30-year planning horizon will be approximately 3,000 jobs higher than currently projected, and much of that growth is assumed to fall within the municipal boundaries. It also assumes that more population growth will be absorbed within the existing municipal boundaries than in scenarios 1 and 2. Available capacity and projections generated based on information from the municipalities.

- **Existing Sewered Area:** Areas currently sewered by New Castle County.
UNINCORPORATED AREA

Scenario 3 maintains Population Consortium forecasted household growth south of the canal and within municipal areas. In this scenario, New Castle County takes proactive actions to address environmental and agricultural preservation concerns as described in Scenario 2. Scenario 3 also restricts Major Residential Subdivisions (the division of a parcel to more than five lots) to sewered parcels. This Scenario facilitates future growth within the scope of the Southern New Castle County Master Plan time horizon (through 2050) by expanding sewer service into areas adjacent to existing built out residential developments in the West Wing. As a result, Scenario 3 would see the same 348 households located in the West Wing rather than the East Wing (same as in Scenario 2).

MUNICIPALITIES

Scenario 3 explores the possibility that planning efforts within the municipalities result in households choosing to locate within municipalities as opposed to rural areas in the East Wing and rural areas below Middletown. Total household growth in southern New Castle County is maintained constant, and therefore consistent with officially adopted projections by the Population Consortium. To evaluate potential planning efforts within municipal areas, the project team reached out to the Towns of Clayton, Odessa, Middletown, Smyrna, and Townsend. Middletown and Odessa expected development consistent with their adopted comprehensive development plans and as such are consistent with officially adopted projections. Smyrna and Townsend discussed development pressures that had the potential to exceed what is currently projected. To maintain consistency with the total projected population and households throughout the study area (see discussion at the beginning of this section), Scenario 3 assumes that increases within municipal areas would largely come at the expense of household growth in the unincorporated areas, due to municipal planning efforts and the reduction in development capacity in the unsewered areas. Additionally, 200 forecasted households were reallocated from the northern portion of Odessa since the Population Consortium projects a net reduction of three residents within the town boundaries between 2015 and 2050.

For employment, approximately 2,400 additional jobs total, above the Population Consortium projections, were added to the Town of Middletown. These jobs were concentrated in areas where there are current plans for non-residential development. The job types were assumed similar to what currently is within the respective traffic zone, mostly service sector employment.

Further explanation of the methods and assumptions are provided in the Appendix.
5. Scenario Analysis

Placeholder section title page
**Addressing the Goals and Objectives**

To provide some guidance to the community’s review of the scenarios, the team provided qualitative and quantitative comparisons of how well each scenario addressed the Master Plan goals and objectives. While all of the objectives will influence the final recommendations and implementation strategies included in this plan, not all of them are expected to be directly impacted by the scenarios.

The tables that follow are similar to those that were shown to the public at the October 7, 2019, public workshop. Plus signs (+) indicate when a scenario is expected to have a positive impact on the objective. For many of the objectives, scenarios do not provide noticeable differences at this scale. For these objectives, community input at workshops indicated how stakeholders would like to see goals and objectives addressed. Suggestions were considered for incorporation into the plan.

Some quantitative data is available for Goals 2 (Environment) and 4 (Transportation), which were the result of land use and transportation modeling. Where available, such analyses are included in this section.

**QUALITY OF LIFE/HEALTH**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieve access to recreation for all ages, both indoor and outdoor</td>
<td></td>
<td>+</td>
<td>+</td>
<td>Scenarios 2 and 3 provide more opportunities for walkable communities, allowing access to more recreational opportunities without driving</td>
</tr>
<tr>
<td>Increase access to quality healthcare</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
<tr>
<td>Improve access to graduated care for aging population, including</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
<tr>
<td>transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continued improvement of emergency services; types of equipment and</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
<tr>
<td>response time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase locally grown food (production and consumption)</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
</tbody>
</table>
ENVIRONMENT

GOAL: Environmental protection and farmland preservation are considered a priority in Southern New Castle County, and residents and visitors alike have access to trails, parks, and other natural spaces.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve air quality</td>
<td></td>
<td></td>
<td></td>
<td>Will depend on results of detailed transportation analysis</td>
</tr>
<tr>
<td>Improve surface water and groundwater quality</td>
<td></td>
<td>+</td>
<td>+</td>
<td>Scenarios 2 and 3 reduce development footprint and rely on sewer rather than septic systems (Figure 5-1)</td>
</tr>
<tr>
<td>Protect important, quality natural resources, including open space for wildlife</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different; most natural resources are protected by existing regulations</td>
</tr>
<tr>
<td>Prepare for impacts of sea level rise</td>
<td>+</td>
<td>+</td>
<td></td>
<td>Scenarios 2 and 3 reduce development in the east wing, the area that is susceptible to sea level rise (Figure 5-2)</td>
</tr>
<tr>
<td>Preserve farmland</td>
<td>+</td>
<td>+</td>
<td></td>
<td>Scenarios 2 and 3 reduce land consumption for development (Figure 5-3)</td>
</tr>
<tr>
<td>Enhance landscape through street trees, reforestation, etc.</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
</tbody>
</table>

Figure 5-1: Total Wastewater Nitrogen Loading Per Year (lbs of Nitrogen), based on 2050 Projections

Figure 5-2: Potential for New Residential Lots in Resource Areas, based on Full Potential Build-out

Figure 5-3: Total Land Consumed by 2050 (acres), based on 2050 Projections
COMMUNITY CHARACTER

GOAL: Development and redevelopment in Southern New Castle County are compatible with, and enhance, the existing community character, including historic properties and design features, the scale of development, and presence of farmland and open space.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preservation of rural/small-town/historical character</td>
<td>+</td>
<td>+ +</td>
<td></td>
<td>Scenarios 2 and 3 create new development that is consistent with the mixed-use character found in towns; Scenario 3 makes towns stronger through appropriate growth</td>
</tr>
<tr>
<td>Denser, more walkable development with mixed use</td>
<td>+</td>
<td>+ +</td>
<td></td>
<td>Scenario 3 focuses on towns; Scenarios 2 and 3 provide mixed-use opportunities outside towns</td>
</tr>
<tr>
<td>More opportunities for family-oriented cultural attractions, entertainment, recreation (museums, YMCAs, etc.)</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
</tbody>
</table>
TRANSPORTATION

GOAL: People in Southern New Castle County can use a variety of transportation modes (car, public transportation, walking, and bicycling) to reach their destinations in a safe, comfortable, and convenient manner.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanded public transportation</td>
<td></td>
<td>+</td>
<td>+ +</td>
<td>Scenario 3 provides greater density to support transit service than Scenario 2, but differences are modest.</td>
</tr>
<tr>
<td>Congestion management in Middletown</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are similar; anticipated level of service deficiencies are minor and can be mitigated (Figure 5-5)</td>
</tr>
<tr>
<td>Better east-west connections (in Middletown and beyond)</td>
<td></td>
<td></td>
<td>+</td>
<td>Scenario 3 provides the best opportunity to implement planned east-west connections as part of the Eastown TID</td>
</tr>
<tr>
<td>More/safer walking and biking paths/connections</td>
<td>+</td>
<td></td>
<td>+ +</td>
<td>Scenarios 2 and 3 provide more opportunities for walkable communities, with Scenario 3 focusing on existing towns</td>
</tr>
</tbody>
</table>

With projected future growth and development in southern New Castle County, traffic volumes can be expected to increase. Questions to be answered by the transportation analysis of alternative scenarios are:

- Is there a significant difference between the land use scenarios in future traffic volumes and roadways with deficient levels of service?
- What transportation improvements are expected to be needed that are not already planned?

The first question has been analyzed as Phase 1 of the transportation analysis. Analysis was performed using Delaware's statewide travel demand model, also known as the Peninsula Model, to forecast future traffic volumes and compare with road capacity. Traffic Analysis Zones (TAZs) in the model locate population and employment in relation to the road network. Each roadway link in the model contains attributes that define the capacity of the link. The model assigns traffic to the road network generally based on shortest travel time between origins and destinations. The model does make an adjustment for some avoidance of tolled roads when a reasonable alternate route is available.

The road network was modified to include limited-access US 301, opened in January 2019. The attributes of other roadway links in the model were modified to reflect road conditions after completion of improvements planned by 2050. Official demographic forecasts by Wilmington Area Planning Council for Year 2050 were utilized in the travel demand model for Scenario 1. As illustrated in the preceding scenario descriptions, modifications were made for Scenarios 2 and 3 to account for differences in location of households and employment in those scenarios. Average annual daily traffic volumes (AADT) were mapped for each of the scenarios (Figure 5-4).
Analysis of congestion uses peak hour volumes rather than AADT. The Peninsula Model forecasts AM and PM peak hour volumes for each roadway link and compares with the link’s hourly capacity to obtain a Level of Service (LOS). Level of Service is an indicator of quality of traffic flow. Letter grades from A to F are used with LOS A being free flow and LOS F being over capacity (Table 5-1).22

New Castle County’s standard is minimum LOS D in sewer service areas and minimum LOS C outside sewer service areas. The UDC has more details regarding development in areas in which the existing level of service is worse than LOS D.

Maps of 2050 roadway link levels of service were created for each land use scenario (Figure 5-5). Because LOS C or better is acceptable in all areas of southern New Castle County regardless of sewer service, the maps show only road links that are forecast to be LOS D or below.

22 LOS analysis for traffic impacts and for evaluation of road improvements is usually calculated at intersections using turning movement volumes, because intersections are usually the chief constraint on road capacity. The Phase I analysis only forecast road link volumes, not intersection volumes, to give a comparison between land use scenarios. The Phase 1 analysis indicates areas to examine more closely in Phase 2. Intersection analysis will be performed in Phase 2 using the preferred land use scenario.
Some road links show future deficiencies (LOS E or F) under all three land use scenarios; these are not scenario-dependent. The areas in which these links are located are:

- DE 896 north of Bethel Church Road
- DE 896 between Cedar Lane Road and the junction with DE 71 (the current Regional Transportation Plan calls for DE 896 to be widened to four lanes between DE 1 and Cedar Lane Road but not between Cedar Lane Road and DE 71).
- DE 299 between railroad and DE 71
- DE 9 Taylors Bridge Road south of its junction with DE 299
- US 13 north of DE 299
- DE 71 south of Townsend
- St. Anne’s Church Road

Two additional road links show LOS deficiencies in Scenario 2:

- DE 9 north of Port Penn Road is LOS D under Scenario 2; this is below the County standard of LOS C in an unsewered area
- DE 15 south of Middletown has segments with LOS D and LOS E

One road link shows LOS F in Scenarios 2 and 3 but not in Scenario 1:

- DE 71 north of the future US 301 Spur

Since most of the anticipated future LOS deficiencies are not related to a particular scenario, the Phase 1 analysis determined transportation may not be a primary factor for the selection of a preferred scenario. The preferred scenario should be selected based on other factors.
**GOAL:** Southern New Castle County has a strong and diversified economy.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>More local, diverse job centers, facilitating shorter commutes</td>
<td>+</td>
<td>+ +</td>
<td></td>
<td>Scenarios 2 and 3 focus on job centers, with Scenario 3 including greater job growth</td>
</tr>
<tr>
<td>Support small local businesses</td>
<td>+</td>
<td>+ +</td>
<td></td>
<td>Scenarios 2 and 3 focus on job centers, with Scenario 3 including greater job growth</td>
</tr>
<tr>
<td>Diversification of industries</td>
<td>+</td>
<td>+</td>
<td></td>
<td>More opportunities for business diversification with Scenarios 2 and 3</td>
</tr>
<tr>
<td>Higher income jobs</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
<tr>
<td>Living wage/trade/union jobs with retirement benefits</td>
<td></td>
<td></td>
<td></td>
<td>Scenarios are not significantly different</td>
</tr>
<tr>
<td>Access to more training and education opportunities</td>
<td></td>
<td></td>
<td>+</td>
<td>Critical mass of job growth in towns under Scenario 3 may justify new facilities</td>
</tr>
</tbody>
</table>
Feedback Received

In October 2019, the project team received extensive, carefully considered feedback from the public and the Advisory Committee with respect to both the refined scenarios and other recommendations that were not scenario-specific. The public workshop on October 7 drew 78 participants. Comments offered at that workshop, in addition to online comments received through a story map and email, as well as a follow-up conversation with the Town of Townsend on October 17, were compiled and shared with the Advisory Committee on October 23. Following is a summary of comments received at this stage in the process; a complete list of all comments is provided in the Appendix. Feedback received through these multiple channels provided valuable information to the project team in the development of the draft recommendations in subsequent sections of this plan.

SELECTED FEEDBACK RELATED TO SCENARIOS

- No support was expressed for Scenario 1
- Strong cases were made for both Scenario 2 and Scenario 3, with slightly more support for Scenario 2
- Respondents liked the following elements of Scenario 2:
  - Corridor hub areas
  - Likely less congestion in Middletown
  - Less land consumed
  - Continued build out of Whitehall and Bayberry (though not all respondents agreed)
  - Potential for enhanced community character in additional areas, not just existing towns
- Respondents liked the following elements of Scenario 3:
  - Development more focused in towns
  - Less land consumed
  - Potential to create “critical mass” in Middletown
  - Continued build out of Whitehall and Bayberry (though not all respondents agreed)
  - Potential for enhanced community character in additional areas, not just existing towns
  - Most potential for walkability

SELECTED FEEDBACK RELATED TO PLAN GOALS, NOT SPECIFIC TO SCENARIOS

- Quality of life/health
  - Provide support for agriculture by maintaining agricultural land and enhancing marketing
  - Maintain rural character in the west wing (though not all agree)
  - Maintain large-lot residential areas; they’re why people moved to this area
  - Desire for local medical care, not having to travel to Christiana Hospital
  - “Keep long term in mind.”
- Environment
  - Provide support for agriculture by maintaining farmland and enhancing marketing (as noted in previous goal)
  - Protect against sea level rise
  - Minimize land consumption
  - Preserve ecologically sensitive areas in the east wing
  - “Restrict/decline developments that propose the use of septic systems.”
    - Some comments concerned that County is mandating septic systems; this isn’t the case
    - Some concern that an unintended consequence might be an increase in annexation into towns
- Community character
Suggestions that developers provide funding for schools
Mixed comments regarding density
  - Some support maintaining large-lot residential
  - Others support more walkable communities
Expand sewer areas to shape development
Concern about possible unintended consequences, such as loss of land value in areas where development is discouraged

**Transportation**
Need alternatives to driving, especially for seniors
Varying opinions on the viability and desirability of rail transit
Continued concerns about congestion in Middletown
Concern that traffic studies don’t accurately portray conditions in the Townsend area
Accommodate walking and bicycling
Concern about long commutes
In addition, several comments involved improvements in specific areas

**Economy/jobs**
Need some industrial zoned land
Expand job base beyond warehouse and retail
Police, paramedics, medical jobs
“Businesses will be drawn to a ‘small town’ that has its act together like a bigger city.”
Need economic growth beyond retail, using regional approach and strategies to draw industrial/manufacturing; think beyond Middletown
Townsend interested in growing population in support of downtown development

The Advisory Committee also offered comments across a number of elements of the plan. They included the following:

- Emergency services must keep pace with development
- Consider some opportunity for growth of the Towns within southern New Castle County
- Farmland preservation must not only be addressed by the plan, but also successfully implemented after the plan is complete; funding is a critical issue
- Address not only the impact of sea level rise on new development patterns, but also existing development
- Support Summit Aviation as an asset and job center by making sure the airport and surrounding land uses can properly coexist
- Improve intergovernmental coordination
- Ensure continuing care facilities, ideally so older residents can age in place
- Make sure proposed development is supported by infrastructure
- Provide for industrial uses
- Preserve important resources, including water quality
- Move from a future land use map to appropriate zoning changes that shape development
**Overall Vision & Recommendations**

The vision and recommendations in this plan are based on input from the community throughout the planning process. Combining findings from scenario evaluation and approaches from Scenarios 2 and 3, which include fostering corridor hubs and promoting infill in municipalities, a proposed land use plan was developed (Figure 6-1). Some of the recommended strategies found in this section of the report are directly related to the proposed land use plan map, while some strategies are independent.

*Figure 6-1. Map of Proposed Land Use Plan*
Master Plan Recommendations Overview

The community-based goals and objectives discussed in previous sections were vital to developing and analyzing scenarios and developing recommendations for this Master Plan. The project team took the objectives, evaluated them in the context of the plan elements, and prepared a series of preliminary recommendations, or “how to get to where we want to be.”

In this section, recommendations are provided. All recommendations are summarized in a tabular format, with timelines, in the implementation section [forthcoming in final draft].

Focus Areas & Elements

This section identifies and explains specific strategies related to future land use plus the five plan elements:

- Future land use
- Quality of life / health
- Environment
- Transportation & mobility
- Community facilities & character
- Economy and jobs

Emphasis has been placed on strategies that can be coordinated through or implemented directly by New Castle County. Where a technique is more properly the responsibility of another party, the County, primarily through its Department of Land Use, may perform a coordinating and monitoring function in the future.

FUTURE LAND USE

The Future Land Use Map (FLUM) of the Comprehensive Plan serves as formal policy for future development of an area. It translates the community’s vision as articulated in the proposed plan into official policy, serving as the standard for Department of Land Use recommendations and other decision-making bodies. When considering subdivision and development plans, re-zonings, variances, etc., state law dictates that decisions be in conformity with the FLUM.

The proposed FLUM represents the growth policy articulated by the proposed scenario and an associated proposed future sewer service area map. It has been developed to serve as a guide for what adjustments would be needed to the Future Land Use Map in the current adopted plan from 2012 (Figure 6-2) to support achievement of the preferred scenario. Those key elements include:

- Adding areas in the East Wing that have been identified for Resource and Rural Preservation
- Refining future sewer service areas
- Identifying municipal growth based on current comprehensive plans for the towns
The proposed FLUM (Figure 6-3) will be further evaluated in the context of this plan’s final recommendations and updated to align with those. Overall the approach is to simplify some of the categories and to have them more clearly link to specific policies and actions. For consideration moving forward are the following:

- Adjust the rural resource area designation to be consistent with the proposed preservation strategies outlined in this plan and not reflect carryover zoning (shown as yellow parcels interspersed in the Resource and Rural Preservation Future Land Use designation on the future land use map)
- More closely examine areas that are proposed for change in the FLUM and consider refining the categories to more accurately and properly reflect the desired future land use
- More carefully examine and articulate future land use and consider if zoning updates are needed (e.g., Resource and Rural Preservation Zoning and more definition to the Suburban Zone)

Figure 6-2: Current Future Land Use Map (County Comprehensive Plan 2012)
Figure 6-3: Proposed Future Land Use Map
QUALITY OF LIFE / HEALTH

Objective 1.1: Achieve access to recreation for all ages, both indoor and outdoor

Strategy 1: Add new Neighborhood Parks and District Parks in accordance with standards defined by the National Recreation and Park Association and recommendations in the New Castle County Long Range Park Acquisition and Development Plan (2017) and in careful consideration of parks development and maintenance costs. For the MOT area (Middletown, Odessa, Townsend) there is the need for eight additional Neighborhood Parks and 1 ¾ additional District Parks.

In August 2017 the County Executive launched a task force, the New Castle County Parks Task Force, which made recommendation for improving the County’s park system. Specifically, the task force identified the area on Shallcross Lake Road as a location for a park. The County has finalized this location and begun plans for development.

Additionally, continued planning and effort should be made toward achieving:

- Park Facility in the Vicinity of Marl Pit Road
- 1st Phase of Wiggins Mill Park
- Continue working with Whitehall developers to explore potential for a mutually beneficial public park facility
- Develop relationships with private landowners who may be interested in future sale of Property for Park Purposes
- Consider working with the developers of the Scott Run Business Park in order to develop a park facility
- Identify other areas underserved by County Parks

Strategy 2: Ensure interconnectivity of parks, open space, and other recreational resources.

An intentionally planned and interconnected system provides a whole host of ecological and land management benefits, but also enhances accessibility by a wide range of users and will provide a more seamless means to fully implement a multi-modal pathway network. This will have an added benefit of reducing the vehicular infrastructure burdens on existing and future parks, while improving the quality of life of residents.

The County should also continue to work with partners including DelDOT, DNREC, and WILMAPCO to develop and expand access to trails and improve bicycle and pedestrian infrastructure. Improving bicycle and pedestrian infrastructure provides an opportunity to increases access recreation and improves access to parks without the need to drive. The flat topography of southern NCC make pathways are highly viable mode of transportation and recreation for a range of users.

Strategy 3: Develop relationships and establish partnerships for joint location of community facilities.

Co-locating recreational facilities or establishing shared use agreements can be effective ways to increase access to recreation, leverage limited resources, and help ensure facilities are well used and also maintained in good condition.

Strategy 4: Evaluate policy for accepting community open space from developers or homeowner associations to ensure sustainable maintenance of park and open space into the future.

23 District Parks, as defined by the NRPA are based on 1.3 acres of parkland per 1000 people and within 1-2 miles of residents. These are also larger parks, usually between 25 to 75 acres.
Consider approaches such as allowing HOAs to utilize/lease open space lands for public/private use that could provide funds toward maintenance. Examples include farming and farm stand sales, recreation-oriented leasing/rentals, and limited commercial sales and restaurant establishments that maintain the character and intended use of the landscape. Allow flexibility and move away from the 20th Century single-use mindset for economic resiliency and building better community character.

**Strategy 5: Explore Possible Passive Recreational Facilities East of Rt. 13.**

**Strategy 6: Work with residents and property owners adjacent to parks to identify and work on park enhancements and potential expansions.**

An early action item could be working with neighbors of the County-owned Back Creek Park to identify potential improvements.

**Strategy 7: Consider Reorganizing the NCC “Parks” & “Recreation” Functions.**

**Objective 1.2: Increase access to quality healthcare**

Much of the existing healthcare facilities are located within existing municipalities; supporting affordable housing in these areas will allow more people to afford access.

**Strategy 1: Promote access to healthcare particularly within growth centers by encouraging local jurisdictions and the County to waive or reduce fees for affordable housing.**

**Strategy 2: To help preserve existing rental stock for low-to-moderate income households, revise county code policies to require regular inspections to reduce displacement and fear of retaliation by landlords.**

**Strategy 3: Expand the availability of quality rental stock for low-to-moderate income households by conducting additional outreach to landlords on the County’s Small Area Fair Market Rent program.**

This would provide additional rental subsidies for landlords willing to rent to Housing Choice Voucher Program clients.

**Objective 1.3: Improve access to graduated care for aging population, including transportation**

**Strategy 1: Expand transportation connectivity access between housing opportunities and other essential daily needs.**

Potential actions:

- Support DART proposals to expand transit service, with continued focus on new and expanded service as more development occurs. DTC is currently planning for expanded service to Middletown and improved bus routes to better serve demand DART Service Area improvements Southern New Castle County
- Provide sidewalk connections to schools, libraries, retail establishments, and parks.
- Adopt New Castle County Bicycle Plan and implement proposed network.
- Increase number of miles of shared-use trails and pathways.
- Provide safe and comfortable bicycle routes within close proximity of those destinations.
- To the extent the market allows, expand rideshare and alternative ridesharing network.
- Optimize traffic signal timing on a regular basis.
- Proceed with design and construction of road improvements identified in DelDOT’s Capital Transportation Program, WILMAPCO’s Regional Transportation Plan, and local Transportation Improvement Districts.
• Prioritize county federal housing funding (CDBG, HOME) and encourage Low Income Housing Tax Credits for family developments in Southern New Castle County, and further incentivize LIHTC family development in areas of opportunity through county driven incentives.

**Strategy 2:** Evaluate existing inclusionary housing programs and consider providing additional incentives to increase production of affordable family units in high-opportunity areas.

**Objective 1.4: Continued improvement of emergency services; types of equipment and response time**

**Strategy 1:** (To be further discussed and developed with pertinent stakeholders going forward)

**Objective 1.5: Increase locally grown food (production and consumption)**

[See Environment and Economic Development elements.]
ENVIRONMENT

Many of the Plan’s environmental goals and objectives are dependent on recommendations for focused growth areas and corresponding preservation strategies. Success is heavily dependent on planned growth with sound sewer service policies.

**Objective 2.1: Improve air quality**

**Strategy 1: Collaborate with other agencies to achieve reduction in Vehicle Miles Traveled**

Land use and transportation are inextricably linked and can enhance or hinder a person’s ability to choose alternatives to driving alone. Actions include:

- Making non-motorized travel safer and more appealing;
- Monitoring and planning in light of new vehicle technology and the “door-to-door”/delivery-based economy; and
- Developing in ways that place people in closer access to the place they need to go.
- Concentrated growth generates less trips per household than sprawl development.

**Strategy 2: Encourage energy efficiency and renewable energy in design of communities and buildings**

Include efforts to incentivize, encourage and regulate for Leadership in Environmental Design (LEED). Promote the use of the Commercial Property Assessed Clean Energy Program.

**Strategy 3: Form a Task Force to evaluate air quality and related issues and develop an action plan.**

Many communities undertake a sustainability plan process to address these kinds of issues, such as recently done by Newark, Delaware, through a grant from DNREC. Focus should include engagement with the local farming community to explore opportunities to lead the adoption of sustainable practices while at the same time supporting their continued contributions to the local economy and their livelihoods.
Objective 2.2: Improve surface water and groundwater quality

A component of the County’s Comprehensive Development Plan Update of 2002 was the New Castle County Conservation Strategy, intended to further articulate the County’s environmental protection strategy and commitment to a clean environment. The strategy contains an inventory of resources, describes how the County protects such resources, and highlights the challenges facing the County in the years to come.

Among the issues of concern are waters that do not meet water quality standards for their designated uses, such as recreation, fishing, or drinking. Impaired waters could be suffering from excess nutrients, low dissolved oxygen, toxins, bacteria, heat, or any combination of these problems. The most common causes are pathogens, such as bacteria, and nutrients, especially nitrogen and phosphorus. While many issues go beyond the ability of the County to intercede, they do underscore the importance of working partnerships among state, county and local agencies and environmental organizations and landowners to address issues comprehensively.

Strategy 1: Sewer service area maps and the expansion / update process will be clearly incorporated into the Comprehensive Plan in order to better manage growth and infrastructure.

The goal of the draft map of sewer service area, its definitions, and other related policy/process is to develop consistency and predictability and avoid ambiguity. Figure 6-4 shows the proposed sewer service area map.

The map delineates three different categories: existing sewer service area, future sewer service area, and areas where no sewer is planned. These areas and their definitions have been created to better align sewer infrastructure and capacity with projected growth and demand and be clearer about where sewer will go and where it will not go in the future.

Map area designations and their definitions are as follows. These will guide further policy development and coordination:

- **Existing sewered area**: sewer is available for connection as of the adoption of plan. (In practice this means that the sewer main is in place and available for connection; the sewer system can accommodate additional capacity.  This does not guarantee that capacity for a specified development is available and ready.)
- **Future sewer area**: sewer will be in place and available for connection during the plan horizon. (For the Southern New Castle County Master Plan, this covers through the year 2050).
- **No sewer planned**: No sewer infrastructure is planned for the area through the plan horizon year.

Changing sewer service designation will require an amendment into the plan.

Per state code, the following are key requirements for the sewer and water element of the Comprehensive Plan. The next Comprehensive Plan update is due in 2022, therefore, these issues have been addressed herein in preparation for future inclusion in the 2022 update:

- Assessment of current and projected water needs and sources and ways to provide for future potable water – the Water Supply Coordinating Council’s 9th Report to the Governor and General Assembly (2006) was the most recent report on potable water supply that specifically addressed southern New Castle County. That

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24 Sewer capacity is committed at record plan stage through Part II of the LDIA. Sometimes a developer may need to build more sewer infrastructure in order to connect to the County’s system. See Joint Policy 2 (between Departments of Land Use and Public Works) for further detail.
The report has been updated and is currently under review. At this time, it indicates that sufficient water supply is anticipated to 2050 and beyond through private water providers, municipal sources, and other individual private wells. Additional recommendations suggested in the draft 2019 report include:

- To protect the quantity and quality of aquifers that provide sole source drinking water and to manage water supplies by the principles of contiguity and compactness, subdivisions should be served by public water systems rather than by individual wells. The New Castle County Unified Development Code (Section 40.12.115) requires that subdivisions with more than 25 lots should be served by public water systems. New Castle County should work with public water suppliers to hook up public water systems to neighborhoods with more than 25 lots that are presently served by individual wells to bring these areas in to compliance with the UDC.

- Maintain continued sufficient groundwater availability to meet peak demands from public water supply uses (13.5 mgd) by ensuring:
  - Public water supply and irrigation wells are pumped in accordance with Delaware Department of Natural Resources and Environmental Control (DNREC) water allocation limits. DNREC should continue to monitor demands and water levels from allocated public water supply wells and irrigation wells so as not to diminish the capacity of irrigation wells for producers that wish to sustain farming in southern New Castle County.
  - Water purveyors interconnect between and within systems, add new finished water storage and aquifer storage and recovery, and transport water from aquifers with excess availability south of Townsend to growth areas between Middletown/Odessa and the Chesapeake & Delaware Canal.

- Ways to provide for wastewater disposal and assessment of fiscal consideration and consistent with approved areawide wastewater treatment plans

**Strategy 2: Finalize an updated sewer facility plan.**

The Department of Public Works will finalize an updated sewer facility plan in conjunction with amendments to the Comprehensive Plan that results from this Master Plan. The updated sewer plan will identify sewer infrastructure improvements (transmission, treatment and disposal) needed to support growth and land use planning as identified in this Master Plan. In doing this, the Comprehensive Plan will clarify past inconsistencies and ensure that sewer infrastructure and land use plans compliment and support each other.

The Department of Public Works will use the following factors to determine capacity requirements and regional system expansion needs:

- Growth projections
- Existing topography
- Environmental constraints
- Existing septic communities – potential future connection to the County sewer system
- Trends in building permit/certificate of occupancy activity to confirm pace of development

Based upon the pace of development and existing treatment plan operation, the Department of Public Works will determine the timing of system expansion. A limiting factor in sewer system expansion is cost. The cost of construction of sanitary sewer infrastructure is normally higher than other utilities, as the infrastructure is larger and deeper in comparison. The County’s Capital Improvement Program will need additional funding to expand the system and improve treatment and disposal capacity. Those costs can be subsidized through establishing Capital Recovery Fees (paid when new connections to the system are made) and the use of State Revolving Fund grants and loans.
Works will pursue various ways to reduce capital improvement costs and will time the improvements as needed to ensure funds are spent only when necessary.

**Strategy 3: Encourage New Development in Sewer Service Areas and Regulate Septic Use for Low Density Development Consistent with County Septic Policy.**

As stated above, the County has revised its septic policy to limit rural sprawl development, groundwater pollution, and future septic system failures. Many of the inventoried natural resources of the County that provide habitat for wildlife are also particularly susceptible to pollution impacts. On the contrary, several of the areas most suitable for septic systems also contain some of the most productive soils for agriculture. Finding a balance means providing suitable public sewer opportunities in growth areas while providing appropriate opportunities for septic in low density areas most suited to on-site systems.

This planning effort has led to a refinement of sewer service areas and the designation of areas most appropriate for agricultural production and natural resource protection. These policies are expected to impact less prime agricultural soils (upwards of 7,000 acres) and preserve natural areas that are most suited for low levels of development.

**Strategy 4: Consider Additional Safeguards for Water Resource Protection Areas (WRPAs).**

While the County has been a leader in its efforts to protect water resources, evolving science should be consulted periodically in order to determine whether new and evolving techniques exist for the protection of sensitive resource areas. Pursuing this effort will likely involve the cooperation of DNREC and the Water Resources Center at the University of Delaware. While there may only be minor changes needed, the time has come to evaluate the success of the County’s regulations and consider the potential for additional safeguards in the future.

**Strategy 5: Ensure consistency between proposed sewer service areas and other growth management maps and policy.**

In addition to the Future Land Use Map of the current 2012 Comprehensive Plan, the map(s) for State Strategies for Policy and Spending will need to be reflective of sewer service area policy. See Land Use recommendations (page 98).

**Strategy 6: Update Chapters 38 and 40 of the County Code for consistency and coordinated processes.**

Update zoning district definitions to be consistent with proposed sewer service area map and definitions regarding what is to be sewered and what is not. (Currently, S zone implies that an area will have sewer in the future; SR also leaves the door open to sewer coming at some point in the future.) Update Chapter 38 and Public Works policies to achieve consistency with the UDC and Comprehensive Plan updates.

**Objective 2.3: Protect important, quality natural resources, including open space for wildlife**

Preserving the rural and scenic character of Southern New Castle County is one of the greatest challenges facing the County as a whole. The key to maintaining and preserving quality of life is to manage the relationship of the built environment to the natural environment. The plan should incorporate recommendations of the Land Preservation Task Force as they become available.

**Strategy 1: Recommended Priority Natural Resource Areas, and establish a Priority Protection Areas Strategy, including incentives, financing, and regulations.**

In priority natural areas, the protection of (and buffering around) public and eased lands and other sensitive natural features should be strongly encouraged.
The identification of Priority Natural Resource Areas (and Agricultural Areas, described further below) necessitates the creation of tools and techniques, including funding strategies, which preserve such areas while promoting their productive use.

State and County preservation programs should identify the most appropriate lands for preservation; currently the County’s Land Preservation Task Force is evaluating both potential protection strategies and funding mechanisms. Given the extent of the area identified, priority should be placed on securing lands that contribute to a larger ecosystem or habitat area (providing interconnections and biodiversity corridors), and lands that could provide a suitable buffer to eased and public properties that would otherwise be at risk. Purchase programs and TDR will be critical to success. Continued low density rural development consistent with septic policies and zoning should be permitted.

Consideration should also be given other alternatives to fee-simple purchase or PDR, including but not limited to direct grant programs, tax abatement strategies, impact fees, and donations.

Potential Funding sources to leverage include: Federal Transportation Enhancement Funds, the Delaware Agricultural Lands Preservation Program, DNREC and the Delaware Open Space Council funding programs for park development and acquisition of key Natural Areas and State Resource Area lands, Community Development Block Grant (CDBG) program funds, Real estate transfer tax revenues, and Trust/foundation/institutional support (philanthropic support such as through the Welfare Foundation or Fair Play Foundation and institutional support such as through the private companies.

Further, the County should consider reinstating its Community Planning Assistance Grant Program in support of local planning and preservation initiatives.

While the acquisition of key parcels or development rights to key parcels offers perhaps the ultimate protection for resources, limited funds are generally available for such purposes. It is therefore imperative that acquisition be used in combination with other preservation techniques to achieve the greatest success. For example, it may be possible to use easements to protect buffer areas around fee simple purchases (this may even be achievable through the County’s open space development options which require 50% open space set-aside and easement execution). Consideration should be given to securing funds that can be used for several open space related purposes, such as using open space grant funds for spray irrigation and parkland.

Working with large landowners to develop preservation strategies has the potential to pay dividends. For example, combining the purchase of options or development rights with voluntary preservation can save the County money and reduce the “windfall/wipeout” many landowners experience when they are assessed capital gains on the fee-simple sale of land.

Strategy 2: Update natural areas inventory and conservation strategy.

As described above, the County prepared a conservation strategy as part of its 2002 Comprehensive Development Plan Update. While many of the recommendations of that plan have been realized, the time has come to update and expand on that plan to reflect new and emerging laws and regulations, changing technologies, and evolving thinking regarding such issues as climate change and sustainability.

Strategy 3: Establish an inventory to track natural resources and progress.

This effort will likely be part of the preparation for and implementation of a new Natural Areas Inventory and Conservation Strategy. A computer-based inventory tied to GIS mapping will allow the County to track progress, select enhancement activities (increased tree canopy, increased habitat, etc.) and monitor losses.
Strategy 4: Collaborate with DNREC on ways to further protect Critical Natural Areas and State Resource Areas.

While the UDC provides some level of protection to CNAs, regulation alone cannot adequately protect these important natural areas. Coordination with DNREC will allow additional consideration for these areas and help the Land Preservation Task Force prioritize such areas for purchase and easement options.

Objective 2.4: Prepare for impacts of sea level rise

Strategy 1: Reduce the amount of development in areas at risk for sea level rise impacts through downzoning, transfer of development rights or purchase of development rights.

As discussed above, zoning, TDR and PDR can be effective tools to reduce development in sensitive environmental areas or where it is desirable to preserve a viable agricultural economy. While the extent of sea level rise is difficult to determine, the state’s planning efforts have evaluated a rise of between 1 and 5 ft. Mapping undertaken as part of this effort clearly demonstrates the extent to which inundation is likely given the scenarios considered.

Most of the areas expected to experience sea level rise in New Castle County are adjacent to streams and rivers associated with drainage to the Delaware River. Some of these areas lie immediately adjacent to floodplains and floodways, and as such are areas appropriate as buffers to preserve habitat and protect water quality. Given this, considerations regarding zoning densities in these areas should be further evaluated and structures placed outside areas of risk. In addition, TDR and PDR should be considered as tools to prevent development in area at risk for future inundation.

Objective 2.5: Preserve farmland

Strategy 1: Recommended Priority Agricultural Areas and establish a Priority Protection Areas Strategy, including incentives, financing, and regulations.

In general, the retention of prime agricultural soils and related farming practices should be strongly encouraged in agricultural areas.

As with Priority Natural Resource Areas, the designation of Priority Agricultural Areas necessitates the creation of tools and techniques, including funding strategies, which preserve such target areas while promoting their productive use.

Agricultural areas should be targeted for protection through enhanced purchase of development rights (PDR) programs by the state and county (discussed elsewhere herein). True agricultural zoning, described below, also provides opportunities for new approaches to transfer of development rights (TDR) programs (higher transfer rights equivalents, transfer right banking, and other incentives currently not offered by the County). Consideration of true agricultural zoning (discussed below) should be considered. The plan should also incorporate recommendations of the Land Preservation Task Force where and when appropriate.

Additional incentives can be found in the 2018 Farm Bill which includes voluntary programs intended to help farmers and other landowners conserve their lands and their ways of life. Opportunities exist to support sustainable management of farms and forests through conservation practices, as well as provide for sustainable agriculture that also safeguards biodiversity (such as restoring wetlands and planting cover crops to increase soil health). Organizations such as the Nature Conservancy are working with farmers to leverage farm bill funds to keep farms in production rather than being sold for development.
Finally, the County should consider opportunities to further reduce tax burdens on agricultural land, including reduced tax assessments, for farms that keep lands in agricultural production.

**Strategy 2: Support farmers by improving existing programs and adding new incentives and remove barriers to supplemental income.**

The County should work to increase partnerships and work with Delaware’s agricultural preservation program to make it more effective in the county. Specific recommendations for this are anticipated from the Land Preservation Task Force.

Additional support to farmers is imperative if the County is to preserve a viable agricultural economy into the future. Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR) are appropriate tools that provide farmers an alternative to selling land for development. As discussed elsewhere herein, both tools should be reevaluated and strengthened. Past efforts by the County to evaluate TDR should be given a fresh look and opportunities to strengthen the program (through higher transfer rights equivalents, transfer right banking, and other incentives currently not offered by the County) should be seriously considered.

Conduct a countywide market study to inform modification of the existing transfer of development rights policy to better achieve preservation goals (viable market and demand) (e.g., consider a County-municipal program, cross district transfers, TDR bank, factoring countywide market and comprehensive plan update); results should be discussed with incorporated communities (intermunicipal transfers).

In addition to land preservation, the County should consider further code revisions to remove barriers to supplemental income (reevaluate farm stand and agritourism limitations) and support value-added agricultural products. Furthermore, the County should consider providing funding to and partnering with farm organizations (granges and others) to promote farming to younger generations, 4H programs and “young farmer” programs, all of which generate interest in the future of farming and farmland preservation.

**Strategy 3: Revisit agricultural zoning.**

The County’s land use authority under state law, coupled with its delegated police power authority, permits it to protect defined resources through its regulatory processes. The Unified Development Code (UDC) is an example of codes and ordinances that are employed toward this end; limits on disturbance to identified resources are and can be imposed through the administration of this Code.

Given the extent to which an existing framework exists to protect resources, as well as the extent to which the County currently does protect resources, future protection efforts are more an issue of refinement and extension where necessary and appropriate.

One area in which the County can re-evaluate its zoning is in the largely residential pattern of zoning in Southern New Castle County, in particular the current Suburban (S) and Suburban Reserve (SR). While the relatively low to moderate densities first prescribed to these areas incorporated options for site design flexibility pursuant to open space design options, septic system limitations point to the need to provide alternative forms of development that respect natural resources, reduce low density sprawl and provide viable development options for landowners.

One suggestion is to reevaluate current zoning categories and consider true agricultural zoning with higher transfer of development rights equivalents. True agricultural zoning is a land management tool that encourages the preservation of farmland and discourages development of land uses that are incompatible with agricultural uses. This zoning technique discourages land uses that are incompatible with farming, such as those that result in excessive traffic, pollution, or consume large areas of farmland. Effective agricultural zoning is also sustainable because it promotes
both the preservation of agricultural land and agriculture as an industry. Effective agricultural zoning can encourage locally grown food and agricultural products, and is intended to support the entire agrarian economy. This zoning technique is appropriate in agricultural and rural landscapes, as well as in portions of natural landscapes that are being farmed.

Effective agricultural zoning districts share some common characteristics:

- Commercial agriculture is the primary permitted land use.
- Non-agricultural developments are limited to one lot for each 10-25 (or more) acres.
- Non-farm lots are often regulated by special exception or conditional use, so that new lots do not conflict with agricultural activities.
- Accessory activities that support agriculture are permitted.
- Effective agricultural zoning districts are supported by comprehensive planning policies that are based on objective physical analyses and community preferences.

Agricultural zoning districts are most effective when they are used to protect existing agricultural areas that have not experienced significant development pressure and where the local agricultural economy is still healthy. To this end, the protection of agriculture should be a goal and should be supported by studies documenting that the area contains primarily Class I, II, and III prime agricultural soils. The zoning should permit a wide variety of farm-related land uses, supplemental farm businesses, and other compatible activities.

**Objective 2.6: Enhance landscape through street trees, reforestation, etc.**

**Strategy 1: Partner with HOAs/maintenance corporations to enhance landscapes.**

Homeowner maintenance corporations often have high open space maintenance costs and lack the capacity to properly manage its' oversight. Partnering with a local government body to improve and enhance community amenities through landscaping could serve to lower costs while providing a more attractive and better performing open space.

This government body could offer lectures and seminars for residents and landscape management firms, provide site assessments and assist with small grant programs. Additional opportunities this partnership could provide include the reforestation of large passive lawn areas and stormwater management maintenance, all of which could translate into a healthier environment for everyone.

**Strategy 2: Coordinate with DelDOT to review and revise, as necessary, design guidance for stormwater infrastructure, street trees and other amenities along roads.**

Improved coordination with DelDOT on design issues would contribute greatly to the maintenance, longevity, and attractiveness of the streetscape, including landscaping, amenities, and stormwater facilities.

The County’s Storm Water Pollution Prevention and Management Program (SWPP&MP) was jointly prepared with DelDOT and their Co-Permittees (incorporated towns). Further cooperation and coordination with these parties makes sense and continues affiliations that led to a successful prevention and management plan.

Forest loss is a major concern; under a “business as usual” scenario, approximately 2,500 acres of forest will be further impacted in southern New Castle County if nothing is done to change development patterns. The County is currently evaluating its reforestation requirements and drafting potential legislation in collaboration with DNREC and
a steering committee. Opportunities to reduce fragmentation and enhance the habitat and environmental value of transportation right-of-way should be explored.

Street trees and, more generally, green stormwater infrastructure can serve both to reduce environmental impacts and enhance the community. Roadway designs that factor in the multi-modal traveling public and the environmental sustainability continue to evolve. The County and DelDOT should work together to update design guidance and plan development review processes accordingly. Guidance should address elements such as street trees, roadway widths, etc. (A similar recommendation is found in the State’s Blueprint for a Bicycle-Friendly Delaware).

TRANSPORTATION & MOBILITY

The following transportation strategies are based on community input. Additional strategies will be based on the results of the detailed transportation analysis that will be performed in the next phase of the planning process.

Objective 3.1: Expand public transportation

Strategy 1: Support DART Proposals to expand transit service.
This includes continued focus on new and expanded service as more development occurs.

Strategy 2: Investigate shared mobility services for areas where growth does not support expanded fixed-route bus service.

Strategy 3: To the extent the market allows, expand rideshare and alternative ridesharing network.

Objective 3.2: Congestion reduction in Middletown; better east-west connections in Middletown (and beyond)

Strategy 1: Optimize traffic signal timing on a regular basis.

Strategy 2: Proceed with design and construction of road improvements identified in DelDOT’s Capital Transportation Program, WILMAPCO’s regional Transportation Program, and local Transportation improvement Districts.

In Middletown, proposed road improvements include:

- Widening of DE 299
- Eastern extension of Lake Street
- Eastern extension of Green Street
- Western extension of Green Street to create a second crossing of the railroad

Objective 3.3: More/safer walking and biking paths/connections

Strategy 1: Conduct a gap analysis for missing sidewalk/ pedestrian path links.
Households within ½ mile of schools, grocery stores, pharmacies, libraries and transit stops should have safe pedestrian connections to those destinations.

Strategy 2: Conduct gap analysis for bicycle facilities.
Households within 2 miles of schools, grocery stores, pharmacies, libraries, parks, transit stops, and park and ride facilities should have safe bicycle connections to those destinations.

**Strategy 3:** Connect the towns of Townsend and Middletown with a separated pathway for bicyclists and pedestrians.

**Strategy 4:** Adopt the New Castle County Bicycle Plan once it is completed, and implement the proposed network.

**Strategy 5:** Increase the number of miles of on-road bike facilities.

**Strategy 6:** Include pedestrian and bicycle facilities as part of all publicly and privately funded road improvements.

This strategy is consistent with DelDOT’s Complete Streets policy, which ensures that all transportation investments are designed to be safe, comfortable and convenient for all travelers, regardless of their age, ability, or mode of travel.
COMMUNITY FACILITIES & CHARACTER

Objective 4.1: Preservation of rural/small-town/historical character

Strategy 1: Encourage the creation of relatively dense village centers in unincorporated areas.

This will allow centralized population that can support more cultural attractions, while preserving the small-town/rural/historic character of other areas.

Strategy 2: Encourage planned growth by reducing the area planned for future sewer service.

Strategy 3: Establish a farmland preservation program.

This can provide mechanisms for farm owners to make preservation economically viable as opposed to selling land for development (many farmers feel selling for development is the only option for retirement), in addition to leveraging State and Federal preservation programs.

Strategy 4: Consider whether road segments identified in "The Southern New Castle County Scenic River and Highway Study" should be formally nominated under the State's Byways Program, and/or given further protection.

Following on the designation of the Bayshore Byway, the County should consider whether other identified road segments identified in "The Southern New Castle County Scenic River and Highway Study" should be formally nominated under the State's Byways Program, and/or given further protection under the Unified Development Code. These roads are integral to the scenic fabric of southern New Castle County and are thus recommended for further protection.

Strategy 5: Implement Open Space Taskforce and Historic Preservation Working Group recommendations that enhance open space and preservation of historic resources in Southern New Castle County.

Strategy 6: Encourage the identification, protection and preservation of historically significant resources using Historic Overlay Zoning and the Historic Review Board process.

Strategy 7: Encourage the continued use of historic structures through adaptive reuse.

Objective 4.2: Denser, more walkable development with mixed use

Development that is heterogeneous in terms of size, type, cost, and mix of uses can greatly enhance the ability of residents to “age-in-place” and also enhance the livability of communities for the general population.

Strategy 1: Create policies and regulations that encourage mixed-use and walkable environments in targeted locations

Mixed-use environments within walking distance to neighborhoods offer many benefits. Such environments reduce car travel, enhance economic and social vitality and, often, broaden housing choices. Evidence indicates that mixed-use and walkable environments increase real estate value, thus contributing to fiscal health. Policies and regulations should target areas well-positioned for mixed-use like existing towns and sub-divisions like Bayberry and Whitehall.

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25 Source
Encourage mixed-use development through mechanisms such as zoning, property tax abatement incentives, and bond financing for infrastructure that supports mixed use

**Strategy 2:** Explore changes to existing building and zoning codes to permit multifamily housing, and smaller lot sizes.

**Strategy 3:** Establish fair housing as a priority in the County’s long-range plans.

**Objective 4.3:** More opportunities for family-oriented cultural attractions, entertainment, recreation (museums, YMCAs, etc.)

**Strategy 1:** Partner with Office of Tourism + Greater Wilmington Visitors Bureau to determine key attractions in southern NCC (bird watching, outdoor recreation, agritourism)

**Strategy 2:** Build on existing assets and features including: byways, historic districts, trails and pathways, civic spaces, and non-profits

**Strategy 3:** Partner with other local governments and organizations to support the local arts community.
ECONOMIC DEVELOPMENT

Resources to utilize these strategies include:

- Delaware Prosperity Partnership (DPP)
- Small Business Development Center (SBDC) @ University of Delaware
- State Office of Tourism
- Greater Wilmington Visitors Bureau
- Edge Grant – Grants of up to $50,000 for small businesses/entrepreneurs
- Downtown Development District
- Opportunity Zones (though the designation only pertains to a portion of Smyrna in Kent County, adjacent to New Castle County)

Objective 5.1: More local, diverse job centers, facilitating shorter commutes

Strategy 1: Identify development opportunities that will attract private investment to appropriately zoned districts.

Emphasis on building upon existing community assets, infill development, etc. Distinction between “growth” and “investment” important for communities which may not have much projected growth.

Strategy 2: Consider collaborative approaches to economic development focusing on growing within municipal boundaries.

Explore the Downtown Development District as means to support smaller scale economic development in towns such as Middletown. Consider a place-based approach as described in “How Small Towns and Cities Can Use Local Assets to Rebuild Their Economies: Lessons from Successful Places” (EPA, 2015). Also consider supporting development of flex spaces.

Objective 5.2: Support small local businesses

Strategy 1: Facilitate smaller scale support for small businesses (see Edge Grant, SBDC).

Strategy 2: Promote local agricultural enterprises and businesses that are consistent with southern NCC’s rural character.

Developing a local food economy protects farmland and natural resources and supports the community’s environmental, social, and economic health. Agricultural economic development addresses the creation, retention, expansion, and recruitment of agricultural and food related businesses. These businesses protect farmland, support community health, provided new uses for vacant land, and contribute to the local economy. They may include:

- Farmer’s Markets
- Locally-sourced food
- “Farm to table” restaurants
- Agritourism – including events such as weddings, apple picking
- Outdoor activities at state and local parks
**Objective 5.3: Diversify industries, and foster opportunities for higher income jobs; living wage/trade/union jobs with retirement benefits**

**Strategy 1:** Conduct a complete economic and industry gap analysis to identify southern NCC industry clusters and opportunities.

**Strategy 2:** Collaborate with towns to develop place-based approaches to economic development, building on community assets (e.g., local food, agritourism, strong schools, green economy, etc.) and infill.

**Strategy 3:** Leverage NCC Innovates Program, Delaware Edge Grant, DDD program to support retention, recruitment, and expansion of businesses to southern NCC Towns and Centers.

**Objective 5.4: Access to more training and education opportunities**

**Strategy 1:** Explore establish a Job Training Center in Middletown.

**Strategy 2:** Work with the Small Business Administration to target southern NCC businesses for credit and education programs.

**Objective 5.5: Maintain Summit Airport as an Economic Driver in Southern New Castle County**

**Strategy 1:** Review and refine, as necessary, the New Castle County Unified Development Code (UDC) as it relates to Airport uses, to promote development that is compatible with aviation and design that mitigates risk to airport operations and the flying public.

This could include limiting new residential development in the approaches of Summit Airport for the benefit of the quality of life of future residents of southern New Castle County and continued operation of the airport.

**Strategy 2:** Continue coordination with the DelDOT Office of Aeronautics.

Coordinate on Part 77 Airspace reviews through continued enforcement of Sec. 40.03.432 of the UDC and maintain the section's reference to 2 Delaware Code § 601-603 (Obstructions in Airport Approach Areas).

**Strategy 3:** Promote information on Summit Airport’s Economic Impact through coordination with the DelDOT Office of Aeronautics.

The Office of Aeronautics maintains a report called, “Economic Impact of Delaware Airports,” which details the economic impact of the State Aviation System. Make this report available to the County Executive, County Council Members, the Delaware Prosperity Partnership, Economic Development Department, and Department of Land Use staff.

**Strategy 4:** Work with Summit Airport to understand its future business plans as it continues to expand in southern NCC.

Consider a public-private partnership with Summit to make runway accessible real estate, ideal for small MRO operations, available for promotion and marketing by the County Economic Development Director.
7. Plan Implementation

Placeholder section title page
**Interagency Coordination**

**STRATEGIES FOR STATE POLICIES AND SPENDING**

The Strategies for State Policies and Spending is an initiative of the State, designed to coordinate land-use decision-making at various levels of government with the provision of infrastructure and services in a manner that makes the best use of our natural and fiscal resources. Every five years an update of the Strategies for State Policies and Spending maps is performed using spatial data analysis to balance state, county, and local policies for various kinds of residential growth, economic development, and land preservation. The State Strategies Map delineates areas most appropriate for different types of growth and investment (Figure 7-1). Level 1 and 2 areas, shown in red and orange, are areas generally considered most desirable for growth and development, whereas the out of play areas (in grey) are not intended for development and the level 3 and 4 areas (in yellow and white, respectively) are intended for only very limited development activity.²⁶

The State Strategies map is currently being updated. NCC and the Office of State Planning Coordination should work together to ensure the State Strategies map incorporates the recommendations of this Master Plan, including designation of areas for growth and areas for preservation.

²⁶ Details of the Strategies for State Policies and Spending are available at: [https://stateplanning.delaware.gov/strategies/](https://stateplanning.delaware.gov/strategies/)
ANNEXATION/MUNICIPAL COORDINATION

As detailed in other sections of this plan, New Castle County coordinates with municipal governments on a range of issues, such as sewer service, recreation and open space, and other community facilities. Coordination with the five municipalities in southern NCC (Middletown, Odessa, Townsend, Smyrna and Clayton) on each element of this Master Plan is important to achieving goals for this Plan as well as supporting thriving towns that exist within southern New Castle County. In general, this plan recommends building on the existing coordination and communication with the towns toward compatible zoning, design standards, and coordinated growth and preservation.

The planning process has fostered communication with the towns both through their involvement on the Advisory Committee and through individual meetings, calls, and communication. Through this process plan scenarios were explored, and recommendations were developed using: the official projections and requirements of the State27; information and analysis gathered by the southern NCC Master Plan project team; and the information and material provided by the towns.

Figure 7-2 shows current municipal boundaries (peach color) and annexation areas (red hatched), which were included in official Comprehensive Plans as of 2017.

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27 Section 9152 c of the State Code says “All state agencies, counties, municipalities, and school districts must use the Consortium’s projections for planning and policy purposes. If a population estimate is not available for a given year, state agencies, counties, municipalities, and school districts must use either the most recent Consortium projections or the most recent population estimates prepared by the United State Census Bureau, whichever contains the higher population estimate.”
Findings from the scenario development and analysis phases of plan development indicate that current growth areas (areas designated for annexation in current comprehensive plans) for all towns within the study area are sufficient to accommodate the officially projected population and employment growth and more. (Additional details are found on page 33 and detailed methods and explanation are found in the appendices). Figure 7-2 shows those current annexation areas which are the basis for this plan and factored into plan recommendations and strategies. The areas shown as annexation areas in the map reflect generally where municipal expansion would be expected, whereas those areas outside would be the focus of preservation and/or other development more suitable to the rural character of the unincorporated areas. Some of the municipalities are in the process of updating their comprehensive plan and some are about to start that process. The County is aware of some adjustments to the official annexation areas that are currently in progress and will continue to coordinate with the municipalities.28

NCC and the incorporated towns should continue coordination and collaboration on development, infrastructure, and policies to support achievement of the goals and objectives of this plan. A memorandum of understanding has been used in the past to support a coordinated approach to development and preservation; such a strategy should be considered to support successful implementation of the Southern New Castle County Master Plan.

28 Smyrna has identified an additional area for annexation located north of Route 1. The Town has proceeded with Council review and adoption with intent to update/amend the Town’s Comprehensive Plan and Future Land Use Maps accordingly. The County and the Town of Smyrna have coordinated together to examine the proposed annexation and will continue to work together throughout the process.
**Implementation Matrix**

[A fully articulated implementation matrix related to the recommendations and strategies will be added to the plan as comments on the rough draft plan are received and plan content is refined.]

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<th>Element/Goal/Objective</th>
<th>Strategy</th>
<th>Timeframe</th>
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8. Appendices

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Southern New Castle County History

Prior to 1700, structures were primarily of an impermanent nature and constructed with non-durable building techniques such as earthfast construction. Settlement and population intensified from the mid-eighteenth century through 1770s, particularly in town centers such as Port Penn and Odessa, which were located along waterways that provided easy access to ships and trade routes in the region. The growth of these coastal towns in the mid-1700s led to both prosperity and the establishment of an economically-defined social class system in which both elite landowners and tenant farmers were a part of. This socio-economic shift is visible in the architecture constructed in Southern New Castle County during this period, with the Georgian architectural style being one of the most prominent building types commissioned by the upper class.

Settlement patterns shifted towards the end of the eighteenth century and into the early nineteenth century, as the dependence of inland waterways for transportation shifted to increased dependence on roadways. Population increased around a defined network of roads linking northern New Castle County to the new state capitol in Dover. The completion of the Chesapeake and Delaware Canal in 1829 provided for increased trade between Philadelphia, Baltimore, and Wilmington. Agriculture was still the primary use of land during this time, resulting in high yields of crops such as wheat and Indian corn. Industrialization and scientific developments in agricultural practices also expanded in the late 1700s through the 1830s, as a new class of farmers emerged who enhanced agricultural practices and contractual labor relationships in southern New Castle County. Known as the Rural Elite, this group of wealthy farmers constructed dwellings comprised of more durable materials such as brick, some of which remain on the landscape today. Tenancy farming increased during this time over the use of slave labor, as it was mutually beneficial method of land management for residents and large landowners in the region.

As new transportation routes were constructed across the region and state in the mid to late nineteenth century (1830's-1880's), population centers began to grow. The construction of a railroad system connecting Wilmington with Middletown and Dover spurred the growth of towns around railroad stops. Still, agriculture was the primary use of the landscape in southern New Castle County, with tenant farming rates reaching 80 percent. The improvement of transportation networks during the nineteenth century provided for the expansion of farms that produced perishable products, such as milk, butter, and peaches, as farmers were able to transport these goods to regional markets. During this time, a number of existing farm buildings and dwellings on the rural landscape were repaired or renewed, and comprise many of the extant historic resources in Southern New Castle County today.

Towards the latter part of the nineteenth century and at the beginning of the twentieth century, agricultural practices became more commercialized. Development occurred after the Second World War in Southern New Castle County both in the towns as well as sporadically across the landscape.
Affordable Housing: Existing Conditions and Programs

AFFORDABILITY

As provided in Delaware Housing Needs Assessment 2015-2020 (September 2014) the following excerpts help describe the affordable housing challenges in New Castle County and, where noted, specifically southern New Castle County.

Of Delaware’s three counties, New Castle County exhibits the greatest disparity between wealth and poverty, with 42% of households earning more than $100,000 in South New Castle, while more than half of all households in Wilmington earn less than $50,000 per year.

HUD uses the Area Median Income (AMI) categories to provide a baseline definition of household income to support housing policy and analysis. The primary tool to assess housing need is the Comprehensive Housing Affordability Strategy (CHAS), a tool used to demonstrate who is living with housing conditions.

Low income renter- and owner-occupied households face greater cost burdens in the state than moderate- and middle-income households. The greatest need is among renters earning less than 50% AMI and among homeowners earning less than 30% AMI. Additionally, there is a notably high percentage of moderate-income homeowners who are cost burdened.

HUD explicitly defines housing conditions as the following:

- **Cost Burden** – A household is paying more than 30% of their income on housing, including taxes and insurance (for owners) and utilities (for renters). Households are considered extremely cost burdened if they pay more than 50% of their income in housing.
- **Overcrowding** – A household is living in overcrowded conditions if there are more people than rooms (including living room, dining room and kitchen, but not bathrooms). A household is living in extremely overcrowded conditions if there are more than 1.5 persons per room.
- **Inadequate conditions** – A household is living in inadequate conditions if they do not have complete kitchen facilities (consisting of a sink, kitchen and stove) or complete bathroom facilities (consisting of a sink, toilet, and tub or shower). This is not a complete assessment of inadequate conditions. Many homes may be lacking a complete roof, heat, insulation or electricity, but are not included in the assessment.

The following information is noted to be true for all counties in the state, but are more striking in New Castle and Sussex counties (Table 8-1):

- 3 in 4 renters earning between 30% and 50% AMI are cost burdened, paying more than 30% of their income on housing. These are households that earn roughly between $15,000 and $30,000 per year. 1 in 3 of these renters are extremely cost burdened, paying more than 50% of their income on housing.
- 3 in 4 households (renters and owners) earning less than 30% AMI are cost burdened. These households generally earn less than $20,000 per year. Alarmingly, 63% of these households are extremely cost burdened.

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• Approximately 50% of households earning between 50% and 80% AMI are cost burdened, and less than 20% are extremely cost burdened.
• Approximately 1 in 3 moderate- and middle-income homeowners are cost burdened. These families earn between 80% and 120% AMI, are cost burdened. Renters within this income range have limited issues with cost burden.

Table 8-1: Income Ranges for HUD Income Categories

<table>
<thead>
<tr>
<th>County</th>
<th>30% AMI</th>
<th>50% AMI</th>
<th>80% AMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Castle</td>
<td>$19,020</td>
<td>$31,700</td>
<td>$50,720</td>
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<tr>
<td>Kent</td>
<td>$15,930</td>
<td>$26,550</td>
<td>$42,480</td>
</tr>
<tr>
<td>Sussex</td>
<td>$14,280</td>
<td>$23,800</td>
<td>$38,080</td>
</tr>
</tbody>
</table>


The CHAS figures indicate that the household types with the greatest housing problems, in terms of numbers, are small families and individuals, with 44,248 small families and 28,281 individuals who are cost burdened. Southern New Castle has the greatest concentration of families, large and small.

The largest concentration of very low income senior renters are found in northern New Castle and Wilmington. Wilmington also has the highest number of senior rental households that make under 30% AMI. While northern Delaware has a very high concentration of very-low income senior renters, 20% of very low income seniors over 75 years old live in southern New Castle County and western Sussex County.

Projected housing demand over the next five years is greatest in New Castle County. Household growth will be high in New Castle County and East Sussex County. However, an extensive inventory of developed lots and planned subdivisions in East Sussex means that new housing demand is projected to be higher in New Castle County, comprising more than half of all demand for new units through 2020.

The greatest rental housing demand is among renters earning less than 50% AMI and market rate units; the greatest homeownership demand is from moderate and middle income homeowners (Table 8-2). This follows state trends, where very low income households tend to be renters, while households moving into Delaware are seeking a home to purchase. Among the very low income renters, roughly half earn less than 30% AMI.

While seniors will comprise a large portion of future demand, they are predominantly homeowners (84%) and are far more likely to enter the homeownership market than the rental market. Based on projections, 16% of future rental demand will be for senior rental housing, whereas 32% of future home sales will be from seniors.

Table 8-2: Rental and Homeownership Demand by Income, Southern New Castle County 2015-2020

<table>
<thead>
<tr>
<th>Area Median Income (AMI)</th>
<th>&lt;30% AMI</th>
<th>30% to 50% AMI</th>
<th>50% to 80% AMI</th>
<th>80% + AMI</th>
<th>Total</th>
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<tr>
<td>Rental Housing Demand by Income</td>
<td>95</td>
<td>165</td>
<td>70</td>
<td>170</td>
<td>500</td>
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<tr>
<td>Homeownership Demand by Income</td>
<td>410</td>
<td>470</td>
<td>1,265</td>
<td>1,830</td>
<td>3,975</td>
</tr>
</tbody>
</table>

Source: Delaware Housing Needs Assessment 2015-2020, September 2014; page 9
NEW CASTLE COUNTY AFFORDABLE HOUSING PROGRAMS

New Castle County Workforce Housing Program

www.newcastlede.gov/workforcehousing

The Workforce Housing Program is an initiative designed to provide an opportunity for middle income households to purchase or rent affordable new construction housing units in New Castle County. It is a series of requirements and incentives for developers who include at least 20% workforce housing in a subdivision. This initiative does not use federal, state, or county funding to accomplish the goal of affordable housing for county residents.

Affordability

Workforce housing is designed for people who make less than 120% of area median income as determined by the U.S. Department of Housing and Urban Development (HUD) for New Castle County (Table 8-3). Applicants must income qualify based on household size to participate in the program.

<table>
<thead>
<tr>
<th>Number in Household</th>
<th>Less Than 50% of Median Income</th>
<th>Less than 80% of Median Income</th>
<th>Less than 100% of Median Income</th>
<th>Less than 120% of Median Income</th>
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<tbody>
<tr>
<td></td>
<td>VERY LOW</td>
<td>LOW</td>
<td>MODERATE</td>
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<td>$75,700</td>
</tr>
<tr>
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<td>$59,500</td>
<td>$95,200</td>
<td>$119,000</td>
<td>$142,700</td>
</tr>
</tbody>
</table>

Table 8-3: New Castle County Community Services Workforce Housing Income Guidelines, Effective June 28, 2019

Rents and purchase prices are based on Area Median Income (AMI) and other housing costs. Monthly rents can start at $1,300+ for a 1BR apartment to $1,600+ for a 3 BR apartment or house. Purchase prices start at $200k+ for town homes and $300k+ for single family detached. **PRICES are subject to Change and income eligibility is as of April 24, 2019.**

**Purchasing a Workforce Housing Unit**

There are deed restrictions and a buyer’s agreement that impose restrictions on the home in order to ensure continued affordability during the affordability term. Those restrictions and agreements include but are not limited to:

- Restricting the use of the home to owner occupancy during affordability period
- Authorizing annual monitoring for compliance
- Limiting future sale prices of the home during affordability period to income eligible, qualified buyers

---

30 For each person in excess of eight, 8.00 percent for the four-person base should be added to the eight person income limits. All limits should be rounded to the nearest $50. $90,100 Median Income (FY 2019), family of four—New Castle County (Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area) [http://www.huduser.org/portal/datasets](http://www.huduser.org/portal/datasets)
• Restricting refinancing of the home during affordability period
• Defining default conditions and legal remedies to cure defaults

Because the applicant agrees to these restrictions, the builder offers additional incentives for participating in the program. These incentives are only for income qualified households. They vary from builder to builder and from person to person.

Housing Counseling is a requirement and must be completed prior to settlement. New Castle County Community Services Department provides applicants with a list of approved Housing Counseling agencies.

Workforce housing units have been approved in several subdivisions in Southern New Castle County including but not limited to: Bayberry North, Goldsborough Farm, High Hook Farm, Ponds of Odessa, Preserve at Robinson and Spring Oaks.

**New Castle County Traditional Neighborhood Housing Program - Moderately Priced Dwelling Units (MPDUs)**

[www.newcastlede.gov/mpdu](http://www.newcastlede.gov/mpdu)

Traditional Neighborhood Housing is an inclusionary zoning program with a mandatory and voluntary component. Moderately Price Dwelling Units (MPDUs) are required for all residential rezonings or variance applications with density increases proposing twenty-five (25) or more dwelling units except for mixed-use developments. This initiative does not use Federal, State or County funding to accomplish the goal of providing

**Affordability**

MPDU housing is designed for people who make less than 90% of area median income, as determined by the U.S. Department of Housing and Urban Development (HUD) for New Castle County. Applicants must income qualify based on household size to participate in the program (Table 8-4).

**Table 8-4: New Castle County Community Services MPDU Income Guidelines, Effective April 24, 2019**

<table>
<thead>
<tr>
<th>Number in Household</th>
<th>Less than 75% of Median Income</th>
<th>Less than 90% of Median Income</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>$60,825</td>
<td>$72,990</td>
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<tr>
<td>4</td>
<td>$68,670</td>
<td>$81,090</td>
</tr>
<tr>
<td>5</td>
<td>$74,130</td>
<td>$87,660</td>
</tr>
<tr>
<td>6</td>
<td>$78,450</td>
<td>$94,140</td>
</tr>
</tbody>
</table>

**Purchasing an MPDU**

To be income qualified, you must complete an Inclusionary Housing Application. Every household member over the age of 18 must sign the application and provide some required qualification documents (e.g., tax returns, pay stubs, bank statements). Buyers must sign a declaration at settlement agreeing the property will remain owner-occupied during the affordability period. There will be annual monitoring occurring throughout the affordability period. Property may be sold before the affordability period expires, however, all reasonable efforts must be made to sell the MPDU to another qualified applicant. If the MPDU has been actively marketed for 180 continuous days and the seller has not received an offer for Resale Maximum Sales Price (RMSP), the MPDU can be sold to any purchaser. In this case, a portion of any resale profit must be paid to the Housing Trust Fund depending on the amount of months...
the property was originally occupied out of the requirement. For more information, please review the “MPDU Resale Profit” document on the website: newcastlede.gov/mpdu

Buyers are required to attend 8-hours of HUD certified housing counseling in Delaware. Buyers must receive mortgage financing. Financing can be secured individually or through the builder. Debt-to-Income ratio must be below 52% and there is a liquid asset disqualifier of over 20% of purchase price (some exceptions and will be determined on a case by case basis).

**Down Payment Settlement Program (First Time Buyer Program)**

This program enables low- and moderate-income households to purchase their first home by providing a 0% low interest loan of $1,000 - $5,000 for eight years to aid in covering the cost of down payment and/or settlement charges.

This is a first-time buyer program for income qualified borrowers who have not owned a principal residence (mobile homes excluded) for the last three years. Total household income may not exceed 80% of median income for New Castle County and is adjusted for family size per Department of Housing and Urban Development Guidelines ranging from $50,500 for a one-person household up to $95,200 for an 8 person household. The borrower must occupy the home as their principal residence throughout the duration of the loan. All borrowers are required to complete a Homeownership Education Program with a New Castle County recognized HUD approved housing counseling agency.

The residence must be in New Castle County, outside of Wilmington; the program has a current maximum selling price limit of $379,500 and the property must be inspected by home inspectors with specific profession home inspection certifications (ASHI, NAHI or InterNACHI) as a condition of sale. All homes built prior to 1978 must have a lead visual inspection. Repairs must be completed according to HUD guidelines.

**Home Repair Programs**

These are affordable housing home repair programs designed to enable qualified homeowners to have repairs made which are necessary to free their homes of health and safety hazards. Funding is limited and awarded on a first come first serve basis and there are established waiting lists. These programs include: Emergency Home Repair, Senior Repair Loan Program, Architectural Accessibility Program, Homeowner Rehabilitation Direct Loan Program and the Innovative Development Empowerment Area (IDEA) Homeowner Rehabilitation Program.

**NEW CASTLE COUNTY FEDERAL FUNDING – CDBG, ESG, AND HOME PROGRAMS**

New Castle County Administers its Federal Funding through the Community Development Block Grant Program, the Emergency Solutions Grant (ESG) Program and the HOME Investment Partnerships Program (HOME) through the New Castle County – HUD Consolidated Plan with these goals:

- To Provide Decent Housing
- To Provide a Suitable Living Environment
- To Expand Economic Opportunities

The 2015-2020 Consolidated approach is provided through these priorities:

- Expand the Supply of Housing for Affordable Homeownership
- Rehabilitate Homes for LMI Homeowners and Seniors
- Increase Homeownership Opportunities for LMI Families
• Expand the Availability of Rental Stock for LMI Households
• Support Housing for Persons with Disabilities
• Assist Homeless Populations
• Assist Those at Risk of Becoming Homeless
• Strengthen Communities by Providing Public and Social Services
• Support Programs that Provide Economic Opportunities and Empower LMI Persons to Achieve Self Sufficiency

Community Development Block Grant Program

CDBG funds are available for a variety of Housing, Public Facility, Public Service, and Economic Development Activities that meet one of these three national objectives:

1. Benefit low- and moderate-income persons (at least 70% of grant amount)
2. Prevent or eliminate slum or blight (not more than 30% of grant amount)
3. Meet urgent needs when health and welfare are threatened

Emergency Shelter Grant (ESG) Program

The Emergency Solutions Grants (ESG) program, (renamed and reorganized the Emergency Shelter Grants Program, in 2012) objective is to assist people to quickly regain stability in permanent housing after experiencing a housing crisis and/or homelessness.

The ESG program provides funding to:

1. Engage homeless individuals and families living on the street;
2. Improve the number and quality of emergency shelters for homeless individuals and families;
3. Help operate these shelters;
4. Provide essential services to shelter residents;
5. Rapidly re-house homeless individuals and families; and
6. Prevent families and individuals from becoming homeless.

ESG funds may be used for five program components: street outreach, emergency shelter, homelessness prevention, rapid re-housing assistance, and Homeless Management Information System (HMIS). HMIS is a 2009 Federal Requirement that all communities have an HMIS with the capacity to collect unduplicated counts of individuals and families experiencing homelessness.

NCC’s ESG Program and population approach

• Rapid Re-Housing ESG Allocation is solely designated to Family Promise of Northern New Castle County, Inc. for housing relocation and stabilization services; and/or rental assistance
• Data Collection (Community Management Information System)
• Shelter Operations or Essential Services (no more than $60,000 total will be available to award)

Target homeless populations include families, veterans, recently released persons incarcerated (90 days or less) and disabled individuals.
HOME Investment Partnerships Program

The Home Investment Partnership Program provides grants to states and units of general local government to implement local housing strategies designed to increase homeownership and affordable housing opportunities for low and very low-income Americans. HOME funds can be used for a variety of housing activities, according to local housing needs.

The HOME program is implemented to:

- Provide decent affordable housing to lower-income households,
- Expand the capacity of nonprofit housing providers,
- Strengthen the ability of state and local governments to provide housing, and
- Leverage private-sector participation.

Housing Activities

Unlike CDBG, HOME may be used for new housing construction. Fifteen percent (15%) of HOME Funds are set aside for HUD-approved NCC Community Housing Development Organizations (CHDOs).

Eligible activities/costs:

- New construction
- Rehabilitation
- Reconstruction
- Conversion
- Site improvements
- Acquisition of property
- Acquisition of vacant land
- Demolition
- Relocation costs
- Refinancing
- Capitalization of project reserves
- Project-related soft costs

HOME program subsidies are available as:

- Interest bearing loans or advances
- Deferred loans (forgivable or repayable)
- Non-interest-bearing loans or advances
- Grants
- Interest subsidies
- Equity investments
- Loan guarantees & loan guarantee accounts
Housing Choice Voucher (HCV) Program

The Housing Choice Voucher Program (formerly known as Section 8 Vouchers) is a federally funded, locally administered rental assistance program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market. Funded by the U.S. Department of Housing and Urban Development, HCV is administered locally by the New Castle County Housing Authority (NCCHA). NCCHA currently helps to house over 1,700 families throughout New Castle County, Delaware, except within the city limits of Wilmington and Newark, which are served by their own public housing authorities. These Public Housing Authorities receive federal funds from the U.S. Department of Housing and Urban Development (HUD) to administer the voucher program.

A family that is issued a housing voucher is responsible for finding a suitable housing unit of the family’s choice where the owner agrees to rent under the program. This unit may include the family’s present residence. Rental units must meet minimum standards of health and safety as determined by the PHA.

A housing subsidy is paid directly to the landlord on behalf of the participating family. The family then pays the difference between the actual rent charged by the landlord and the amount subsidized by the program. Under certain circumstances, if authorized by the PHA, a family may use its voucher to purchase a modest home.

There are currently 65 Housing Choice Voucher program clients residing in southern New Castle County broken down as follows: 1 family in Delaware City; 62 families in Middletown and 3 in Clayton. Middletown, Odessa, Clayton and Townsend are areas that are eligible for the Housing Choice Voucher Program Small Area Fair Market Rents. Landlords with units in these areas would be eligible for higher rental reimbursement if willing to rent to a Housing Choice Voucher program client.
Methodology & Technical Approach for Scenario Development & Analysis

SCENARIO DEVELOPMENT AND ASSUMPTIONS

Development Capacity Calculation Process

Resilient planning requires the examination of the potential long-term impacts of planning initiatives. Forecasting and projections do not account for anomalies, permitted by the Comprehensive Development Plan and the Unified Development Code, which would be inconsistent with demographic and economic trends. It is also important to understand the potential impacts of land use policies beyond the plan’s horizon year. A development capacity analysis for the Southern New Castle County Master Plan study area can help to address those limitations by evaluating development capacity based on current zoning and subdivision regulations, including protected resources and by incorporating an analysis of the impact of providing infrastructure spending to the East and West Wing on overall development capacity. (See Figure 1-2 in the main body of the report for a map delineating the East and West Wings Central Core.)

Most of the undeveloped land in the Central Core as well as the East and West Wings is zoned Suburban (S), offering a variety of development options that are slightly nuanced and within a DU/acre yield difference. Modest density increase is determined by sewer service availability, parcel size and protected resources. Currently sewer is only provided for new development in the Core area. The east and west wings are in the Sewer Service Area but no timing of availability has been established. Unincorporated land located south of Middletown is unsewered, and generally zoned Suburban Reserve (SR). Development of this land is permitted at a significantly lower density than Suburban zoned land.

Southern NCC Analysis Methodology

The following sections describe land use scenario development assumptions and analysis methodologies. The New Castle County Department of Land Use has developed a series of GIS-based models that estimate residential development build-out. These models allow the Department to evaluate impacts of growth-related scenarios. The models were built in Esri’s “Model Builder” interface within ArcGIS Pro.

31 When evaluating the plan scenarios, projections of total households in the southern New Castle County study area through 2050 have remained consistent/constant with the official totals forecasted by the Delaware Population Consortium (DPC). Additionally, to be consistent with planning activities north of the canal, none of these scenarios consider redistribution of households from Northern New Castle County to Southern New Castle County.

Another important consideration when evaluating these scenarios is that there is an important difference between households and houses. Households are a function of population changes based on birth, death and migration rates. The DPC thoroughly considers these factors, and State Law requires that comprehensive plans be consistent with the formally adopted projections. This plan is a New Castle County comprehensive planning effort and focuses on the unincorporated areas while taking into account the interrelationships with municipalities within the study area. The plan proposes potential amendments to the County’s Comprehensive Development Plan, however does not recommend changes to planning efforts within municipal boundaries, as the plan will have no jurisdictional authority over such areas. Population projections and households within municipal boundaries are assumed to, at a minimum match those established by the Population Consortium as further allocated within TAZ boundaries by WILMAPCO.
Building the Master Parcel Database

The first step in completing scenario analysis is constructing a parcel-based database that identifies parcels that could have capacity for future development. We do this by first identifying parcels that are considered to be unbuildable based on parcel records. Examples of unbuildable parcels include: road beds, stormwater management areas, publicly owned lands, and schools. These parcels are eliminated from the dataset so that the analysis is focused to only parcels that may have capacity for future growth. For the purpose of this analysis, any parcel with a commercial structure on it was also eliminated from the possibility of having future growth potential.

Next, the parcel polygon data is run through an “Identity” operation in GIS, where each parcel or portion of a parcel is tagged with various attributes including:

- Land use
- Future land use
- Zoning
- Town Zoning
- Existing Sewer Service
- Potential future sewer service areas (for scenarios)
- Protected lands, including parks, agricultural and conservation easements, and other public lands.
- TAZ
- Existing Subdivisions
- Wetlands
- WRPA (water resource protection areas)

The next step narrows the universe of parcels where development capacity calculations are performed based on the attributes attached to the parcels in the previous step. In this step, protected lands and several land use categories (based on 2012 land use) are erased from the parcel dataset.

Constrained lands are also summarized. Based on County Code, areas are identified as 50% constrained or 100% constrained. For example, wetlands and some water resource protection areas (WRPA) are considered 100% constrained for the purposes of new development. Other WRPA areas, such as Class B and Class C Wellheads, are considered 50% constrained. Once they are identified, these areas can be factored into the development capacity calculations.

Finally, the data are summarized by parcel, zoning district, and sewer service area. For each category, the area of each that are within 100% constrained, 50% constrained, overlap between 50% and 100%, or not constrained are calculated. This dataset then gets run through development capacity calculations, which vary by scenario.

Development Capacity Models

The parcels are then run through a site capacity analysis, which follows the calculations in Article 5 of the UDC. The calculations are run for different development options, considering the area of each parcel within the constrained areas as described above. Allowable density within zoning districts is adjusted based on whether or not a parcel has access to sewer service which varies by scenario. The development option with the highest number of units possible is reported for each parcel/zoning combination.

The following development options are evaluated for each land use scenario:
1. Suburban Reserve (SR):
   - Single-family
   - Open space subdivision

2. Suburban (S):
   - Single-family
   - Single-family, conservation design
   - Open space subdivision - Option 1
   - Open space subdivision - Option 1, conservation design
   - Open space subdivision - Option 2
   - Open space planned

3. Suburban Transition (ST):
   - Single-family
   - Single-family attached
   - Open space planned
   - Apartments

Neighborhood Conservation are districts not included in this analysis for the following reasons:

- Most NC zoned parcels are part of Former Code subdivisions (presenting substantial challenges to subdivision).
- Most NC zoned parcels not part of an existing development are not eligible for a Major Subdivision based on site capacity.
- The Department has seen very few subdivision requests for NC zoned parcels South of the Canal since the adoption of the UDC (December 31, 1997).

The following procedure is performed in ArcGIS using Model Builder for each of the above development option in each zoning district.

**Step 1: Calculate the Base Site Area**

Base Site Area = Gross Site Area – Rights-of-Ways – Waterbodies > 1 acre – Previously Dedicated Open Space – Land cut off from use by railroad, highway, or waterbody

- Since we do not have survey level data for each parcel, the **gross site area** is assumed to be equal to the acreage of the parcel polygons maintained by New Castle County.
- Waterbodies will be accounted for in Step 2 calculation and therefore are not accounted for in this step.
- All previously dedicated Open Space parcels are queried out as are previously approved Major land Development Plans (accounting for on lot open space under the Former Code)

**Step 2: Calculate Total Resource Land**

- The following resources are accounted for based on their respective GIS polygons:
  - Floodplain/floodway (100% protected)
  - Wetlands (National and State designated) (100% protected)
  - Riparian buffer (50 feet adjacent to delineated floodplains and wetlands greater than 20,000 square feet in size) (100% protected)
  - Water Resource Protection Areas:
- Class A Wellhead (100% protected)
- Class B & C Wellhead (50% protected)
- Recharge areas (50% protected)
- Cockeysville Formation (50% protected)
- Cockeysville Formation Drainage Area (50% protected)

A. The Following resources require onsite evaluations to determine their extent and classification as such are not included in this calculation:
   - Drainageways
   - Sinkholes
   - Steep Slopes (Surveyor or Engineer topography)
     - Precautionary Steep Slopes (15-25%)
     - Prohibitive Steep Slopes (> 25%)
   - Forests as Classified by UDC (Delineated by Arborist or Landscape Architect)
     - Young Forests
     - Mature Forests
   - Critical Natural Areas (on site evaluation performed by DNREC)
     - Slope or geologic sites
     - Rare species site
     - Forests, mature
     - Forests, young
   - Other CNA

**Step 3: Calculate Protected Resource Land**

- Calculate the summation of the values in Step 1 and account for overlapping resources by deferring to the higher protection level

**Step 4: Calculate Total Unrestricted Land**

- Total Unrestricted Land = Base Site Area - Total Resource Land

**Step 5: Calculate Usable Land**

- Usable Land = Total Unrestricted Land X Usability Factor
- Usability Factors:
  - Suburban Reserve - 0.015
  - Suburban Estate& NC2a - 0.022
  - Suburban, NC40, NC21 and NC15 - 0.049
  - Suburban Transition & all other NC districts - 0.154
  - Traditional Neighborhood - 0.150
  - Manufactured Homes - 0.136

**Step 6: Calculate Site Protected Land**

- Site Protected Land = Usable Land + Protected Resource Land

**Step 7: Calculate Minimum District Required Open Space**

- Minimum District Required Open Space = Base Site Area X Minimum Open Space (UDC Table 40.04.110)
Step 8: Calculate Net Buildable Site Area

- Net Buildable Site Area = Base Site Area – (Site Protected Land or Minimum District Required Open Space whichever is greater)

Step 9: Calculate Site Specific Maximum Density Yield

- Site Specific Maximum Density Yield = Net Buildable Site Area X Maximum Net Density (UDC Table 40.04.110)

Step 10: Calculate District Maximum Density Yield

- District Maximum Density Yield = Base Site Area X Maximum Gross Density (UDC Table 40.04.110)

Step 11: Calculate Maximum Yield for Site

- Maximum Yield for Site = Site Specific Maximum Density Yield or District Maximum Density Yield (whichever is less)

Step 12: Repeat for each Development Option

Step 13: Calculate Build Out Capacity

- Build Out Capacity = The option with the greatest yield

Aggregating Data to Traffic Analysis Zones (TAZs)

In order to evaluate the build-out data with respect to transportation models, the output of the development capacity analysis needs to be aggregated to the TAZs. This is done using a Model Builder in ArcGIS Pro. This model summarizes the development capacity data by TAZ. Where parcels are split by more than one TAZ, the model allocates the percentage of the capacity based on the percentage of buildable land in each TAZ within an individual parcel.

Reallocating Projected Growth in Scenarios

It is necessary to reallocate projected growth in Scenarios 2 and 3, as shown in Figure 8-1 and Figure 8-2. In both Scenarios 2 and 3, there is a reallocation of households from the East Wing to the West Wing. Since Scenarios 2 and 3 remove capacity for future growth in the East Wing, it makes sense to remove some of the projected growth from this area and shift it to the West Wing. Future growth in the West Wing is assumed to be on sewer in these scenarios, which allows more density and different development. The following methodologies were used to complete the reallocation.

- Removing projected growth from the East Wing
  - Calculate supply/demand difference for each TAZ based on the reduced development capacity in the East Wing.
  - Total the projected growth that won’t “fit” within each TAZ in the East Wing based on the reduction in development capacity in the scenarios and subtract from the total projection of that TAZ.

- Adding projected growth to the West Wing
- Begin with the total from the “Removing projected Growth from the East Wing” section.
- Evaluate “oversupply” of each TAZ in the Upper West Wing (capacity minus allocation)
- Calculate percent of total “oversupply” in each TAZ
- Reallocate new demand based on percentage of oversupply.
- Results in 345 units being reallocated from East Wing to Upper West Wing
For Scenario 3, it is necessary to reallocate household and job growth from rural parts of southern NCC to the municipalities of Middletown, Odessa, Townsend, and Smyrna. To accommodate potential additional residential growth in Townsend, Scenario 3 reallocates one hundred and fifty (150) forecasted households to TAZ 338, all of which is assumed to be within Townsend municipal boundaries (452 forecasted households to 602 households). This increase in households would result in as many as 430 residents (assuming population per household within TAZ 338 is consistent with current allocations for 2050) more within Townsend boundaries than the 2,220 new residents projected by the Population Consortium (2015-2050). To accommodate potential additional growth in Townsend, Scenario 3 reallocates two hundred and fifty (250) forecasted households to TAZ 339, all of which is assumed to be within Smyrna municipal boundaries. This increase in households would result in as many as 654 residents (assuming population per household within TAZ 339 is consistent with current allocations for 2050) more within Smyrna boundaries than the 6,240 new residents projected by the Population Consortium (2015-2050).
In Scenario 3, the Town of Middletown would experience a significant increase in job growth through 2050. The increase in jobs is based on the increase in jobs as a result of Transportation Improvement District (TID) implementation within the Town. It would result in an additional 2,420 jobs in the Town, which is approximately double the number of jobs that are currently projected for southern NCC.

**Town of Townsend**

To accommodate potential additional growth in Townsend, Scenario 3 reallocates 150 forecasted households to be within Townsend municipal boundaries (452 forecasted households to 602 households). This increase in households would result in as many as 430 residents more within Townsend boundaries than the 2,220 new residents projected by the Population Consortium (2015-2050).

**Town of Smyrna**

To accommodate potential additional growth in Townsend, Scenario 3 reallocates two hundred and fifty (250) forecasted households to the portion of Smyrna that falls within southern New Castle County. This increase in households would result in as many as 654 residents more within Smyrna boundaries than the 6,240 new residents projected by the Population Consortium (2015-2050).

**Comparison of Scenarios**

Calculations for land use impact metrics for each scenario (Table 8-5) include:

**Number of residential units on sewer vs. septic**

- Calculate the number of projected households on sewer vs. septic based on the location of future planned sewer service areas and reallocation of growth from the East Wing (Scenarios 2 and 3).
- In Scenario 1, all growth in the Upper West Wing is assumed to be on septic. For Scenarios 2 and 3, that same growth is projected to be on sewer.
- This metric does not include the municipalities.

**Acres of resource lands consumed**

This is a measure of the amount of land that could be consumed by future residential growth between now and 2050. It uses the gross allowable density for each zoning districts, depending on whether or not the projected growth can be built on sewer or septic. The following assumptions should be considered when looking at the acres consumed statistics:

- Assumes a gross density of 1.3du/acre for sewer and 0.67 du/acre for septic within the Suburban Zoning District.
- Assumes a gross density of 0.3 du/acre for septic within the Suburban Reserve Zoning District.
- Does not include future non-residential growth.
- Does not include projected growth within municipalities.

**Nitrogen loading from wastewater sources**

- Used loading rates supplied by UD research paper and applied to the increment of new growth between 2015 – 2050.
- Result is total pounds of nitrogen entering the environment per year by Scenario.
Table 8-5: Land Use Impact Metric Results – Comparison of Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Lots that Could be Developed (build-out, excludes municipalities)</td>
<td>~12,000</td>
<td>~10,000</td>
<td>~10,000</td>
</tr>
<tr>
<td>Percentage of Projected Growth on Sewer (excluding municipalities)</td>
<td>60%</td>
<td>84%</td>
<td>86%</td>
</tr>
<tr>
<td>Projected Nitrogen Loading from Wastewater (lbs/year of TN entering environment, not including municipalities)</td>
<td>~40,576lbs/year</td>
<td>~17,668lbs/year</td>
<td>~16,140lbs/year</td>
</tr>
<tr>
<td>Acres of Land Consumed (based on gross density of 1.3du/acre on sewer and 0.67du/acre on septic, 0.33 du/acre in SR)</td>
<td>~9,574acres</td>
<td>~7,683acres</td>
<td>~7,482 acres</td>
</tr>
</tbody>
</table>
Water and Sewer: Existing Conditions

The hydrology of southern NCC is in part a product of its geographic and geologic characteristics, which influence how the water supply is sourced and how it can best be protected. Figure 8-3 illustrates the ground water aquifers as they are located through the study area. Groundwater in the Columbia formation is the source of all fair-weather flow in streams and a majority of total stream flow in this area. The aquifers that yield this water and the intervening non-water bearing confining beds occur within a southeasterly dipping and thickening section or wedge of unconsolidated to weakly consolidated sediments of the Atlantic Coastal Plain. The shallowest aquifer (Columbia) occurs within a sheet-like body of sandy sediment that overlies the sediments of the wedge. Notably, significant quantities of effluent from septic systems are discharged into the Columbia aquifer which then migrates to streams or deeper aquifers. The unconfined aquifer is the most susceptible to human influence. In general, these hydrologic characteristics would indicate that what happens on the landscape ends up in ground and surface water usually faster and more directly than areas in northern New Castle County.

![Figure 8-3: Generalized Cross-section of Aquifers in Southern New Castle County, from Northwest to Southeast](Source: Water Supply and Demand in Southern New Castle County through 2050. Water Supply Coordinating Council / U of D WRA, 2019)

Groundwater

At present, all sources of potable water in the study area are from groundwater aquifers. These sources not only supply existing demand but are projected to supply planned growth through 2050.

A DNREC database (Delaware Department of Natural Resources and Environmental Control, 2006) indicates over 4,600 individual wells are dispersed throughout southern New Castle County that provide 1.5 mgd of drinking water.
Over 3,100 individual wells are distributed north of the MOT area. In addition, public water suppliers provide significant community water service to much of the northern portion of the study area (in much of west wing and core). Providers include Artesian Water Company, Tidewater Utilities, and the governments of Delaware City, Middletown and New Castle County. Peak daily demand for these suppliers is approximately 8.2 mgd. Finally, self-supplied non-community wells (for restaurants, stores, hotels, offices, etc.) and irrigation water supplies (for farms and golf courses) consume approximately 0.4 mgd.

Based on anticipated population growth, demand on public water purveyors is expected to grow. In 2010, public water suppliers had existing supplies (15.7 mgd) that exceeded peak daily demands (8.2 mgd), thus accounting for a healthy surplus (+7.5 mgd). By 2050, the public water purveyors are expected to see peak daily demands reach 13.6 mgd, which will still result in a surplus of 2.1 mgd.

A recent study commissioned by the County from the University of Delaware Water Resources Center (UCWRC)(September 23, 2019), concluded that based on population growth estimates, there will be sufficient groundwater availability to meet peak demands from public water supply uses provided that:

- Public water supply and irrigation wells are pumped in accordance with Delaware Department of Natural Resources and Environmental Control (DNREC) water allocation limits. DNREC should continue to monitor demands and water levels from allocated public water supply wells and irrigation wells so as not to diminish the capacity of irrigation wells for producers that wish to sustain farming in southern New Castle County.
- Water purveyors interconnect between and within systems, add new finished water storage and aquifer storage and recovery, and transport water from aquifers with excess availability south of Townsend to growth areas between Middletown/Odessa and the Chesapeake & Delaware Canal.

While supply would seem to be sufficient for the duration of the planning period, quality of groundwater sources has been the subject of interest among governmental authorities in recent decades. In southern New Castle County the conversion of agricultural lands has given rise to the desire to monitor groundwater quality. In 1996, the Delaware Geologic Survey began a study entitled "Design, Development and Implementation of a Ground-Water Quality Monitoring Network for Southern New Castle County, Delaware".

The DGS study initially identified the location of existing wellheads in the study area and established monitoring criteria. The study area included the more than 200 square miles of New Castle County south of the C & D Canal. Past research documented elevated nitrate concentrations in the unconfined aquifer system. The DGS study indeed found higher levels of nitrate-nitrogen, evidence of two herbicides, atrazine and triazine, and higher than desirable pH levels, all of which are likely the result of human activity.

These issues existed prior to the County taking steps to protect wellhead areas, and as such it is anticipated that the Water Resource Protection Area regulations the County put in place and subsequently revised (as discussed below) are adequately addressing water quality problems.
## Transportation: Existing Conditions and Programs

### PLANNED ROAD IMPROVEMENT PROJECTS

Table 8-6: Planned Road Improvement Projects

<table>
<thead>
<tr>
<th>#</th>
<th>Project</th>
<th>WILMAPCO 2019-2022 TIP</th>
<th>WILMAPCO 2050 RTP</th>
<th>DELDOT 2020-2025 CTP</th>
<th>SNCC TID</th>
<th>EASTOWN TID</th>
<th>WESTOWN TID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lorewood Grove Road East: Hyetts Corner (Rd 412A) - SR 1 - Improve to two 11-foot lanes with 8-foot shoulders and a 10-foot multi-use path on one side of the roadway</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ratledge Road - Widen to 2-12' lanes, shoulders and 10' bike path</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hyetts Corner Road - Widen to 2-12' lanes, 8' shoulders and 10' bike path</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Jamison Corner Road - Widen to 2-12' lanes, 8' shoulders and 10' bike path, with relocation at Boyds Corner Road</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Boyds Corner Road - Cedar Lane Road to US 13 - Improve to four 12-foot lanes with 10-foot shoulders and a 10-foot multi-use path on both sides</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Cedar Lane Road: Marl Pit Road to Boyd’s Corner Road - Improve to two 12-foot lanes with 8-foot shoulders, 10-foot multi-use path on west side of the roadway, and construction of a roundabout at the intersection of Cedar Lane Road and Marl Pit Road</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Shallcross Lake Road: Improve to two 11-foot lanes with 5-foot shoulders and a 10-foot path south of Greylag Road; relocate between Greylag Road and Boyds Corner Road</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>SR 896/Bethel Church Interchange - Improve</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Project</td>
<td>WILMAPCO 2019-2022 TIP</td>
<td>WILMAPCO 2050 RTP</td>
<td>DELDOT 2020-2025 CTP</td>
<td>SNCC TID</td>
<td>EASTOWN TID</td>
<td>WESTOWN TID</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>9</td>
<td>highway safety by removing thru traffic from local roads, while minimizing environmental impacts and accommodating existing and planned development</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>SR 299: SR 1 to Catherine Street - Widen to two lanes in each direction from SR 1 to Cleaver Farm Road, and a two-way center turn lane will be added from Cleaver Farm Road to Catherine Street along with pedestrian and bicycle improvements</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Silver Lake Road - Eastown TID</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>East Lake Street - Eastown TID</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>East Green Street - Eastown TID</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>West Green Street - Eastown TID</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Connector from Levels Rd east of US 301 Bypass interchange to Merrimac Ave.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Connector from Merrimac Ave./ Industrial Rd west to Levels Rd</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Road from #15 Connector to Levels Road roundabout</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Right turn bypass lane at Levels Road roundabout</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>US 13: Duck Creek - SR 1 - controlled access, sidewalk, bike access, and other amenities</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Lorewood Grove Road West: Breakwater Drive - Rd 412A - Improve to two 11-foot lanes with 5-foot shoulders and 10-foot bike path</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>US 301 Spur - New limited access highway</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Wiggins Mill Road - Improve roadway, improve non-motorized access</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Levels Road - Widen roadway from Middletown-</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Project

Warwick Road/Old US 301 to where project #17 begins, adding turn lanes and widening to two travel lanes in each direction.

<table>
<thead>
<tr>
<th>#</th>
<th>Project</th>
<th>WILMAPCO 2019-2022 TIP</th>
<th>WILMAPCO 2050 RTP</th>
<th>DELDOT 2020-2025 CTP</th>
<th>SNCC TID</th>
<th>EASTOWN TID</th>
<th>WESTOWN TID</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>SR 1 - Expand and reconstruct roadway from Tybouts Corner to the Roth Bridge</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## NEW CASTLE COUNTY BICYCLE PLAN

As noted in the body of the report, in summer 2018, WILMAPCO launched development of the New Castle County Bicycle Plan, with the goals of:

- improved safety, access and comfort of bicycling
- prioritization of infrastructure improvements including pathways, on-street routes, and end of trip needs such as bike parking.
- identification of programs and policies for education, enforcement and encouragement

WILMAPCO has worked with DelDOT to map existing bicycle routes and score their “level of traffic stress” (LTS) to show places that are and aren’t comfortable for most cyclists. LTS is used to categorize roads by the type of riders who are willing to use them based on conditions such as traffic volume and speed, presence of bike lanes, bike lane width, and presence of a physical barrier between the bike lane and traffic (Table 8-7). Ideally, a person will eventually be able to comfortably ride a bike to most of their daily destinations on a network of low-stress streets and trails.

<table>
<thead>
<tr>
<th>LTS Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTS Level 1</td>
<td>Most children can feel safe on these streets</td>
</tr>
<tr>
<td>LTS Level 2</td>
<td>The mainstream “interested but concerned” adult population will feel safe on these streets</td>
</tr>
<tr>
<td>LTS Level 3</td>
<td>Streets that are acceptable to the “enthused and confident” riders who still prefer having their own dedicated space</td>
</tr>
<tr>
<td>LTS Level 4</td>
<td>High stress streets with high speed limits, multiple travel lanes, limited or non-existent bikeways and long intersection crossing distances</td>
</tr>
</tbody>
</table>

Table 8-7: Level of Traffic Stress Definitions

Key Points:

- While almost half of existing roads are classified as LTS Level 1, nearly all of these are limited to subdivision streets.
- Of the remaining network, roughly 44% fall into levels 3 and 4, which are suitable only for experienced riders or not suitable at all.
- As a result, connectivity between neighborhoods and other destinations can be difficult.
Two bicycle plan workshops were held in southern New Castle County: in Townsend on June 6, 2018 and at the Southern New Castle County Master Plan Information Session in Odessa on October 17, 2018. In addition to those workshops, an online survey was launched in early 2019 that provided feedback from 289 respondents.

Figure 8-4: Level of Traffic Stress for Bicycling on Southern New Castle County Roadways (Source: Delaware Department of Transportation)

Maps that were on display at the October 7, 2019 Southern New Castle County Master Plan workshop showed the existing sidewalk and trail network in the study area and drew attention to the gaps in the network. Many neighborhoods and subdivisions have connected networks within their boundaries but lack connections to destinations, such as schools, parks and retail areas. There are also segments of sidepaths and trails along connector roads, but full trail connections between these areas and municipalities are also missing. Likewise, a system of trails and sidepaths that make connections to the broader New Castle County trail network are also absent. It is envisioned that residents will one day be able to leave their neighborhoods and walk or bike to municipalities and even to connections that lead them to the St. Georges Bridge, where they can safely cross the C&D Canal and connect with the extensive sidepath and trail system that exists in northern New Castle County and beyond.
A draft report is currently being developed, with completion expected in January 2020. It is expected that the Southern New Castle County Master Plan development process will allow further discussions with residents and more specific areas of need will be highlighted and documented.
TRANSIT RIDERSHIP

Due to the low population density found in southern New Castle County, the park and ride lots along SR 1 have had the most consistently strong ridership of all stops in the study area: Boyds Corner (82 riders/day), SR 299 Odessa (265 riders/day) and Smyrna (199 riders/day). The bus stop at Merrimac Avenue serving Amazon also has higher ridership, at 96 riders/day (Figure 8-6). Table 8-8 shows the results of the most recent annual park and ride usage survey performed by WILMAPCO.

At this time, DART planners are working on proposals to modify and/or enhance some of the routes serving southern New Castle County. DART’s planners attended the Master Plan public workshop on October 7, 2019 to share these ideas with residents and record their comments. A more detailed presentation has been planned as part of a Community Conversation at the Appoquinimink Library on October 30, after which DART will solidify their service proposal for their next service change, which will occur in May 2020. Another public hearing will be held in early 2020 to present the final proposal.

Table 8-8: Park & Ride Usage, Spring/Fall 2018

<table>
<thead>
<tr>
<th>Location</th>
<th>Parking Spaces</th>
<th>2018 Usage</th>
<th>2018 % Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE 1 and Pole Bridge Rd. (New Boyd’s Corner)</td>
<td>116</td>
<td>57</td>
<td>49%</td>
</tr>
<tr>
<td>Smyrna Rest Stop US 13 &amp; SR1</td>
<td>77</td>
<td>38</td>
<td>49%</td>
</tr>
<tr>
<td>Odessa Park and Ride (DE 1 and DE 299)</td>
<td>102</td>
<td>64</td>
<td>62%</td>
</tr>
<tr>
<td>Pine Tree Corner, Route 13, Townsend</td>
<td>43</td>
<td>9</td>
<td>21%</td>
</tr>
</tbody>
</table>

Transit stop usage is classified as the total number of riders who board and depart the bus at each stop. Ridership data provided by the Delaware Transit Corporation (DTC). Data being used in this analysis is from ridership data collected in May 2018, surveying weekday inbound riders.
Environment & Preservation: Existing Conditions

PHYSIOGRAPHY

Southern New Castle County lies within the Atlantic Coastal Plain physiographic province. The Coastal Plain is characterized by relatively flat terrain and land elevations that are generally less than 100 feet above sea level. The Coastal Plain is comprised of two distinct physiographic units, the Coastal Lowlands and the Interior Lowlands. The Coastal Lowlands, generally that area to the east of Delaware Route 1, contain an extensive wetlands system, and the land elevations do not exceed approximately 50 feet above sea level. The Interior Lowlands make up the remainder of Southern New Castle County, to the west of Delaware Route 1, and are characterized by level terrain, wide meandering stream valleys and elevations of between 50 and 100 feet above sea level. It is in this area that the majority of the County’s valuable agricultural lands are located, principally that area known as the “Levels”. The Levels are located generally west of Delaware Route 896 between Townsend and the Chesapeake and Delaware Canal. Most of the land in the Coastal Plain contains slopes of less than 3%, a small amount in the range of 3 to 8% and few areas with slopes between 8 and 15% and 15 to 25%. In no instance do slopes in excess of 25% occur in the Coastal Plain.

Geologically, the Coastal Plain is comprised of sedimentary rocks that were deposited by the decomposition of the Piedmont region (the physiographic province to the north), as well as through marine deposits and glacial melting. These rocks are loose, or unconsolidated, sediments that were deposited in layers of varying portions of sand, gravel, silt and clay. Bedrock below the Coastal Plain is very deep, sloping southeastwardly from the Piedmont Province toward the Atlantic Ocean.

The soils in the Coastal Plain and in Southern New Castle County in particular are the result of the weathering of the parent geologic material, transported and deposited material, and the decomposition of plant and animal life. These combined forces over time produced a pattern of soil types with similar characteristics that have influenced the settlement patterns of Southern New Castle County.

The hydrologic features of Southern New Castle County consist of its major creeks and rivers, floodplains, lakes and ponds, wetlands and aquifer recharge areas. These features together with the underlying geologic conditions and the resulting landforms constitute the natural morphology of Southern New Castle County and have helped shaped its historic settlement patterns.

Another important hydrologic feature of Southern New Castle County is that the area lies within two different drainage basins or regions. While most of the land area is in the Delaware Bay Drainage Region, a smaller area generally to the west of Delaware Route 896 and extending the entire length of Southern New Castle County lies in the Chesapeake Bay Drainage Region.

The combination of the physiographic, subsurface and surface geologic structures and resulting landform and hydrologic conditions of Southern New Castle County have shaped its natural landscape as well as influenced its pattern of human settlement. Together the natural landscape and human interaction with it, in the form of settlement patterns, provide the character of southern New Castle County.

GEOLOGY

Geologic characteristics affect such features as water bearing ability, structural carrying capacity, and agricultural yield potential. The surface geology is made up of soils, which are the weathered decomposition and disintegration of the exposed rock layer. Subsurface geology is especially important in this study area because of an exclusive dependence on groundwater for domestic, agricultural and industrial purposes. The oldest and deepest of the
sedimentary layers is the Potomac formation. The ingredients of this layer are sands, silts and clays which have originated from marine deposits. High water tables are characteristic of this formation. In addition, unconfined aquifers, i.e. those aquifers relatively near the surface which draw from broad areas of porous materials containing water, exist in this formation.

The Columbia formation is the primary surface layer of geology found in the Coastal Plain. It is made up of sands and gravels of glacial or wind-blown origin. Other than its significance as the exposed surface layer, the Columbia grouping of formations is the material which serves to filter and conduct surface water into the aquifers found in deeper formations. The condition of the upper layers plays a major role in the quality of the groundwater. Contamination from inefficient septic systems, industrial waste, agricultural chemicals, or saline intrusion can all have negative effects on the groundwater aquifers. Since the aquifers are essentially subsurface storage containers made up of sands, gravels and rocks, the quality of the water can be affected by degradation over time.

SOILS

The Atlantic Coastal Plain comprises 100% of the geography of Southern New Castle County and five soil associations have been identified.

The MATAPEAKE-SASSAFRAS-URBAN LAND association occupies the largest area of Southern New Castle County in the upland area of the northwest region of the study area. This is also the most prevalent association found in the entire County. The series is characterized by upper layers of silt loam to a depth of several feet. A wide variety of crops do well in this soil, with typically high yields. Erosion of this soil can be problematic, however the lack of significant slopes reduces concerns about erosion in most areas, other than in stream channels during times of surface runoff.

The second largest association in the study area is SASSAFRAS-FALLSINGTON, found in the south-central area, between Townsend and Smyrna. This series contains moderate amounts of silt and clay. As with the Matapeake series, this series has strong agricultural productivity and is susceptible to erosion where slopes exist. Much of this series is found in level conditions.

The third most prevalent association is the FALLSINGTON-SASSAFRAS-WOODSTOWN, found in the southwest corner of the study area. This association is characterized by poorly drained soils and, like previous associations, is an upland Coastal Plain soil. This soil can be productive when properly drained by either ditches or tiles. The water table beneath this area fluctuates seasonally, causing it to dry slowly in the spring. Its agricultural use is less favorable than other soils found to the north.

A large tidal marsh occupies much of the eastern boundary of the study area and is strongly associated with adjacent series known as the KEYPORT-ELKTON association and the TIDAL MARSH association. Despite its proximity to the tidal marsh, the Keyport-Elkton association is variable in its drainage characteristics. These associations can be problematic for agriculture and extensive construction, although small areas of such can be found.

For the most part, the soils found in Southern New Castle County are productive agricultural soils, as evidenced by the historic proliferation of farms in the area. Most of the area suitable for farming has long been cleared of forest and has seen a variety of crops. These soils are also quite suitable for various forms of development, including structures, roads and utilities. This suitability is a dilemma for agricultural interests, as development pressures on these lands have contributed to land conversion in recent years.

Important distinctions between the highly productive agricultural soils and coastal-influenced soils offer guidance on appropriate uses of land.
BIOTIC RESOURCES

The presence of forests and other vegetative resources in the study area is principally the product of two factors, the first being the reduction of vegetative cover for agricultural purposes and the second being the preservation of natural areas by governmental and conservation organizations. Together, these factors have created a pattern of vegetative cover that is diverse, fragmented and often related to other natural systems.

A variety of forests are associated with water drainage areas, primarily because the underlying soils, slopes and moisture do not support agriculture. In many cases, these wooded areas provide a filtration buffer for the streams, deterring erosion and stabilizing stream banks. While some forests are found in the tidal wetlands near the Delaware River, the vast majority of forests in the study area are to be found in the southwest region, south of Townsend. Here, poor natural drainage in a number of areas has resulted in land that is unsuitable for either agriculture or development. These forests contain numerous species of oak, as well as yellow poplar, beech, sweet gum, and black gum. Some of the most significant forests in the study area are found in the state-owned Blackbird State Forest, where forest management techniques are employed and passive recreation is encouraged. The State of Delaware actively pursues the acquisition of forest lands statewide for the above purposes, often in cooperative ventures with federal and private organizations. Over the years, the state and county have had modest success in protecting both forested areas and other critical natural areas through both purchase and regulatory programs.

Other than stands of forest, vegetation is often concentrated along waterways in riparian corridors. Trees in these areas range from large sycamores and willows to smaller alders, hollies, and maples. The tree root systems provide the stream banks with necessary stability and the tree canopy shades the water, maintaining lower temperatures conducive for fish and insect breeding. One of the most common plants to be found in the wetlands areas is phragmites, a reed-like plant that dominates other plant communities and expands into vast areas. Unfortunately, the common form of phragmites found in most areas are non-natives that tend to outcompete other native plants, displace native animals, and dominate wetlands areas when not controlled.

Due to the lack of extensive naturally vegetated areas in the study area, wildlife is correspondingly limited. This does not mean there are no wildlife to be found, however; mammals, reptiles, birds, fish or insects are abundant in most of the areas not in agriculture or development. The tidal marshes of the Delaware River are not only home to much wildlife, but also attract considerable numbers of migratory birds. The abundance of plant life and fish in the tidal marshes provides food and a resting point along the Atlantic flyway. Small mammals, represented by the muskrat, inhabit the marshes, as do deer and raccoon. Carp is an abundant fish in these waters, as are white catfish, weakfish, channel catfish, and eels. Many of the marshes are also home to a variety of birds, such as ducks, egrets, herons, and birds of prey.

WATER RESOURCES

Drainage Basins/ Watersheds

The Coastal Plain is a geologic province characterized by broad, flat drainage basins with complex water courses. Within the study area of Southern New Castle County, there are eleven distinct watershed areas with the larger drainage basins of the Delaware and Chesapeake Bays. The majority of these watersheds drain to the Delaware River, while smaller areas drain both to the C and D Canal at the northern boundary and to the Chesapeake Bay through Maryland to the west. These waterbodies are characterized as having minimal gradients and originating in the Atlantic Coastal Plain. Their basins tend to be small in area, as compared to those of the Piedmont Region in northern New Castle County. This distinction is a result of the rather flat topographic features which can, at times, even result in drainage being shared or split into two adjacent watersheds.
The following eleven watersheds make up the study area: 1) Chesapeake and Delaware Canal, 2) Augustine Creek / Silver Run, 3) Drawyers Creek, 4) Appoquinimink River, 5) Blackbird Creek, 6) Cedar Swamp, 7) Smyrna River, 8) Cypress Branch, 9) Sassafras River, 10) Sandy Branch / Great Bohemia Creek, and 11) Back Creek.

Streams and Rivers

The eastern boundary of the study area is the Delaware River. Major creeks and rivers of the study area include the Appoquinimink River, Smyrna River, Blackbird Creek, Drawyers Creek, and the Chesapeake and Delaware Canal (formerly St, Georges Creek). Each one of these has an elaborate system of tributaries that have affected the way land has been used.

The C and D Canal is a manmade navigational channel that connects the northern reaches of the Chesapeake Bay (the Elk River) with the Delaware River. The mainstream length of the canal is 12.2 miles, and the channel is 450 feet wide and 35 feet deep. The Appoquinimink River is approximately 16 miles long and originates in the central part of the study area west of Middletown. It flows through a complex system of marshes before merging with the Delaware River. The Smyrna River is 10 miles long and finds its origin near Clayton. This river makes up most of the southern boundary of New Castle County. Blackbird Creek is approximately 16 miles in length and originates in the Blackbird Forest in the southwest portion of the study area. Drawyers Creek, which is approximately 6 miles in length, merges with the Appoquinimink River before discharging into the Delaware Bay. Much of the drainage of area of Drawyers Creek is comprised of developed land in and around Middletown.

Along the western boundary of the county are several drainage areas associated with rivers that discharge into the Chesapeake Bay. The Chester River begins in New Castle County and flows for 2 miles before entering Maryland. Of lesser magnitude are the Great Bohemia Creek and the upper reaches of the Sassafras River. Along with Back Creek, these waterbodies drain the western regions of Southern New Castle County.

Lakes, Ponds and Impoundments

Several significant water impoundments exist in the central portion of the study area. Two of these are within the Appoquinimink Creek watershed on two of its branches. Noxontown Pond was created by a man-made dam on the Appoquinimink Creek on lands of St. Andrews Academy, a private preparatory school. This is the largest water impoundment in the study area and one that has been monitored regularly, due to its association with the school. Noxontown Pond serves many purposes for St. Andrews, including use as a biology classroom, recreation for the school's students, and as the site for regional rowing regattas. The water quality of the pond remains high, due in part to St. Andrews' ownership of both the pond and a majority of the watershed area around it. A second and somewhat smaller impoundment lied just north of Noxontown Pond on a northern fork of the Appoquinimink Creek. This waterbody, known as Silver Lake, was heavily impacted in 1999 when Hurricane Floyd destroyed its dam structure. The State Division of Highways reconstructed the structure, filled the lake, and repaired Silver Lake Road which crosses the dam. A third impoundment, also part of the same Appoquinimink watershed, is Shallcross Lake, which was created by the damming of Drawyers Creek.

Floodplains

Floodplains are typically defined as that portion of a stream valley that is covered in water when a river of stream overflows its banks. Such flooding can occur as a result of heavy rains of melting snow. Floodplains in the study area are characterized as being either coastal or inland (riverine).

Inland floodplains serve as natural conveyance areas that store floodwaters and release them to downstream areas. Naturally vegetated inland floodplains can also act to filter runoff and collect and hold nutrients and other chemicals
and pollutants. Coastal floodplains help to preserve the stability of the shoreline and encompass other areas such as tidal wetlands.

The locations of floodplains have been determined by FEMA in studies that evaluated topography, surface water characteristics, and historical flood data. Each of these floodplains is associated with a stream, creek or river. Most of the floodplains in Southern New Castle County are broad in width, due to the relatively flat adjacent terrain. In addition, several of these floodplain systems extend well past the central part of the study area, again attesting to the lack of extreme topographical features.

**Wetlands**

Two forms of wetlands are generally found in Southern New Castle County. Tidal Marsh wetlands correlate with the existence of streams and drainageways associated with the Delaware River. The second type is found in the southwest corner of the study area where a diverse, but "spotty" pattern of wetlands is found. These are known as Delmarva Bays or Coastal Plain wetlands. Coastal plain wetlands are generally made up of low permeability soils coupled with a high-water table. Correspondingly, wetland plant communities are also prevalent in the area.

The accompanying mapping depicts the extent of mapped wetlands in the study area pursuant to the National Wetlands Inventory (NWI). Although this mapping is generally accurate, not all wetlands are shown on NWI maps. The determination of site-specific boundaries by application of criteria found in the Unified Development Code (UDC) would yield a far more precise boundary, as well as depict those areas not referenced on the NWI map. The criteria used to designate wetlands are presence of hydric soils, indicator plants, or water. A landowner seeking approval of development plans must engage the services of a qualified wetlands delineator to prepare the necessary wetland boundary mapping.

Among other benefits, Wetlands provide a rich and abundant environment for the propagation of small mammals, birds, insects, and reptiles. Connectivity of wetland communities is of prime interest because wetlands are often part of biodiversity corridors, those areas that allow migration of wildlife and connect to other habitat areas or wetlands.

Approximately 6,000 acres of wetlands, 5,000 areas of natural areas, and 7,000 acres of floodplain would be impacted under current planning policies. Existing protections for these resources include Water Resource Protection Areas (WRPAs) and Riparian Buffer Areas.

**Water Resource Protection Areas (WRPAs):** The two types of WRPAs found in Southern New Castle County are Class A Wellhead Protection Areas and Recharge Area WRPAs. Among other things, WRPA requirements limit impervious cover, require precautionary measures to prevents leaks and spills, restrict rates of stormwater runoff, limit municipal and industrial waste disposal, and require agricultural operations to have USDA-approved agricultural conservation plans.

- Wellhead Protection Areas are surface and subsurface areas surrounding public water supply wells or wellfields, where the quantity or quality of groundwater moving towards these wells or wellfields may be adversely affected by land use activity. Such activity could result in reduction of recharge or lead to the introduction of contaminants into the public water supply. While the county has identified three classes of wellhead protection areas, southern New Castle County only contains Class A Wellhead areas, which consist of areas within a 300-foot radius of all public supply wells, classified as community water systems by the State of Delaware.
• Recharge WRPAs are areas designated as having the best potential for groundwater recharge. Such areas typically are in close proximity to surface waters and areas of highly permeable geologic deposits: coarse sand and coarse-to-medium sand.

**Riparian Buffer Areas:** To a great extent, the mapping of Riparian Buffer Areas (RBA) in the study area is a composite of other natural features. Regardless, it is important to understand the extent and value of the RBA network. The RBA is comprised of varying zones on either side of a watercourse that contain vegetation; such areas filter sediment, decrease erosion, provide shade to reduce water temperatures, and supply habitat for terrestrial and aquatic organisms. RBAs generally encompass floodplain land and protect the unique settings of wetlands, ponds and lakes. Riparian Buffer Areas are extremely important to the environmental health of the region’s drainageways. Creeks support an abundance of wildlife, which depend on suitable conditions to thrive. This healthy system is also highly dependent on the bank stabilization afforded by tree and shrub roots. The existing network of forested riparian areas tends to be very dense along portions of the Delaware River and the Chesapeake Bay drainage area.
COUNTY AND STATE IDENTIFIED PROTECTION AREAS

Critical Natural Areas

The identification of significant natural areas in New Castle County began in 1972 with a statewide inventory conducted by the Delaware Nature Society (DNS). In 1975 The New Castle County Natural Areas Study was prepared in conjunction with the Department of Parks and Recreation. Kent and Sussex Counties were also inventoried in 1976 and the combined three county study was published by DNS in 1978 as Delaware’s Outstanding Natural Areas and Their Preservation. This document contained goals, criteria, and priorities for a program of natural areas preservation. Shortly after the document’s publication, legislation was enacted at the State level assigning responsibility for managing a Natural Areas Preservation System to the Department of Natural Resources and Environmental Control (DNREC).

Currently, the State includes such areas in its Natural Areas Inventory. For regulatory purposes, New Castle County regards these areas as Critical Natural Areas.

Under the County Code, development proposals that contain a designated Critical Natural Area (CNA) must undertake an inventory of the site and propose measures to mitigate any disturbance.

The following is a list of critical natural areas identified in the DNS study. Some of these sites are small in scale and include unique habitat areas, archeological sites and geologic areas. Others are large areas of coastal wetlands.

- Biggs Farm - This area along the C & D Canal contains an outcrop of fossilized marine fauna discovered during canal widening and later erosion. It has regional Atlantic Coastal Plain significance due to the 111 species of mollusks found there.
- Thousand Acre Marsh - This 1160-acre marsh containing 70% open water is the habitat of muskrats and small numbers of mink and otters. The area is highly attractive to waterfowl and other birds whose breeding and feeding habitat is freshwater marsh. Native American artifacts have also been found, indicating seasonal encampments.
- Augustine Creek Marshes- This highly productive area is significant for being an essential buffer and feeding grounds for an adjacent Great Blue Heron nesting colony. The colony contains over 100 nests, making it rare in the United States. The marsh is also the site of several prehistoric sites.
- Silver Run Marshes - This is a marsh complex that has remained essentially unaltered by man. It has good water quality and serves as a prime area for fish reproduction and juvenile growth.
- Appoquinimink River Marshes - These marshes, including the Blackbird Creek system, are the only large marsh system in Delaware remaining essentially undisturbed by people. It has been recognized nationally due to the size and quality of its habitat. The Appoquinimink River varies from 140 to 230 feet in width with a 15-foot deep channel. The area is important as a nursery for several species of fish including catfish, weakfish, channel catfish, spot and eels. Breeding birds include several species of ducks, egrets, herons, and birds of prey. Included in the system is the Hell Island site, an archaeological site of many artifacts of the period between 600 and 900 AD, and the Marl Pit site, which contains a mineral deposit of Glauconite, or greensand, a complex silicate mineral.
- Pleistocene Plant deposits - This is the only known outcrop of non-marine fossils of the Pleistocene Epoch on the Delmarva Peninsula.
- Noxontown Pond - This impoundment was created in 1736, covers approximately 500 acres, and is on the property of St. Andrews School. See additional discussion under the section titled “Lakes, Ponds and Impoundments”.

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• Cedar Swamp - Until a hurricane in 1878 breached its protective barrier beach, Cedar Swamp was freshwater and supported an abundant growth of Atlantic white cedar. Damage from the storm included the destruction of Collins Beach, a popular recreation destination. While several remnants of the white cedar forest still remain, the area today supports waterfowl and raptors, as well as raccoon and deer populations.

• Blackbird Delmarva Bays - This area, formerly known as Tyabout Carolina Bays, is sometimes referred to as sinkholes, whale walls, round ponds, black bottoms, or lobololles. The bays are actually round with oval depressions and rims and vary in elevation from a few feet up to 20 feet at the center of the depressions. These geologic enigmas are about an acre in area and can be up to 4 feet deep. They are located in the Blackbird State Forest and are surrounded by mixed deciduous trees of mostly oak and hickory.

• Blackbird Creek – This 200-foot wide waterbody is a largely undisturbed creek system of marshes. The creek joins the Delaware River just south of the Appoquinimink River and encompasses many small tributaries in the southwest corner of the study area.

State Resource Areas

State Resource Areas (SRAs) are comprised of some of Delaware’s most environmentally valuable undeveloped lands and include parks, natural areas, conservation areas, certain wetlands, forests, cultural and geological resource areas. SRAs are important as they provide vital economic benefits, provide wildlife and plant habitat, protect water and air quality and generally enhance the quality of life of the people of Delaware. Such areas were originally designated by the state as a part of the implementation of the 1990 Delaware Land Protection Act (7 Del. C. §75).

Historically, such areas were considered primary candidates for protection and preservation due to the economic, social, and environmental benefits to all Delawareans. In New Castle County, SRAs are largely made up of Critical Natural Areas.

Pursuant to the Land Protection Act, it is the State’s responsibility to provide the counties and municipalities guidance on how to meet the requirements of the Acts. The Act clearly stipulates a County role in protecting SRAs and the County has indeed provided a significant level of protection to Critical Natural Areas. At the state level, SRA’s help guide the purchase of specific properties through the state’s Open Space Council.

Much of the state’s non-regulatory approach to protecting these areas comes from DNREC’s commitment to preserving the state’s coastal zone, which have also been protected by Delaware's Coastal Zone Act for over 40 years. Due in large part to the legacy of that landmark legislation, more than half of the Delaware Bayshore's acreage remains undeveloped, and is today protected as state or federal wildlife lands.

In addition, DNREC has been implementing an approach to assess, manage, and protect Delaware's natural resources. This approach, known as Whole Basin Management, encourages the various programs from throughout DNREC to work in an integrated manner to assess different geographic areas of the state defined on the basis of drainage patterns.

Finally, the Delaware National Estuarine Research Reserve (DNERR) is one of 29 National Estuarine Research Reserves across the country whose goal is to establish, protect, and manage natural estuarine habitats for research, education, and coastal stewardship. One of the two main components of the DNERR is the Blackbird Creek Reserve in Townsend. This site includes both brackish and freshwater estuaries, and represents the diverse estuarine ecosystems found throughout the Mid-Atlantic region.
ECOSYSTEM AND HABITAT

The presence of forests and other vegetative resources in the study area is principally the product of two factors, the first being the reduction of vegetative cover for agricultural purposes and the second being the preservation of natural areas by governmental and conservation organizations. Together, these factors have created a pattern of vegetative cover that is diverse, fragmented, and often related to other natural systems.

Over the years, the state and county have had modest success in protecting both forested areas and other critical natural areas through both purchase and regulatory programs. Today, tree canopy cover ranges widely: 0% cover on farms and wetlands to > 40% in mature neighborhoods and > 70% in forests.

Due to the lack of extensive naturally vegetated areas in the study area, wildlife is correspondingly limited. This does not mean there are no wildlife to be found, however; mammals, reptiles, birds, fish or insects are abundant in most of the areas not in agriculture or development. The tidal marshes of the Delaware River are not only home to much wildlife, but also attract considerable numbers of migratory birds. The abundance of plant life and fish in the tidal marshes provides food and a resting point along the Atlantic flyway. Small mammals, represented by the muskrat, inhabit the marshes, as do deer and raccoon. Carp is an abundant fish in these waters, as are white catfish, weakfish, channel catfish, and eels. Many of the marshes are also home to a variety of birds, such as ducks, egrets, herons, and birds of prey.

SEA LEVEL RISE VULNERABILITY

Sea level rise (SLR) is one of the most significant consequences of climate change, Delaware is especially vulnerable to the effects of SLR due to its flat topography, low mean elevation, and significant community development and infrastructure investments along the coast. Currently Delaware statewide SLR planning outlines three possible scenarios that correspond to increases of mean sea elevation by the year 2100: 1.53 m / 5.02 ft (high scenario), 0.99 m / 3.25 ft (intermediate scenario), and 0.52 M / 1.71 ft (low scenario).

Land east of Route 1 and adjacent to the Delaware River has high concentrations of environmental resources and is at risk of inundation resulting from sea level rise (Figure 2-32).[1] Much of this land is protected by provisions in the Unified Development Code (Table 40.10.010), as well as through existing conservation easements.


10/16/19
Figure 8-7: Sea Level Rise Impact Areas (Source: Delaware Geologic Survey, Inundation Model, 2017)
AGRICULTURAL RESOURCES AND LAND PRESERVATION

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) defines prime farmland as follows:

Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.[2]

Southern New Castle County possesses some of the most productive agricultural land in the state. As a whole, Delaware historically contained the highest percentage of Class I and II soils of any state in the nation. Large expanses of farmland covered the landscape and coexisted with small agrarian towns and crossroads. Productivity was high and contributed significantly to the state’s economy.

Much has changed in the intervening years, however. As the northern portion of the County built out and transportation improvements made access to Southern New Castle easier, the building industry availed itself of cheap land and began subdividing prime agricultural land. As of 2017, approximately 21% of the County was farmland and the majority of it was in Southern New Castle County (2017 Census of Agriculture, USDA). Between 2002 and 2017, the County lost 5% of its remaining farmland. The loss of agricultural land is permanent and leads to fragmentation of farms and the loss of supporting farm industries and businesses. As farms become more fragmented and isolated, conflicts arise from increased traffic, complaints of odors, concerns over hours of operation, and a whole host of other issues arising from a suburbanizing landscape.

The NRCS maintains a soil map that designates prime farmland based on soil type. The 2018 update to the NRCS soil survey map indicates concentrations of prime farmland south of Middletown and in the undeveloped portion of the west wing. As of today, New Castle has 361 farms comprising 67,455 acres of land (2017 Census of Agriculture, USDA).

In light of all this, efforts to preserve the states’ agricultural industries remain strong and significant preservation tools exist both at the state and county level. One of these tools is the Delaware Agricultural Lands Preservation Foundation (DALPF). Established in 1991, DALPF has two major components: agricultural preservation districts and agricultural conservation easements. Districts are created by a voluntary agreement to keep land in agricultural use for at least ten years. Lands are selected under a review and approval process that includes satisfying a scoring system standard. No payment is made to the landowner, but he/she benefits by exemption from real estate transfer, county, and school taxes, as well as protection against nuisance lawsuits.

To permanently preserve farmland, DALPF purchases development rights, imposing a permanent conservation easement on the land. The land must first be in an agricultural preservation district to be considered for a

conservation easement. The purchase price is based on the appraised value of the development rights and selections are based on the highest discounts offered by property owners.

New Castle County established a volunteer farmland preservation program in 2003 to purchase easements that restrict subdivision of land, and in 2006 began a partnership with DALPF by donating county funds for farmland preservation on a one-to-one matching basis. The County currently holds approximately 940 acres of agricultural easements and in partnership with DALPF another 13,000 acres have been eased. While the County program is no longer in effect, the County instituted a Land Preservation Task Force to examine ways to protect open space and agricultural land. Time will tell regarding what policies and programs are considered but opportunities to better protect farmland are being considered.

Of the more than 122,000 acres of land in the study area about 34% is protected as open space, parkland or under agricultural easement. Open space has also been established in conjunction with the recordation of residential development plans and is classified as private (maintained by a maintenance corporation) or public (owned and maintained by New Castle County). Of historic significance is the County’s rezoning of approximately 80,000 acres in Southern New Castle County to SR (Suburban Reserve) to encourage preservation. SR zoning is a low-density district permitting a minimum lot size of 5 acres for individual residential lots, or “open space” subdivisions requiring 60% open space. Sewer service is not available in this area and development activity development activity has subsequently been limited as a result.

In addition, although the County adopted a Transfer of Development Rights (TDR) program as part of the UDC, the program has not been widely used. Consequently, the County should consider reevaluating its TDR provisions to offer further incentives and bring the program in line with its growth management and sewer services planning. Doing so may well make the program more responsive to landowner interests and needs.

**KEY POLICY FRAMEWORK**

**Existing Protection**

The County has taken an active interest in protecting its natural resources for many years. While development pressures historically caused the conversion of much land in the northern part of the county, awareness of the need to protect remaining resources led to the development of enhanced environmental standards in the UDC. The protection of natural resources is achieved in three ways: 1) specific open space standards protect each natural resource by insuring that some portion of the resource area remains undisturbed, 2) a site capacity calculation regulates development of sites to that which is consistent with the level of protection, and 3) specific use, protection, and mitigation standards are provided for each resource.

Currently the County provides varying levels of protection to floodplains/floodways, wetlands, riparian buffers, drainageways, Water Resource Protection areas (WRPAs) (Cockeysville formation, Cockeysville formation drainage area, wellheads – classes A, B & C, and recharge areas), sinkholes, steep slopes (>25% and 15-25%), mature and young forests, and Critical Natural Areas (slope or geologic sites, rare species, forest, and other). Protection ranges from 100% for floodplains, wetlands, riparian buffers, sinkholes, class A wellheads, and rare species CNAs down to 20% for young forests.
Conservation Mechanisms in Addition to Regulation

The County has for many years invested dollars in the purchase of open spaces, developed parks and recreation facilities, purchased agricultural and open space easements, and taken dedication of lands preserved as part of the development process.

Clearly, regulation alone cannot achieve the levels of protection needed to support biodiversity, protect habitat, create recreational opportunities, preserve farmland, create interconnected open spaces, and provide for the general welfare of the residents of the County. Taken together however, regulatory approaches and different forms of land purchase and easement dedication can go a long way to making the County a desirable place to live, work, and recreate.
Emergency Services

Figure 8-8: Proposed Paramedic 9-Minute Area Analysis, 2016 Incidents (Source: NCC 2016/2017 paramedic station coverage area analysis, Ron Holmes)
Community Input Related to Scenarios

This section contains community comments related to the draft scenarios, as presented in October 2019. Summary results from prior engagement activities are available on the project website: https://www.nccde.org/1729/Southern-NCC-Master-Plan

OCTOBER 2019

GOAL 1. QUALITY OF LIFE/HEALTH: Residents of Southern New Castle County have access to the amenities and services that help them to maintain a high quality of life.

<table>
<thead>
<tr>
<th>Comments on Scenario 1</th>
<th>Comments on Scenario 2</th>
<th>Comments on Scenario 3</th>
<th>General Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1 said preferred]</td>
<td>[4 said preferred]</td>
<td>[2 said preferred]</td>
<td>Please disclose the cost of the new sewer (water treatment) plant that will be required in every scenario.</td>
</tr>
<tr>
<td>[6 said not preferred]</td>
<td>[6 said not preferred]</td>
<td>[6 said not preferred]</td>
<td>Locally-grown foods.</td>
</tr>
<tr>
<td>Not acceptable.</td>
<td>Not acceptable.</td>
<td>Not acceptable.</td>
<td>Agricultural marketing professional – county should hire one; see Maryland.</td>
</tr>
<tr>
<td>No pros, all cons: Cannot think of any good reason to choose this option. Development should not continue in this way. At the very least, the county should stop approving development that perpetuates the use of septic systems.</td>
<td>Allows for areas for economic development along the major roads in this area. We need restaurants, gas station, and other every day services. To go to a restaurant we have to go to rt. 7 and 40 or Middletown. Middletown has had a monopoly on economic development. I like this scenario.</td>
<td></td>
<td>Maintain sewer in the core and maintain agricultural in SNCC.</td>
</tr>
<tr>
<td>Best use of property.</td>
<td>Pros: Perhaps this would alleviate some traffic congestion in and around Middletown Proper.</td>
<td></td>
<td>How will existing parks be expanded to offer more amenities? (Price Park)</td>
</tr>
<tr>
<td>Cons: It is too far north; the actual town of Middletown and most of southern NCC are not likely to share any cultural or economic benefits of this option. This option will appeal to rich white families who are clustering in this part of the county, but the somewhat remote location will prevent the majority of our socioeconomically diverse town and county to take advantage of these enhancements.</td>
<td>Cons: Not entirely a con, but this plan will require significant collaboration and coordination between the county and the town. Traffic congestion will be the biggest issue to untangle, but that needs attention anyway.</td>
<td></td>
<td>Additional impact fees just for schools</td>
</tr>
<tr>
<td>The SNCC Master Plan should maximize walking/biking interconnectivity between existing/future parks and recreation areas, as well as walking/biking connections to large planned developments such as Whitehall and Bayberry.</td>
<td>The SNCC Master Plan should maximize walking/biking interconnectivity between existing/future parks and recreation areas, as well as walking/biking connections to large planned developments such as Whitehall and Bayberry.</td>
<td></td>
<td>Request for new cell (phone) tower near 299/Route 1 (south of this intersection)</td>
</tr>
</tbody>
</table>

• How can we increase production/consumption of locally grown food? Would be good to increase street/park trees.
• Access to walking communities is key.
• OK, but 2 seems better.
• Better than 1. Prefer 2.
• OK.

• Pros: I think this plan has the biggest potential to add value within town limits while at the same time helping to alleviate existing problems. Its central location means that more residents from southern NCC likely will benefit from these enhancements. I think this plan has the biggest potential to increase Middletown’s economic impact in the county and in the state.
• Cons: Not entirely a con, but this plan will require significant collaboration and coordination between the county and the town. Traffic congestion will be the biggest issue to untangle, but that needs attention anyway.

• The SNCC Master Plan should maximize walking/biking interconnectivity between existing/future parks and recreation areas, as well as walking/biking connections to large planned developments such as Whitehall and Bayberry.
**GOAL 2. ENVIRONMENT:** Environmental protection and farmland preservation are considered a priority in Southern New Castle County, and residents and visitors alike have access to trails, parks, and other natural spaces.

<table>
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<th>Comments on Scenario 3</th>
<th>General Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• [5 said not preferred]</td>
<td>• [6 said preferred]</td>
<td>• [3 said preferred]</td>
<td>• Please tie in (continued use as a farm) to the purchase of preservation.</td>
</tr>
<tr>
<td>• Too much traffic, with its congestion and pollution, already has damaged the quality of life.</td>
<td>• 20-30 years in the future.</td>
<td>• Figure out how to best incentivize farmers to preserve land – market for locally grown food?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Maybe as long as natural areas, especially those around water (our most essential resource) are protected.</td>
<td>• More money is needed to incentivize farmland and open space preservation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The changes to ordinance concerning septic systems are of major concern. While the increase in nitrogen in our waters are considered a major environmental problem, the changes in requiring septic systems in our rural developments are counter productive. While scenarios 2 and 3 are somewhat of an improvement, the problem is that your assumptions are based on historical trends not the current environment.</td>
<td>• Start with this moratorium on annexation into Middletown.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pros: We need more permanently protected land. This is a good start.</td>
<td>• Happy medium between the 2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cons: This plan likely will increase car use across the county. Outside of the obvious land preservation aspect of this plan, I envision no real environmental improvements resulting from this particular scenario.</td>
<td>• Perhaps best, especially if water (our most essential resource) and land (among the nation’s most productive). are protected.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• We support development in the east wing along SR 1/Rt. 13, where major regional highways can support such development. We agree, however, that development should be discouraged within those areas along the Delaware River and Rt. 9 corridor which are most susceptible to sea level rise and storm surges. This area is a wetlands resource that should be protected. We also support the work of the Land Preservation Task Force to develop strategies to protect and preserve farmland and ecologically sensitive areas, where appropriate and the funds exist to properly compensate landowners. Conservation easements and other mechanisms to place these lands in</td>
<td>• Too, an understanding needs to be abided: you cannot continue to grow, in a finite space with limited resources.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The changes to ordinance concerning septic systems are of major concern. While the increase in nitrogen in our waters are considered a major environmental problem, the changes in requiring septic systems in our rural developments are counter productive.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• All pros, no cons: We need more permanently protected land. Centralizing enhancement projects within town limits is a great way to help with this.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• We support development in the east wing along SR 1/Rt. 13, where major regional highways can support such development. We agree, however, that development should be discouraged within those areas along the Delaware River and Rt. 9 corridor which are most susceptible to sea level rise and storm surges. This area is a wetlands resource that should be protected. We also support the work of the Land Preservation Task Force to develop strategies to protect and preserve farmland and ecologically sensitive areas, where appropriate and the funds exist to properly compensate landowners. Conservation easements and other mechanisms to place these lands in</td>
<td>• Septic contributes to rise in nitrogen in water. How do you equate that to County Council mandating septic? NCC provides sewer.</td>
</tr>
<tr>
<td>easements and other mechanisms to place these lands in protected status while compensating landowners should be explored and implemented. Open space preservation by NCC need not all be for active recreation with associated acquisition and maintenance costs.</td>
<td>protected status while compensating landowners should be explored and implemented. Open space preservation by NCC need not all be for active recreation with associated acquisition and maintenance costs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GOAL 3. COMMUNITY CHARACTER: Development and redevelopment in Southern New Castle County are compatible with, and enhance, the existing community character, including historic properties and design features, the scale of development, and presence of farmland and open space.

<table>
<thead>
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<th>General Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• [5 said not preferred] • No pros, all cons: There is no community character with this plan.</td>
<td>• [7 said preferred] • While scenarios 2 and 3 are somewhat of an improvement, the problem is that your assumptions are based on historical trends not the current environment. Farmers are no longer in the position of being able to leaving farms to family members; families do not want to work the farms. They are now investigating selling them to developers. In Townsend, we are receiving inquiries about annexation from properties as far as 2 miles away; even from the east side of US 13. • Pros: It will bring a sense of community character to residents in the northernmost part of southern NCC. • Cons: In this scenario, community character is being attempted in only the northernmost part of greater Middletown, making it geographically out of reach for the majority of southern NCC. Community character will be completely fabricated in this scenario, as there is no existing character to build upon.</td>
<td>• [3 said preferred] • Concentrating developments in towns helps preserve character. • Best for farmland preservation. Create viable program to incentivize preservation over development. • No more Bayberrys and Whitehalls. Break them up into small villages and achieve the same objective. • While scenarios 2 and 3 are somewhat of an improvement, the problem is that your assumptions are based on historical trends not the current environment. Farmers are no longer in the position of being able to leaving farms to family members; families do not want to work the farms. They are now investigating selling them to developers. In Townsend, we are receiving inquiries about annexation from properties as far as 2 miles away; even from the east side of US 13. • Pros: This scenario allows the county to leverage existing infrastructure to build on the community character that already exists. • Cons: Existing infrastructure, including buildings, roads, traffic, etc., are already in need of overhaul. • We are strongly in favor of Scenario 3 as it supports this goal of building on the character of existing town centers through infill and preservation of historic properties where appropriate. Dense mixed-use development is appropriate to maintain and enhance the town centers of Middletown, Townsend and North Smyrna.</td>
<td>• You define growth core as being only north of Middletown. Townsend expects to more than double our current population by 2050. • Developers should be required to fund major portion of school expansion as part of approval process for new development. • Builders are not kicking in money for new schools.</td>
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</table>
GOAL 4. TRANSPORTATION: People in Southern New Castle County can use a variety of transportation modes (car, public transportation, walking, and bicycling) to reach their destinations in a safe, comfortable, and convenient manner.

<table>
<thead>
<tr>
<th>Comments on Scenario 1</th>
<th>Comments on Scenario 2</th>
<th>Comments on Scenario 3</th>
<th>General Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• [5 said not preferred]</td>
<td>• [7 said preferred]</td>
<td>• [2 said preferred]</td>
<td>• Do not include a light rail line to our town. It doesn’t drive economic growth.</td>
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<tr>
<td>• Not acceptable.</td>
<td>• All of your scenarios are specifically developed for Middletown. Traffic patterns have not been addressed within the area around Townsend. SR 71, SR15, Railroad Ave. and Level Rd. traffic has increased dramatically due as people try to avoid the congestion of east/west in Middletown.</td>
<td>• Important to have safe bike paths/sidewalks and expanded transportation.</td>
<td>• SB SR 1 at 299 backs up to main line in PM.</td>
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<tr>
<td>• No pros, all cons: Things will only get worse under this plan.</td>
<td>• Pros: It may bring some transportation enhancements to residents in the northernmost part of southern NCC. It may also draw some congestion away from the town center, although I’m not exactly sure that would be the case.</td>
<td>• Improved walking and bike paths and public transportation are needed throughout. Also key.</td>
<td>• 301 toll too expensive for daily commute.</td>
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<td></td>
<td>• Cons: I can’t tell how this would help transportation for the town of Middletown or the majority of southern NCC.</td>
<td>• Better connectivity between populations and attractions.</td>
<td>• Land Use allowed (9) 55+ communities as they age, won’t be able to drive. Need alternatives. No services nearby. Need to drive now.</td>
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<tr>
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<td>• All of your scenarios are specifically developed for Middletown. Traffic patterns have not been addressed within the area around Townsend. SR 71, SR15, Railroad Ave. and Level Rd. traffic has increased dramatically due as people try to avoid the congestion of east/west in Middletown. No new traffic studies have been done in these areas.</td>
<td>• Not talking about infrastructure in Middletown. Concern about more density.</td>
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<td>• Biking is a most efficient means of transport; it must be accommodated to have a livable community.</td>
<td>• Congestion in Middletown 299. Can’t expand 299 because of buildings.</td>
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<td>• Pros: We cannot continue to expand without addressing the transportation problem in and immediately around the town limits. This plan would certainly help in that regard.</td>
<td>• Concerned about 301 spur just west of our development on Churchtown Road.</td>
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<td>• Cons: Middletown is a mess, and fixing it won’t be easy. (But it most certainly will be a worthwhile investment of both effort and resources.)</td>
<td>• Traffic studies do not reflect current patterns around Townsend, SR 1.5, Level and Railroad Avenue.</td>
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<td>• I lived in Overland Park KS and the area had an excellent development scheme. There are large grids with 4 lane roads surrounding housing areas. Commercial establishments and bus routes were located on the perimeter that provided easy access with minimal driving. Most were a convenient walking distance which eliminated the need to drive. Walking and biking paths were intertwined with the housing and commercial areas.</td>
<td>• Would be nice to have bike access to road on southern side of canal on improvement on south side road. I would suggest access near Whitehall.</td>
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<td>• Scenario 3 is the most supportive of densities needed for public transit and walkable/bikeable communities.</td>
<td>• Fieldsboro Road too narrow at 13 for bike path. 50 mph on Fieldsboro – CURVE. Older people &amp; children biking. Speed too fast.</td>
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<td>• No sidewalk on 299 near Christiana Care – gaps in sidewalk.</td>
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GOAL 5. ECONOMY/JOBS: Southern New Castle County has a strong and diversified economy.

<table>
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<tbody>
<tr>
<td>• [5 said not preferred]</td>
<td>• [6 said preferred]</td>
<td>• [2 said preferred]</td>
<td>• Look at providing a full hospital.</td>
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<tr>
<td>• Currently, the employment of new residents in Townsend work outside of New Castle County. Many work in Pennsylvania, New Jersey, or New York. They opt to live here rather than pay the higher taxes in those states. No pros, all cons: Continued growth under this plan aggravates existing infrastructure problems. I see no potential for economic growth under this plan -- only economic drain.</td>
<td>• Need to designate an area for LI and HI.</td>
<td>• More dense development will enable more quality retail/restaurants and better paying jobs.</td>
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<tr>
<td>• No pros, all cons: Continued growth under this plan aggravates existing infrastructure problems. I see no potential for economic growth under this plan -- only economic drain.</td>
<td>• Currently, the employment of new residents in Townsend work outside of New Castle County. Many work in Pennsylvania, New Jersey, or New York. They opt to live here rather than pay the higher taxes in those states. You can’t create jobs in an environment that does not support industry. As example, look at the loss of industry in Middletown and Delaware City. Hercules, Formosa Plastics, Occidental, and Valero are but a few. You cannot sustain economic growth relying on retail sales, chain restaurants and small stores.</td>
<td>• Need LI and HI for manufacturing.</td>
<td>• Jobs – only jobs are warehouse and retail jobs.</td>
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<td>• No pros, all cons: Even with growth in this part of southern NCC, the Bayberry/Whitehall area will still be predominantly residential. I don’t expect this will be a draw for businesses that have the potential to make a big impact on economy and employment. Even if there were a “business boom” resulting from growth in this area, it would be a long, long way to travel for residents of the majority of southern NCC.</td>
<td>• Best for long term health...must always keep the long term in mind.</td>
<td>• Pros: Businesses will be drawn to a “small town” that has its act together like a bigger city. This plan can do that for us.</td>
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<td>• We are supportive of the plan in Scenario 3 to focus policies on facilitating the expansion of Middletown as the job center for SNCC. More and higher wage jobs in Middletown will support small local businesses and reduce the number of commuters to Wilmington and Northern NCC.</td>
<td>• Cons: A vision for the town must be made very clear and must be agreed upon. This takes real teamwork between the county and the town. It isn’t impossible, but the county will have to stop approving every new development request, and the town will have to stop approving every fast-food and retail franchise that wants in. Basically, we all need to take a more holistic view of things and start being selective about what is being added.</td>
<td>• We have residents who live in New York and New Jersey.</td>
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<td>• Public safety a concern. What about police, paramedics, medical jobs?</td>
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We have residents who live in New York and New Jersey.
GENERAL COMMENTS:

- I prefer Scenario 2 or 3 to best support the preservation of natural resources and sustainable practices with the county. I believe this will also increase quality of life across the board. I also think that NCC has potential as a market for jobs based around renewable energy, and policies supporting this would help achieve better quality of life, environment and economic objectives.

- I prefer Scenario 3 because we need denser development and more walkable and livable communities while preserving our previous farmlands, wetlands and natural areas. More funding on the County level to incentivize preservation is needed. More funding incentives for biking/pedestrian pathways and public transportation is also needed. We also should strongly disincentivize development where there is sea level rise and where there are wetlands.

- Need high speed rail to Wilmington/Philadelphia. Commuting north to Wilmington is a nightmare. 301 Bypass is great to Tybouts Corner, but northward is always a parking lot. Crashes every day. No wonder people return home to beat their kids.

- A large number commute northward. There is little opportunity for employment in Middletown outside of retail. Need a State services campus in MOT.

- Restrict/decline developments that propose the use of septic systems.

- Resolve transportation issues - there a need for another crossing of the canal or expansion of existing 896/301 crossing.

- There’s need to expand the road network parallel to the canal/Rt. 301-Rt. 1.

- I like the direction you are going with Scenario #3. Keep up the good work. I would encourage you to keep adding to #3 following Smart Growth Principles. As the plan moves forward, please give attention to East-West corridors in Middletown (Lake and Green Street) and redundancy (capacity) between Middletown and I-95. I would also like to see lot of bike lanes and shared use paths.

- Connect sidewalks where disconnected/underdeveloped.

- Scenario 3: This is where the master plan should be - in my opinion. Will look at web site and try to provide more feedback. I find it hard to compare scenarios as you have already summed it up in the chart.

- The area continues to grow and expand; thus, I would like to see more emphasis on expanding the sewer system.

- We would like to see the proposed sewer areas in Scenarios 2 and 3 - become permanent sewer areas.

- We need walk paths along the street where Giant supermarket is. The kids walking to school are forced to walk across the ground full of mud and puddles. It makes no sense that the sidewalk goes for a while and suddenly it stops. Folks walk on dirt and mud on the way to school (on the side of Applebee’s and Christiana Care).

- No scenario offers anything below Middletown.

- While scenarios 2 and 3 are somewhat of an improvement, the problem is that your assumptions are based on historical trends not the current environment. Farmers are no longer in the position of being able to leaving farms to family members; families do not want to work the farms. They are now investigating selling them to developers. In Townsend, we are receiving inquiries about annexation from properties as far as 2 miles away; even from the east side of US 13.

- Work with nature.

- Ensure protection of natural resources, esp. water, our most essential.

- Keep long term in mind.

- Abide the notion that you cannot grow indefinitely given a finite space (our county, our earth) and resources.

- Scenario 2 is the best.
• Convergent concepts:
• Environment + Community Character: Should consider the addition of community gardens, cottage communities, tiny house communities, community-integrated neighborhoods for our growing homeless population. All of these ideas would make a name for Middletown as a frontrunner in environmental stewardship and could improve the community character as well.
• ENVIRONMENT + TRANSPORTATION + ECONOMY/JOBS: Adding a light rail system within MOT and from MOT to other places like UD, Christiana and Wilmington would take southern NCC to a whole new level in terms of economic potential and could make a name for Middletown as a future-focused Smalltown, USA.
• We do not want sewer and dense housing in the western corridor. Let it remain as it is. The rural feel we have here is why so many moved to this area with horse farms, fields and some breathing room. Please don’t take that away, as there are few areas left like this to enjoy. It would be best to do sewer and dense development where it already exists such as the town of Middletown or the central corridor.
• If property owners in area where development is discouraged such as the southern area are to be expected to support the plan they are going to have to be compensated in some manner for the loss of development of their land.
• The plan does not include why people in the area moved down here. Most people were attached to the area because of the large lots and open spaces just like North Wilmington (Hockessin) not Pike Creek.
• In concept, The Committee of 100 supports limiting major planned developments to sewered areas. We do not, however, support Ordinance 19-078 because we believe it is premature. Until the SNCC Master Plan is finalized and a determination made as to how this portion of the County should be developed, it is inappropriate to make any decisions as to how sewer and/or septic will proceed. Designation of future sewered areas must be clearly defined for landowners through a transparent and predictable process. If the County is concerned that development on septic will proceed while the SNCC Master Plan is being finalized, it has the ability to extend the septic moratorium to coincide with the timing of the SNCC Master Plan process.
• Leave south of the canal alone! We don’t want the congested, busy mess that is up north.
9. References / Resources

- 2016. Wastewater Facilities Evaluation for the Southern Sewer Service Area