Camden County
NEW ENERGY. NEW VISION.
The 2035 Comprehensive Plan

Camden County

Development Capacity and Alternative Development Scenarios Report

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INTRODUCTION

This is the third report of the Camden County 2035 Comprehensive Plan process. The Comprehensive Plan is an opportunity for the Camden County community, as a whole, to create a common vision for the future by identifying community concerns and aspirations and creating an action plan to achieve the vision.

The comprehensive planning process includes three main phases of work:

1. Identifying Planning Influences and Opportunities
2. Developing a Community Vision
3. Constructing a Policy Framework and Implementation Plan

Phases 1 and 2 were initiated in 2011 and two reports document outcomes of those efforts: *Camden County Planning Influences and Opportunities Report* and the *Envision Camden County Summary Workshop Report*. Both of these reports are available on the County's website (www.camdencountync.gov).

PURPOSE AND OBJECTIVE

In a continuing effort to develop the vision for the community and to begin to identify a plan for growth and development, this report, *Development Capacity and Alternative Development Scenarios Report,* has been developed.

The purpose of this report is to provide the technical background information to inform and foster a community dialogue on what form new development in the County should take in future years.

The report has four key objectives which correspond to the four steps in the development capacity and alternative development scenarios analysis. These four steps build upon one another as illustrated on the corresponding maps for each step.

- Step 1: Land Suitability Analysis: Evaluate the suitability for development in the County
- Step 2: Potential Development Areas – Identify areas that are available for future development
- Step 3: Development Capacity – Calculate the capacity for new development under existing development regulations
- Step 4: Alternative Development Scenarios – Evaluate and compare two future growth scenarios: (1) Status Quo that continues current patterns and (2) Targeted Development that directs growth to certain areas and creates a more compact growth pattern

The content of this report was generated from analysis prepared by the North Carolina Department of Environment and Natural Resources' Division of Information Technology Services at Coastal Management, Camden County Planning and Community Development Department, and Clarion Associates.

The report is organized to first provide a summary of results for the four steps, and then to provide more detail on the methods and conclusions of each step.

SUMMARY OF RESULTS

This section provides a "snapshot" summary of the four step analysis results described in more detail in later sections.

STEP 1: LAND SUITABILITY ANALYSIS

Lands in the County were analyzed using a Land Suitability Analysis model created by the North Carolina Department of Environment and Natural Resources' Division of Coastal Management.

The purpose of this analysis is to identify areas that are more appropriate for future development and areas that are not as suitable. This analysis helps to inform development of the future land use map for the County by identifying areas where environmental conditions, proximity to utility services, local land use policies, and existing land use patterns may impact the potential for future development. It does not mandate where development may or may not be located, but provides useful information for making such determinations.

Table 1: Land Suitability Analysis Results, summarizes the results of this analysis. This includes all lands within the County, including lands that are currently developed. This analysis shows that 33% of County lands are within a high or medium suitability category and are appropriate locations for development (or currently are developed). This leaves 67% of County lands within a low or least suitable category for development, and some of these lands may already be developed. Map 1 on page 10 illustrates the geographic locations of these land suitability classes.

Table 1: Land Suitability Analysis Results

Land Suitability	Acres	% of Total
High	8,816	6%
Medium	40,017	27%
Low	12,536	8%
Least	88,982	59%

STEP 2: POTENTIAL DEVELOPMENT AREAS

To better assess the potential for development, it is necessary to determine which lands in the County are actually available for development. For this purpose, lands in the County were separated into three categories: (1) developed or committed, (2) low development suitability, and (3) potential development areas.

Table 2: Development Status of Lands in Camden County, located below summarizes the results of this analysis. More than a quarter of the County's lands are in a developed or committed state, more than 40 percent are in the low development suitability category, and more than a quarter are deemed as potential development areas.

What this means is that 42,933 acres or 28% of the County's land is available for development and has been deemed to have high or medium suitability for development.

Table 2: Development Status of Lands in Camden County

Land Categories	Acres	% of Total Acres
Developed or Committed	42,461	28%
Low Development Suitabilty	67,456	44%
Potential Development Areas	42,933	28%
All Lands in County	**152,850**	**100%**

Map 2 on page 13 illustrates the development status of lands in Camden County.

STEP 3: DEVELOPMENT CAPACITY

As a first step to determining whether or not the Comprehensive Plan should include recommendations to make changes to current land use and development policies and regulations, a development capacity analysis was conducted.

This analysis builds off the previous two scenarios. It shows the locations and the amount of development that could be developed under current zoning regulations on lands that are currently undeveloped and in a natural state or used for agricultural or forestry purposes.

Using this generalized approach to determining development capacity, current zoning would allow for the development of 21,323 dwelling units and 40,276,465 square feet of nonresidential development. Table 3: Development Capacity Analysis Results, summarizes these results by the suitability ranking of parcels.

This build out scenario is not likely to occur. The purpose of this analysis is to identify the location and the pattern and density of development that can occur under current development regulations.

Table 3: Development Capacity Analysis Results

Suitability Ranking	Sum of Acres	Residential Units	Non-Residential Square Footage
High Suitability	7,034.8	2,152	3,017,555
Medium Suitability	35,454.2	9,989	13,990,269
Low Suitability	53,797.9	2,134	0
Least Suitability	12,305.5	7,048	23,268,641
Totals	**108,592.4**	**21,323**	**40,276,465**

Map 3 on page 18 illustrates the potential locations for new development in Camden County.

WATER CAPACITY

Camden County is served by two water utilities: South Mills Water Association and the South Camden Water and Sewer District. Combined, these two districts serve 2,700 residential customers. The combined capacity of both systems is 1.9 million gallons per day (MGD) with a peak demand of 1.1 MGD. This leaves a combined system capacity for future development to provide 0.8 MGD, which equates to roughly 2,300 new residential customers.

Table 4: Combined Camden County Water Utility Capacity

Utility	Water Customers (Residential)	Current System Capacity	Peak Demand	Capacity Available for Future
SMWA	1,200	0.5 MGD	0.65 MGD	-0.15
SCWSD	1,500	1.4 MGD	0.45 MGD	0.95
Totals	**2,700**	**1.9 MGD**	**1.1 MGD**	**0.8 MGD**

It is likely that as demand for water increases, system improvements will be necessary to take advantage of additional capacity. New treatment trains at a new facility for South Camden, additional elevated tanks to store treated water storage capacity, and new wells will be needed to provide sufficient raw water supply.

SANITARY SEWER CAPACITY

South Camden Water and Sewer District is the sole provider of public sanitary sewer service in Camden County. According to the 2010 *Long-Range Water and Sewer Comprehensive Master Plan* recently completed by McGill Associates, extra capacity available through the sewer system would be taken up by planned development. This is a considerable constraint to new development, and one that will require resolution to ensure future economic development goals are realized.

STEP 4: ALTERNATIVE DEVELOPMENT SCENARIOS

Two alternative development scenarios were constructed to test out the implications for the different land use patterns and associated densities in Camden County. The two future growth scenarios are: (1) Status Quo that continues current patterns and (2) Targeted Development that directs growth to certain areas and creates a more compact growth pattern. The maps on pages 21-23 illustrate the locations and patterns of development for the two scenarios.

These two scenarios were evaluated for five factors:

- Land Use
- Community Character
- Transportation
- Utility Infrastructure
- County Fiscal Impacts

These results are summarized here.

LAND USE IMPACTS

Scenario 1: In total, Scenario 1 requires 2,152 acres to allocate development.

Scenario 2: In total, Scenario 2 requires 451 acres to allocate development.

The difference between the amount of land consumed in each scenario is determined by the density of development assumed for each. Scenario 2 assumes a higher density of development and clusters development in three areas in each Township. Scenario 1 continues current low-density land use patterns and scatters development in locations where development is highly likely or probable given current market factors.

COMMUNITY CHARACTER

Scenario 1 will likely have little impact on community character in Camden County. Development is assumed to be similar to current development patterns, designs, and amenities provided in subdivisions throughout the County.

Scenario 2 will impact community character. It will cluster new development in three locations in each Township. Within those development areas will be higher density residential housing options and neighborhood commercial development. Along with these new denser neighborhoods, it is assumed that new community amenities will be provided – walking trails, bike paths, small neighborhood parks, and better access to retail and service establishments.

TRANSPORTATION

Scenario 1: The County's roadways are all anticipated to operate below capacity in 2040 under Scenario 1 and the capacity of roads should be adequate during this period. However, maintenance and intersection improvements are likely necessary to manage the impacts of new traffic.

Scenario 1 would continue the same traditional transportation system as seen today that is rural in nature and gives highest priority to vehicles. It is anticipated that most roadways would not have accompanying sidewalks nor facilities for bicycles (e.g., bike lanes, signed bike routes). Recreational bicycling opportunities would be found with off-street trails.

Scenario 2: It is not anticipated that Scenario 2 would have significantly higher or different traffic volumes than Scenario 1, but the nature of the trips and patterns would be different,

providing more opportunities for shorter, local trips and using alternative modes, such as walking and biking to neighborhood retail establishments.

Scenario 2 would offer new opportunities for walking and bicycling, especially in the higher density areas. These areas should be designed to be walkable, with sidewalks, marked crosswalks, and pedestrian accommodations at intersections. These areas should also provide facilities and amenities to encourage bicycling, such as signed and marked lanes on development streets and areas for bicycle parking.

Utility Systems

The two future development scenarios differ substantially with regard to their implications for utility infrastructure in terms of water supply, wastewater treatment and stormwater management.

Scenario 1 -By continuing the present development pattern in Scenario 1, it would be expected that new development will generate demand for expansion of water treatment and distribution capacity. Relative to Scenario 2, the diffuse distribution of households in Scenario 1 will lead to a higher per capita cost of providing water service to new households.

Scenario 1 offers a much more rural form of development that does not rely on centralized sewer infrastructure. It is assumed that new development would rely on individual septic systems. While this reduces public expenditures for new infrastructure, it does come with environmental risks. Due to soil types and groundwater levels, many existing septic systems in Camden County are failing. Failing systems result in increased risk for groundwater contamination as well as pollution of nearby surface waters. By continuing septic systems as the primary approach to wastewater treatment, Scenario 1 implies some level of environmental degradation will occur.

Under Scenario 1 few, if any, new developments will exceed the thresholds of built-upon area that will trigger requirements for intensive stormwater management infrastructure. However, this will not necessarily ensure that water quality degradation from stormwater runoff will not occur.

Scenario 2 - Scenario 2 offers a slightly more urban form, emphasizing village centers that would require new infrastructure to function properly. Like Scenario 1, Scenario 2 will also result in the need for the expansion of water treatment and distribution systems, and potentially in larger capacity requirements because the higher densities in targeted development pattern will result in a far lower portion of new dwellings relying on private wells for drinking water. However, the increased cost of the higher capacity need will be offset by the lower costs of proving services across a much more dense geographic distribution.

Scenario 2 will result in substantial needs for intensive wastewater collection and treatment infrastructure. Scenario 2 will most likely drive the need to establish a new wastewater treatment plant near and for the Camden Core as well as also result in the need for expansion of the existing wastewater treatment plant in South Mills. The development of Camden Plantation and other potential projects already targeted along the Highway 17 corridor South Mills may increase the possibility of engaging in public-private partnerships to aid in the funding needed for expansion of that facility.

Scenario 2 will also trigger requirements for substantial stormwater management infrastructure, in the form of stormwater ponds and other detention practices to capture and treat runoff from more urbanized landscapes. Hard infrastructure of this nature will require development of more intensive stormwater management programs within the County to cover ongoing needs such as inspection and maintenance of stormwater facilities.

Fiscal Impacts

From the perspective of fiscal performance, Scenario 2: Targeted Development is the preferred alternative, yielding a minor fiscal surplus over time. In contrast, Scenario 1: Status Quo yields a cumulative fiscal deficit of approximately $2.3 million from 2012 through 2030. Note that these fiscal impacts do not address any capital improvements, such as new water or wastewater facilities or improvements to existing facilities.

The fiscal results are primarily due to the following differences in expenditures and revenues. First, greater housing choices under the Targeted Development scenario are expected to yield fewer persons and public school students, thus generating lesser expenditures. In general, more walkable urban settings attract both older baby boomers and younger generations characterized by single-person households and fewer school-age children.

Second, the Targeted Development scenario includes additional nonresidential floor area for mixed retail and service uses. This assumption was made because clustering residential development creates a better market for retail and restaurant establishments. The additional nonresidential development helps expand the property tax base and should lead to greater sales tax revenue, if Camden County continues to collect the optional sales tax.

STEP 1: LAND SUITABILITY ANALYSIS

The County's current Advanced Core CAMA Land Use Plan (2005) was developed in part to comply with state requirements for land use planning in coastal communities. One of the requirements of the CAMA Plan is an evaluation of the development suitability of lands in the county. This analysis – the Land Suitability Analysis, was designed by the North Carolina Department of Environment and Natural Resources' Division of Coastal Management and the Coastal Resources Commission. It is a modeling process for determining a planning area's supply of land that is suitable for development.

The County's current CAMA Land Use Plan includes a Land Suitability Analysis, both for existing and future land use, and includes maps and summary tables that depict the different levels of land suitability for development. This analysis updates the Land Suitability Analysis prepared for the 2005 CAMA Plan. A guide that provides step by step instructions for this analysis is provided on the department's website listed below.[1]

PURPOSE AND OBJECTIVE

The purpose of this analysis is to identify areas that are more appropriate for future development and areas that are not as suitable. This analysis helps to inform development of the future land use map for the County by identifying areas where environmental conditions, proximity to utility services, local land use policies, and existing land use patterns may impact the potential for future development.

[1] Land Suitability Analysis Guide: http://dcm2.enr.state.nc.us/planning/user_guide_lsa2005.pdf

The analysis uses a set of criteria defined by the Division of Coastal Management and ratings guided by local policy decisions to determine the suitability designation of lands. There are four classes of land suitability:

- Least Suitable
- Low Suitability
- Medium Suitability
- High Suitability

These Land Use Suitability rankings are for information purposes only and do not dictate or mandate in any way where development may be permitted by County development regulations.

METHODOLOGY

CAMA requirements set out six general factors for evaluation:

1. Water quality
2. Environmental conditions
3. Proximity to existing developed areas and compatibility with existing land uses
4. Potential impact of development on areas designated as historic, culturally significant, or scenic by local governments or the NC Department of Cultural Resources
5. Federal, state, or local land use regulations that apply
6. Availability of utility infrastructure facilities including water, sewer, stormwater, and transportation

The LSA Model

The Land Suitability Analysis is prepared using a Geographic Information System (GIS) model that uses digital mapping and map attribute information to perform geographically-based calculations. The model uses a raster-based analysis that conducts calculations using one acre cells instead of using a parcel-based system. This allows for more fine-grained calculations to better represent actual conditions.

A series of current mapping and data layers were collected and a GIS-based model was generated by the Division of Coastal Management to conduct the analysis. County staff worked with the Division of Coastal Management to refine criteria to better reflect local conditions.[2]

LSA Calculations

The GIS model makes a series of calculations for each factor and applies it to each one acre area in the County. These four calculations are as follows:

1. *Identify whether the factor is present in an area.* For example, lands may contain coastal wetlands and therefore that factor would be considered "Inside."
2. *Assign a rating based on the outcome of the previous step.* Ratings range from -2 (least suitable) to 2 (high suitability). The rating for an area containing coastal wetlands is "0."
3. *Multiply the rating by the weighting factor.* The weighting factor is determined by Camden County and is in effect a policy decision that identifies the relative weight of each factor in the analysis. The weighting factors adopted as part of the CAMA 2005 Plan were carried forward in this updated analysis.
4. *Sum the results.* The model summarizes the results and places areas in one of the four suitability classes: least, low, medium, or high suitability. All categories with an LSA result of "0" are deemed to be least suitable. The other three categories are determined based on natural breaks in the data.[3]

The *LSA Summary Table of Criteria and Ratings* listed in the Appendix of this report includes the full list of layers used in this analysis, their criteria, and the assigned weight assigned by the County.

CONCLUSIONS

The results of the Land Suitability Analysis are quite striking. Approximately 33% of lands are deemed to be high or medium suitability

[2] It is important to note that a decision was made during development of the Camden County Land Suitability Analysis model to not include soils as a variable. Including soils allows the model to assess areas where there are likely severe limitations to using septic systems due to the nature of the soil. When soils were first included in the model, all lands in the County were designated as "Least Suitable" for development. Analysts decided to leave the soils factor out of the model so that the results would identify areas that were appropriate for development based on other factors.

[3] Natural breaks (Jenks) seek to minimize each class's average deviation from the class mean, while maximizing each class's deviation from the means of the other groups.

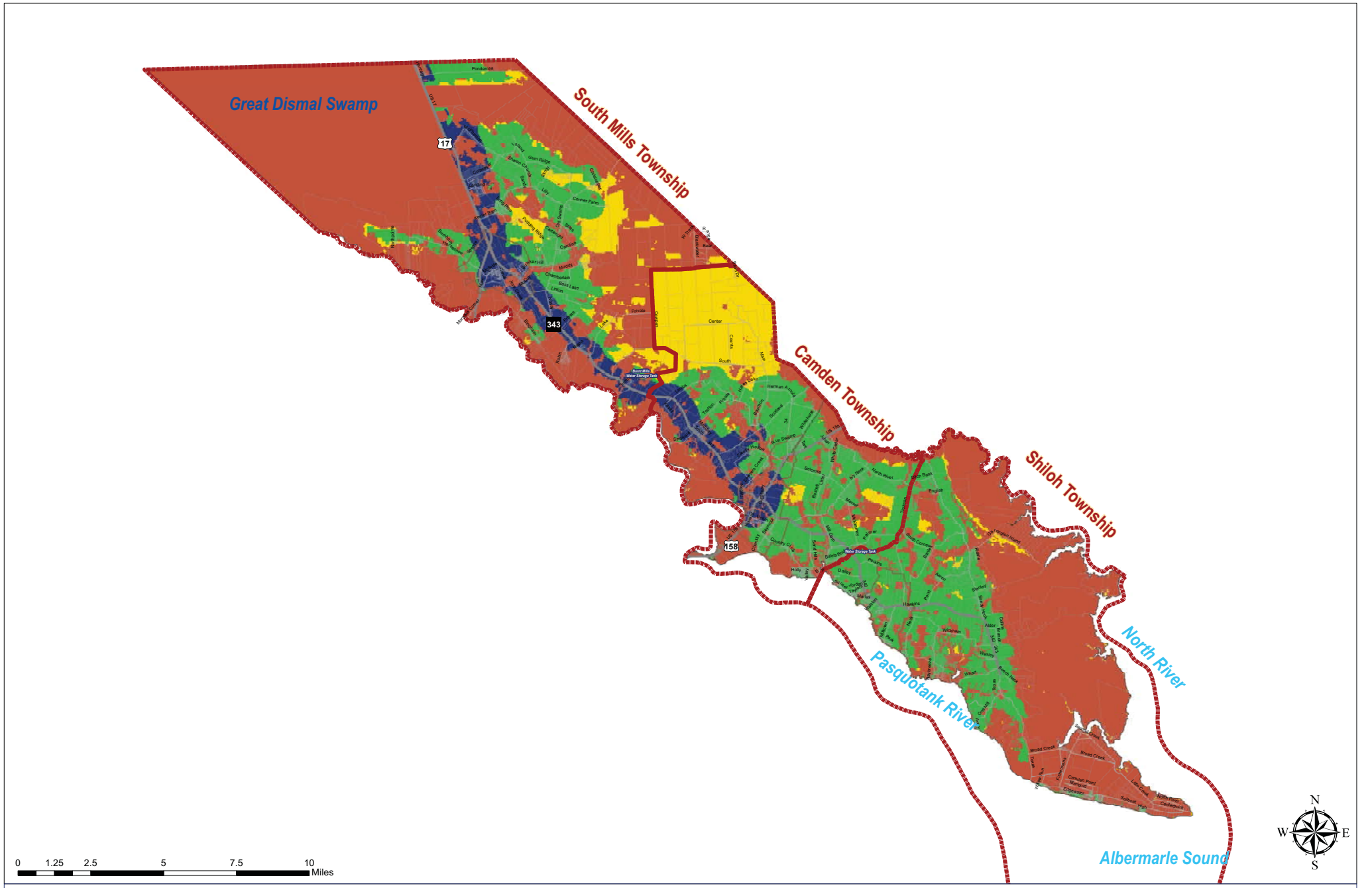
for development, and 67% of the County's land is deemed to have a low or least suitability for development. Table 5: Land Suitability Analysis Results, shows this breakdown.

Table 5: Land Suitability Analysis Results

Land Suitability	Acres	% of Total
High	8,816	6%
Medium	40,017	27%
Low	12,536	8%
Least	88,982	59%

The map located on the next page illustrates the locations of the four Land Suitability classes. Generally speaking, high and medium suitability areas tend to occur along the major highways in the County: US 158, US 17 and NC 343. A large portion of Camden Township and the northern section of Shiloh are also deemed to have at least a medium suitability for development. The most highly suitable areas for development, as deemed by the model, occur along NC 343 / US 17 from US 158 up just past the junction of NC 343 and NC 17.

The areas that are deemed to have low or least suitability occur along the edges of the County and adjacent to surface water bodies and wetland areas. The Great Dismal Swamp State Park and a large section of the Hale's Lake area in northern Camden Township are also included within the low or least suitability classes.



Legend

- Township Boundaries
- Core Villages

Land Suitability Classes

- Least Suitable - 88,982 Acres
- Low Suitability - 12,536 Acres
- Medium Suitability - 40,017 Acres
- High Suitability - 8,816 Acres

Land Suitability Analysis

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STEP 2: POTENTIAL DEVELOPMENT AREAS

Camden County is a sparsely populated community. Looking at aerial photography, it is clear that there is much land in the County that is not developed and is in a natural state or currently used for agricultural or forestry purposes.

To better assess the potential for development, it is necessary to determine which lands in the County are actually available for development.

PURPOSE AND OBJECTIVE

The purpose of *Step 2: Potential Development Areas*, is to identify locations where future development could likely take place. This analysis takes into account the suitability of the land for development as determined by the Land Suitability Analysis conducted in Step 1, and the current use of the land.

METHODOLOGY

This analysis builds off the previous Land Suitability Analysis, but conducts the analysis at the parcel level. For each parcel in the County, two factors were determined: (1) the land suitability class as determined by the Land Suitability Analysis for the majority of the parcel, and (2) the status of development on the parcel.

To determine the status of development on the parcel, the Camden County Planning and Community Development Department prepared a new map layer – Existing Land Use – that identifies the status of development and the type of development occurring on each parcel in the County.

Parcels were then identified as being in one of the three following categories:

1. *Developed or Committed Land* – This includes all lands that are currently developed (including all subdivisions) or for which land is in a "committed" state. Being committed implies that either a parcel won't be developed due to a conservation easement or the public nature of the land (Dismal Swamp State Park), or that the land is committed for development, such as completion of existing subdivisions, Camden Plantation, Town Center, and the commercial section of Wharf's Landing.
2. *Low Development Suitability*- This designation includes lands that have a land suitability class of least or low, and are not currently developed. This includes vacant lands, farmlands, or other lands in a natural state for which there are no permanent protections from development in place.
3. *Potential Development Areas* – This designation includes areas that have a land suitability class of high or medium, and are not currently developed. This includes vacant lands, farmlands, or other lands in a natural state for which there are no permanent protections from development in place.

Lands that have a designation of low or least suitable for development were separated out from the potential development areas category because of the limitations on these lands. This designation in no way suggests or recommends that further restrictions should be

placed on these areas, but merely acknowledges the fact that these areas have significant constraints to development.

The map on the following page depicts the locations of these designations.

CONCLUSIONS

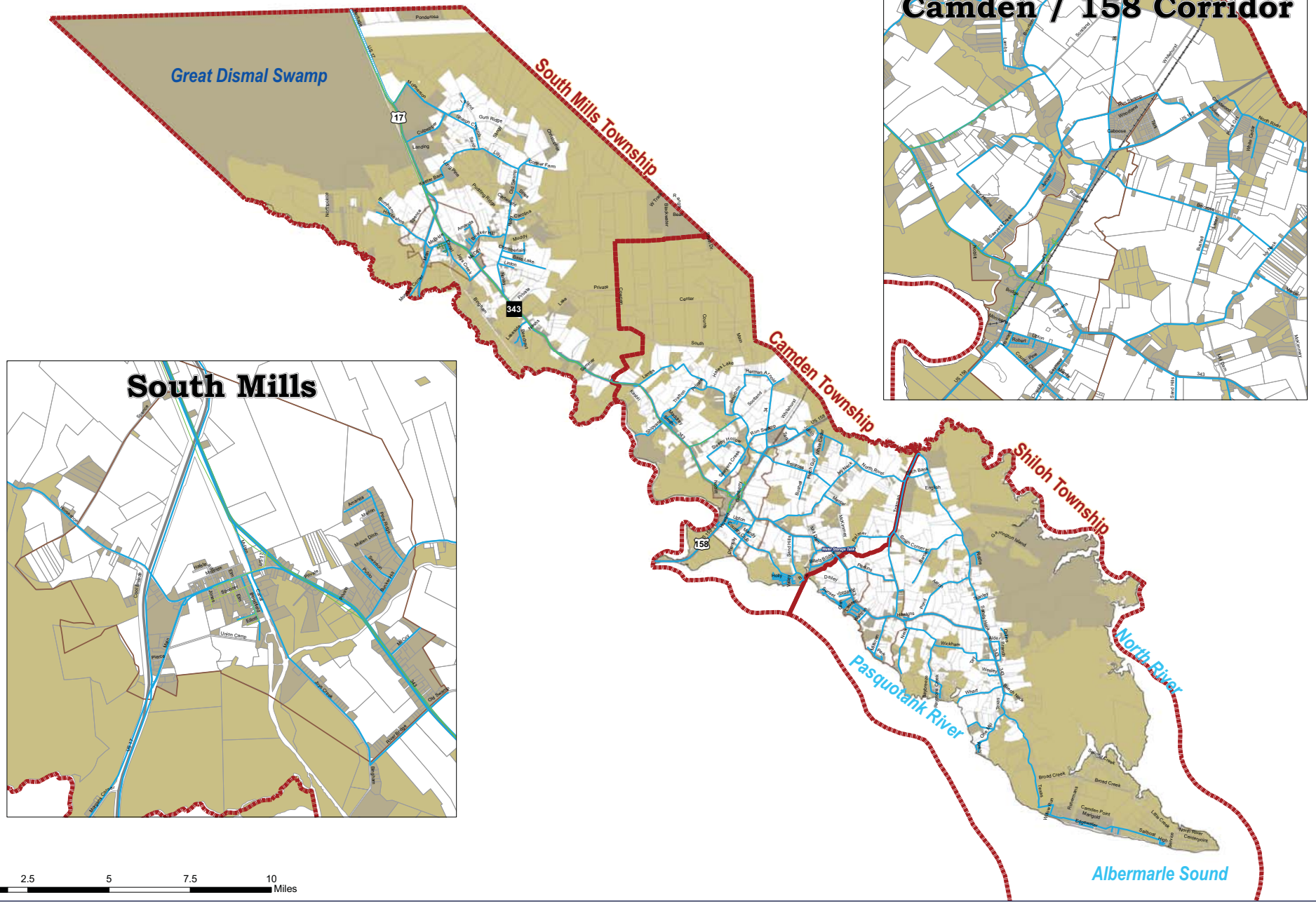
Table 6: Development Status of Lands in Camden County, located below summarizes the results of this analysis. More than a quarter of the County's lands are in a developed or committed state, more than 40 percent are in the low development suitability category, and more than a quarter are deemed as potential development areas.

What this means is that 42,933 acres or 28 percent of the County's land is available for development and has been deemed to have high or medium suitability for development.

Table 6: Development Status of Lands in Camden County

Land Categories	Acres	% of Total Acres
Developed or Committed	42,461	28%
Low Development Suitabilty	67,456	44%
Potential Development Areas	42,933	28%
All Lands in County	**152,850**	**100%**

The map on the following page depicts the locations of these categories.



Camden County
The 2035 Comprehensive Plan

MAP 2
Potential Development Areas

Legend
- Township Boundaries
- Core Villages

Water/Sewer Infrastructure
- Existing Water Mains
- Potential Water Mains
- Existing Sewer Lines
- South Mills Sewer Lines Phase 1

Land Designation
- Potential Development Areas (Uncommitted, Medium or High Suitability)
- Low Development Suitability (Uncommitted, Least or Low Suitability)
- Developed or Committed Land (Developed, Conservation, Plans for Development)

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STEP 3: DEVELOPMENT CAPACITY

Development of land in Camden County is regulated by several ordinances, namely the County's *Unified Development Ordinance* that sets out zoning districts, development standards, and provisions for the subdivision of land. As a first step to determining whether or not the Comprehensive Plan should include recommendations to make changes to current land use and development policies and regulations, a development capacity analysis was conducted.

PURPOSE AND OBJECTIVE

The purpose of the development capacity analysis is to evaluate the potential for development under current policies and regulations for both residential and nonresidential development. The objective is to make an approximate calculation of where development could occur in the County and at what densities.

It is important to note that it is not expected that the County will reach a full build out of its community by 2035 or even within the next 50 years. This exercise is not intended to suggest that all the development that could occur will occur. Instead, the development capacity analysis is useful in understanding where development could occur and the land use pattern it could take.

METHODOLOGY

To determine the amount of development that could occur on any given parcel is determined by the zoning district that is applied to that parcel and the corresponding dimensional standards that apply in that zoning district.

The calculations that are applied result in either a number of dwelling units for parcels in residential zoning districts, or the number of square feet of development for parcels in nonresidential zoning districts. The County's current zoning district provisions do allow for mixed use development in some nonresidential zoning districts, but based on existing land use patterns, it has been assumed that development will include only residential or nonresidential development.

ASSUMPTIONS

This analysis does not include a site specific analysis to determine the actual development potential on a given parcel. Because this level of analysis is not possible for a comprehensive planning effort, a development factor has been designated based on the land suitability class of a parcel. What this means is that the constraints to development on a parcel have been accounted for in the calculation that determines the development yield on a parcel.

Another important assumption is the amount of lot coverage for development. It is assumed that development would occur under the low-density threshold for stormwater management as determined by the North Carolina Department of Environment and Natural Resources (no more than 24 percent of a lot would include impervious surface).

CALCULATIONS

The report Appendix includes a document entitled *Assumptions and Calculations for Development Capacity Analysis*. This document includes all of the detailed assumptions discussed generally here.

Residential

The calculation used to determine the number of residential units that could be developed on a residentially zoned parcel is as follows:

RESIDENTIAL UNIT YIELD =
Area of parcel / minimum lot size * development factor

Where:

- Area of the parcel is the number of square feet of land on each parcel (units in square feet)
- Minimum lot size is determined by the zoning district that applies to each parcel (units in square feet)
- Development factor is determined by the land suitability class of parcel (units as percentage)

Nonresidential

The calculation used to determine the number of square feet of development that could be developed on a nonresidentially zoned parcel is as follows:

NONRESIDENTIAL SQUARE FOOTAGE YIELD =
Area of parcel * stormwater lot coverage threshold * (1-parking factor)

Where:

- Area of the parcel is the number of square feet of land on each parcel (units in square feet)
- Stormwater lot coverage is 24 percent
- Parking factor is 35 percent – this is the approximate amount of land needed for parking and other impervious surfaces of a development other than the building square footage

CONCLUSIONS

Using this generalized approach to determining development capacity, current zoning would allow for the development of 21,323 dwelling units and 40,276,465 square feet of nonresidential development. Table 2 summarizes these results by the suitability ranking of parcels. As noted previously, this build out scenario is not likely to occur. The purpose of this analysis is to identify the location and the pattern and density of development that can occur under current development regulations.

Table 7: Development Capacity Analysis Results

Suitability Ranking	Sum of Acres	Residential Units	Non-Residential Square Footage
High Suitability	7,034.8	2,152	3,017,555
Medium Suitability	35,454.2	9,989	13,990,269
Low Suitability	53,797.9	2,134	0
Least Suitability	12,305.5	7,048	23,268,641
Totals	**108,592.4**	**21,323**	**40,276,465**

The map that follows this section depicts the number of residential units that could be built on a parcel as individual dots. Nonresidential development square footage is depicted as shades of blue from light to dark to illustrate low to high square footage potential, respectively.

Note that some of the parcels included within the analysis did not meet the minimum lot size requirements and thus were not included in the analysis. This means that the sum of acres for the development capacity analysis will be less than the sum of lands designated as potential development areas and low development suitability identified in Step 2 (previous section).

UTILTY CAPACITY TO SERVE NEW DEVELOPMENT

In order to fully understand the implications of future development with regard to water and

sewer infrastructure, it is important to have an understanding of the current status and capacities of those utility systems. It should be noted that a feasibility study by the UNC Institute of Government entitled, "Camden County Green Industrial Park Feasibility Study" named lack of water and sewer infrastructure as a major barrier to economic development in the County.

WATER SUPPLY INFRASTRUCTURE

As described in greater detail in the *Planning Influences and Opportunities Report*, Camden County is served by two water supply systems. The South Mills Water Association serves approximately 1,200 customers in the northern portion of the County, with an existing ion exchange water treatment plant that has a permitted capacity of 864,000 gallons per day (gpd). However, the shallow aquifer wells that supply raw water for the plant have a limited capacity to produce a sustained yield, and their unreliability reduces the effective capacity of that water supply system to slightly less than the levels of peak demand of approximately 500,000 gpd experienced in recent years.

The southern two thirds of the County are served by the South Camden Water and Sewer District (SCWSD). The SCWSD operates a reverse osmosis (R/O) water treatment plant that serves potable water to approximately 1,500 residential customers. A recent expansion increased the capacity of the treatment plant to 1.44 million gallons per day (MGD). Peak water demands within the SCWSD service area exceeded 0.65 MGD. However, since that time, the District has ceased selling 0.2 MGD to Currituck County, reducing the effective peak demand to approximately 0.45 MGD.

Recent capital improvements have provided for a water line that connects the two systems serving Camden County, so the excess capacity at the SCWSD plant can be used to offset the occasional low yields from the wells used by the South Mills system. Together, the two treatment systems have a reliable production capacity of approximately 1.9 MGD and a combined peak demand of approximately 1.1 MGD, leaving an estimated 0.8 MGD in unused capacity that could be allocated to future growth.

Table 8: Combined Camden County Water Utility Capacity

Utility	Water Customers (Residential)	Current System Capacity	Peak Demand	Capacity Available for Future
SMWA	1,200	0.5 MGD	0.65 MGD	-0.15
SCWSD	1,500	1.4 MGD	0.45 MGD	0.95
Totals	**2,700**	**1.9 MGD**	**1.1 MGD**	**0.8 MGD**

It should be noted that the 1.44 MGD capacity of the SCWSD water treatment plant is based on running the two existing treatment trains at full capacity. As the demand on the plant approaches the full capacity, another treatment train will have to be added in order to provide the necessary redundancy. The current building at the plant will only accommodate the two existing treatment trains, so additional trains will require construction of a new treatment building at the SCWSD site. Additional elevated tanks for treated water storage capacity will also be required, as will new wells to provide sufficient raw water supply.

The recently completed expansion of the SCWSD water treatment plant and the capacity available for allocation there means that new water treatment infrastructure may not be an immediate need. The American Water Works Association estimates average US household water demand at 350 gpd. At that level, the rough estimate of 0.8 MGD in available

capacity at the SCWSD facility would support almost 2,300 new households.

It should also be noted that roughly one third of the County's current households are not connected to either of these public water supply systems, instead relying on private, individual well water or small community water systems.

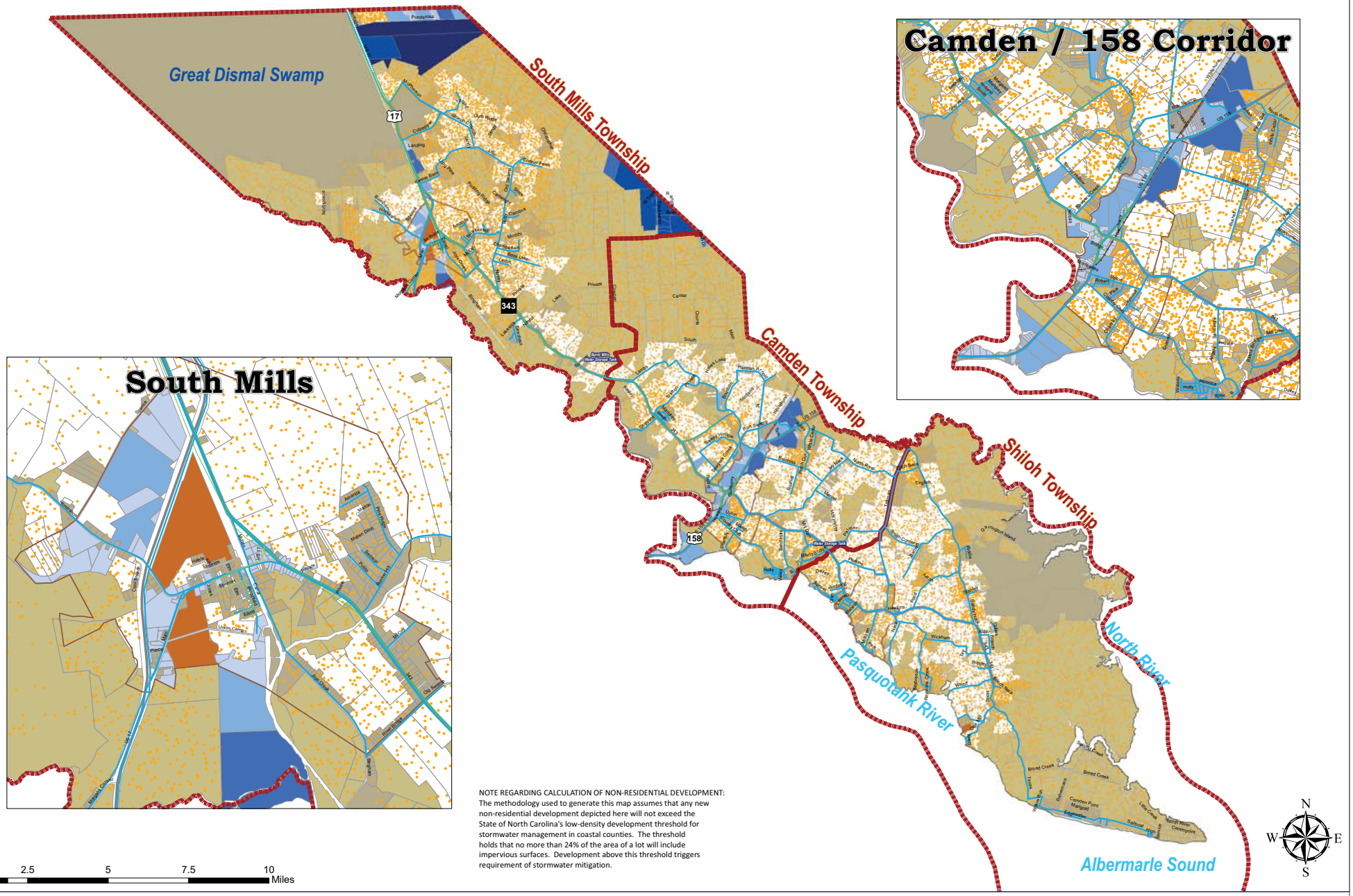
SEWER AND TREATMENT INFRASTRUCTURE

Camden County's sewer and wastewater treatment needs are more pressing than those for water treatment and distribution. The SCWSD operates the only wastewater treatment facility in the County, which is located in South Mills and has a permitted capacity of 100,000 gpd. Current inflows experienced at the plant are in the range of 20,000 – 25,000 gpd. The ongoing grant-funded project to install a sewer collection system and eliminate several failing on-site septic systems in the village of South Mills will generate approximately 35,000 gpd of new inflow to the plant, raising the total inflow levels to approximately 60,000 gpd. The remaining 40,000 gpd that will remain in the system would only support connection of 150 new households at conventional levels of usage.

The *Long-Range Water and Sewer Comprehensive Master Plan* recently completed by McGill Associates (2010) stated that 0.048 MGD of the plant capacity was already committed to existing or developing residential and business expansion at the time the report was written in 2010. Essentially, the available wastewater treatment capacity in Camden County is already spoken for, and it is likely that current capacity is inadequate to meet near term needs.

In addition, the McGill Report identified three more communities with a combined 270 households in the South Mills vicinity alone, over and above the village itself, that are in immediate need of sewer systems and connection to centralized wastewater treatment to alleviate failing septic systems. Treatment of the combined wastewater flows from these communities would require an additional 73,000 gpd in treatment capacity.

Due to soils that are not conducive to on-site wastewater systems, several other communities throughout the County have significant rates of septic system failure, but establishing collections systems that reach these communities and tying them to centralized treatment infrastructure is more of a long-range problem in Camden County.



Camden County
The 2035 Comprehensive Plan

MAP 3

Development Potential Per Zoning

Legend
- Township Boundaries
- Core Villages

Water/Sewer Infrastructure
- Existing Water Mains
- Potential Water Mains
- Existing Sewer Lines
- South Mills Sewer Lines Phase 1

Land Designation
- Potential Development Areas (Uncommitted, Medium or High Suitability)
- Low Development Suitability (Uncommitted, Least or Low Suitability)
- Developed or Committed Land (Developed, Conservation, Plans for Development)
- Planned Unit Development Zoning

Development Capacity Per Zoning
- Potential Residential Unit (per zoning)

Non-Residential Development Capacity Per Zoning
- 3,144 - 196,904 sf
- 196,904 - 646,970 sf
- 646,970 - 1,309,604 sf
- 1,309,604 - 3,789,380 sf
- 3,789,380 - 9,196,769 sf

CLARION
Feb. 2012

STEP 4: ALTERNATIVE DEVELOPMENT SCENARIOS

Camden County has always had adequate land for growth and development. And this trend will continue into the future according to development projections outlined in this section.

Because there is more than enough land for projected development, the County is in a position to make choices about where new development should go. The pattern, density, and design that future development takes will have an impact on the future of Camden County.

PURPOSE AND OBJECTIVE

To illustrate the choices facing Camden County, two alternative development scenarios were developed to illustrate the difference between optional development patterns. The purpose of these alternative development scenarios is to assess how different land use patterns affect the County for several factors:

- Amount of land converted and the pattern of development
- Impacts of different residential densities on the County's budget
- Mobility and access of the County's road network
- Locations and costs of new utility infrastructure
- Community character and quality of life

These assessments are being made to help inform discussions about the County's future land use plan that will be included in the new Comprehensive Plan. The alternative development scenarios are the first step in developing the plan for future development.

The conditions and assumptions included in each scenario are not intended to be mutually exclusive. It is likely that the preferred form of development for Camden County will be a mixture of different factors from the two scenarios.

The scenarios are significantly different for the purposes of contrasting them, but the end goal is to find a common ground vision for development that reaches consensus in the community.

METHODOLOGY

POPULATION AND EMPLOYMENT PROJECTIONS

Alternative development scenarios are based on population and employment projections for Camden County prepared by Woods and Poole, Inc. Between now and 2030, it is estimated that Camden County will need an additional 925 units of residential development and 165,000 square feet of nonresidential development to accommodate future populations.

These calculations take into account the "committed" development that has either secured zoning or has secured development permits, such as Camden Plantation, Town Center, and Wharf's Landing commercial development. To see a full analysis of the population and employment projections, see the *Alternative Development Scenario Assumptions* located in the report Appendix.

This amount of development was distributed in two different ways to illustrate two different policy approaches available to the County – Scenario 1: Status Quo and Scenario 2: Targeted Development. This methodology provides the opportunity to directly compare

the scenarios, as they have the exact same amount of additional development, save an additional 76,000 square feet of retail / restaurant development that is projected for the clustered development approach in Scenario 2. The key differences between the scenarios are the pattern, location, and density of the new development.

Scenario 1: Status Quo Assumptions

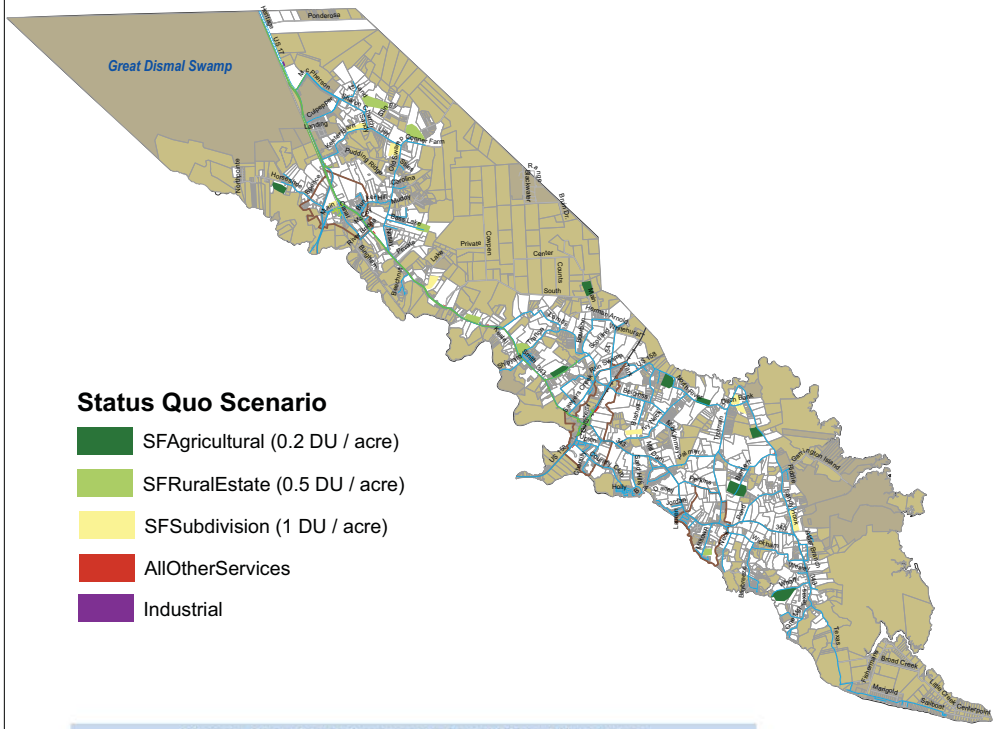
Scenario 1 assumes that new development will follow the traditional development pattern of Camden County. Residential development comes in the form of single-family residential and densities range from one unit per acre to one unit per five acres. Commercial and residential land uses are separated and designed in low-density developments. Other than the parks and trails planned as part of the Camden Plantation project, no new trails or parks are developed. This scenario assumes that no new sewer infrastructure is developed to serve the growth. *Alternative Development Scenario Assumptions* located in the report Appendix include the full assumptions for this scenario.

Scenario 2: Targeted Development Assumptions

Scenario 2 assumes that new development will take a different course than the traditional development pattern for Camden County. Development offers new choices for housing types: cottage homes (four dwelling units per acre), townhouses/condominiums (eight dwelling units per acre), and apartments (14 dwelling units per acre). Commercial uses are located proximate to higher density residential to provide access to residents. Some commercial is mixed with residential development in either a vertical or horizontal design. Commercial and residential development is designed to create new activity in the South Mills village core and a new destination for boater, bikers, and recreationalists. Clustered development creates an opportunity to develop a town center - commercial and governmental "heart" in Camden. Neighborhood parks and trails developed as part of new developments lay the groundwork for a network through the County. Developments are higher density and require on-site stormwater management treatments. *Alternative Development Scenario Assumptions* located in the report Appendix include the full assumptions for this scenario.

The series of maps on the following pages illustrate the two scenarios.

Scenario 1: Status Quo



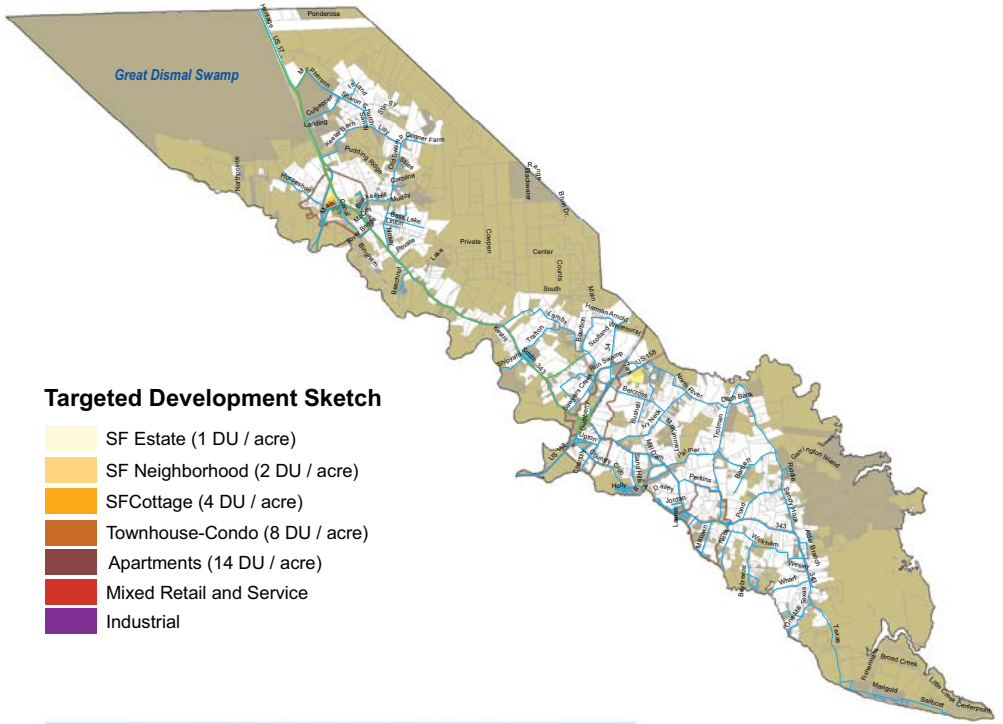
Status Quo Scenario

- SFAgricultural (0.2 DU / acre)
- SFRuralEstate (0.5 DU / acre)
- SFSubdivision (1 DU / acre)
- AllOtherServices
- Industrial

Status Quo Development Land Use Allocation

Land Use	Density	Dwelling Units	Square Footage	Acres
SF Rural Estate		275		647.1
SF Subdivision		500		588.2
SF Agricultural		150		882.4
All Other Services	N/A		168,000	24.7
Industrial	N/A		68,000	10.0
Total		**925**	**236,000**	**2152.4**

Scenario 2: Targeted Development



Targeted Development Sketch

- SF Estate (1 DU / acre)
- SF Neighborhood (2 DU / acre)
- SFCottage (4 DU / acre)
- Townhouse-Condo (8 DU / acre)
- Apartments (14 DU / acre)
- Mixed Retail and Service
- Industrial

Targeted Development Land Use Allocation

Land Use	Density	Dwelling Units	Square Footage	Acres
SF Estate	1 DU / acre	185		217.6
SF Neighborhood	2 DU / acre	185		108.8
SF Cottage	4 DU / acre	230		67.6
Townhouse/Condo	8 DU / acre	185		27.2
Apartments	14 DU / acre	140		11.8
Mixed Retail Service	N/A		241,000	14.2
Industrial	N/A		68,000	4.0
Total		**925**	**309,000**	**451.3**

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Camden County
The 2035 Comprehensive Plan

MAP 4
Scenarios Comparison

Legend

- Township Boundaries
- Core Villages

Water/Sewer Infrastructure

- Existing Water Mains
- Potential Water Mains
- Existing Sewer Lines
- South Mills Sewer Lines Phase 1

Land Designation

- Potential Development Areas (Uncommitted, Medium or High Suitability)
- Low Development Suitability (Uncommitted, Least or Low Suitability)
- Developed or Committed Land (Developed, Conservation, Plans for Development)

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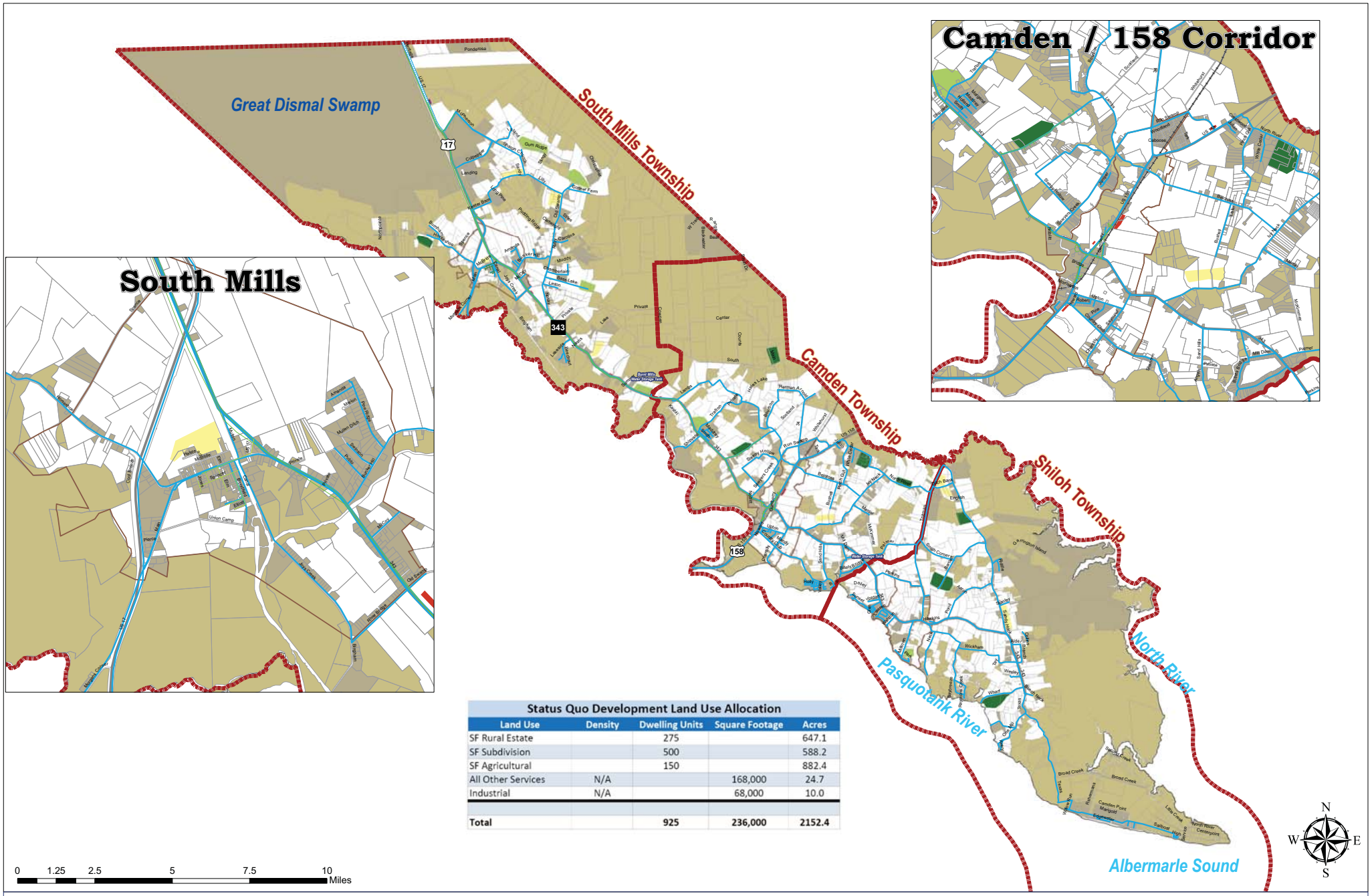

Status Quo Development Land Use Allocation

Land Use	Density	Dwelling Units	Square Footage	Acres
SF Rural Estate		275		647.1
SF Subdivision		500		588.2
SF Agricultural		150		882.4
All Other Services	N/A		168,000	24.7
Industrial	N/A		68,000	10.0
Total		**925**	**236,000**	**2152.4**

Camden County
The 2035 Comprehensive Plan

MAP 5
Status Quo Scenario

Legend
- Township Boundaries
- Core Villages

Water/Sewer Infrastructure
- Existing Water Mains
- Potential Water Mains
- Existing Sewer Lines
- South Mills Sewer Lines Phase 1

Land Designation
- Potential Development Areas (Uncommitted, Medium or High Suitability)
- Low Development Suitability (Uncommitted, Least or Low Suitability)
- Developed or Committed Land (Developed, Conservation, Plans for Development)

Status Quo Land Uses
- SFAgricultural (0.2 DU / acre)
- SFRuralEstate (0.5 DU / acre)
- SFSubdivision (1 DU / acre)
- AllOtherServices
- Industrial

CLARION
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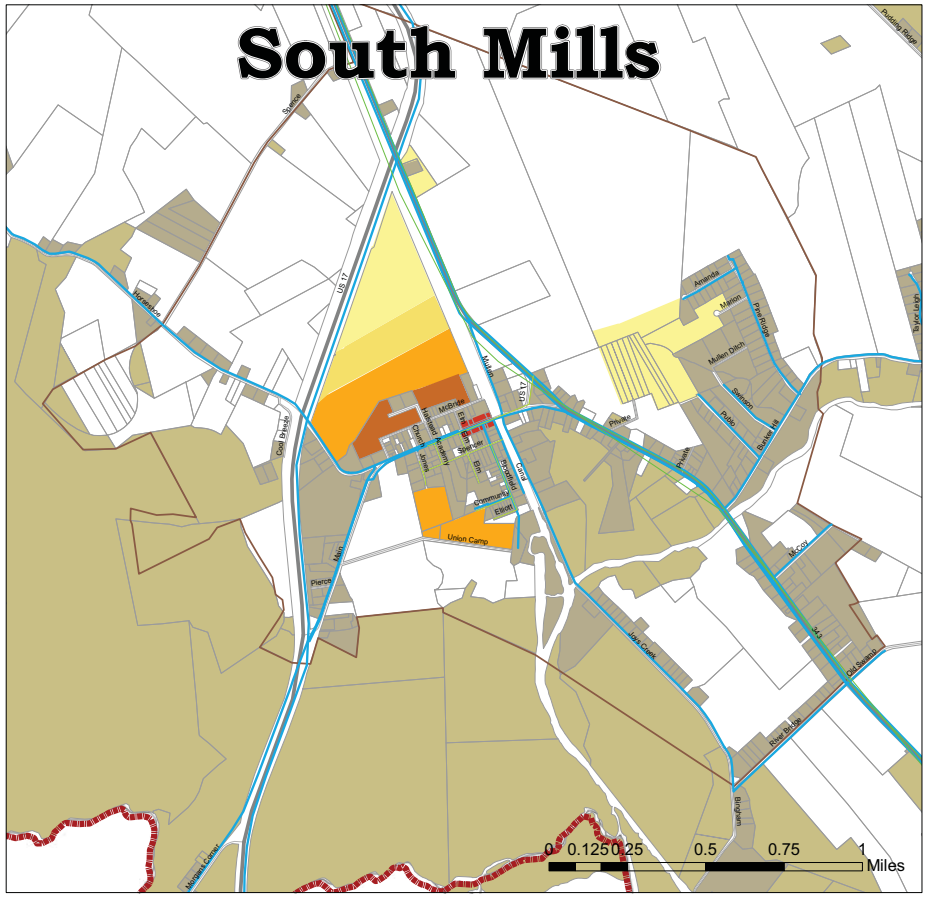

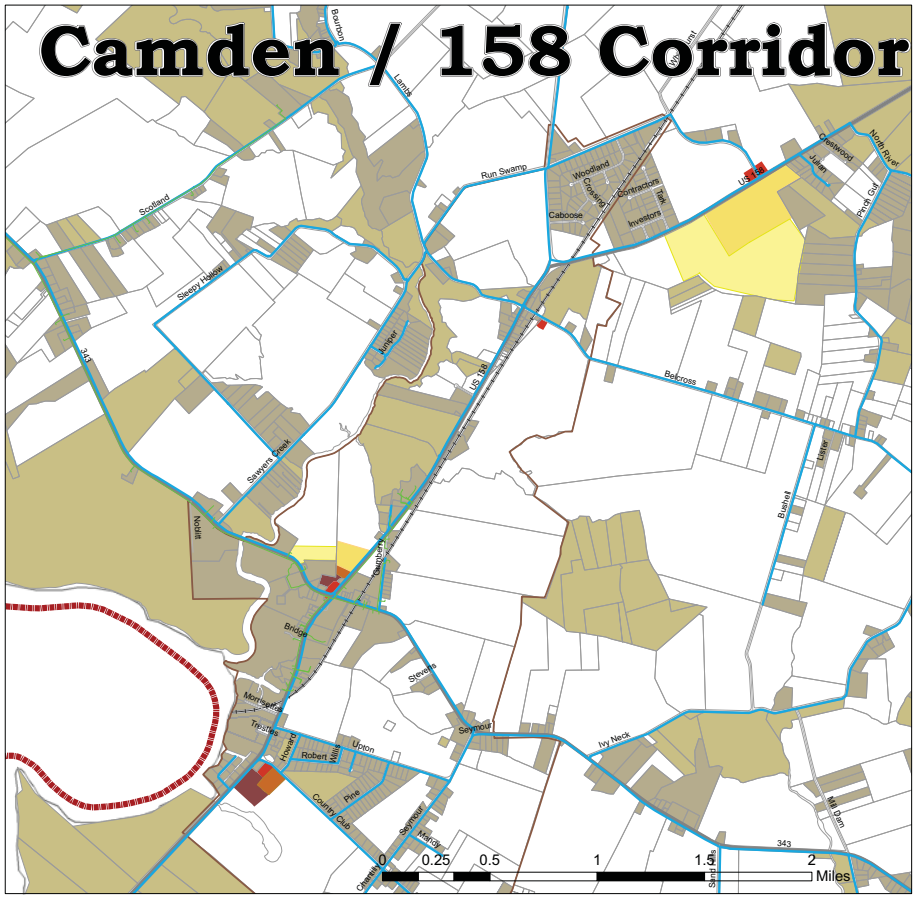

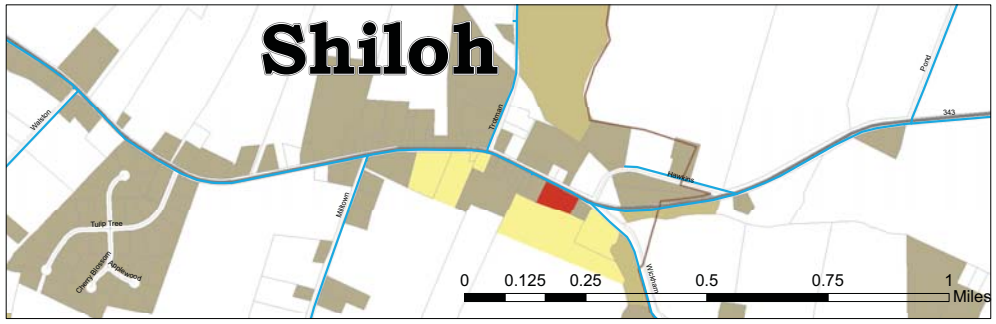

Targeted Development Land Use Allocation

Land Use	Density	Dwelling Units	Square Footage	Acres
SF Estate	1 DU / acre	185		217.6
SF Neighborhood	2 DU / acre	185		108.8
SF Cottage	4 DU / acre	230		67.6
Townhouse/Condo	8 DU / acre	185		27.2
Apartments	14 DU / acre	140		11.8
Mixed Retail Service	N/A		241,000	14.2
Industrial	N/A		68,000	4.0
Total		**925**	**309,000**	**451.3**

Camden County
The 2035 Comprehensive Plan

MAP 6
Targeted Development Scenario

Legend
- Township Boundaries
- Core Villages

Water/Sewer Infrastructure
- Existing Water Mains
- Potential Water Mains
- Existing Sewer Lines
- South Mills Sewer Lines Phase 1

Land Designation
- Potential Development Areas (Uncommitted, Medium or High Suitability)
- Low Development Suitability (Uncommitted, Least or Low Suitability)
- Developed or Committed Land (Developed, Conservation, Plans for Development)

Targeted Development Land Uses
- SF Estate (1 DU / acre)
- SF Neighborhood (2 DU / acre)
- SFCottage (4 DU / acre)
- Townhouse-Condo (8 DU / acre)
- Apartments (14 DU / acre)
- Mixed Retail and Service
- Industrial

CLARION
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CONCLUSIONS – COMPARISON OF SCENARIOS

LAND USE

Scenario 1: In total, Scenario 1 requires 2,152 acres to allocate development.

Scenario 2: In total, Scenario 2 requires 451 acres to allocate development.

In both scenarios, the majority of residential development is allocated in South Mills. However, the two scenarios differ on the distribution of the remaining units; more is allocated within Shiloh for Scenario 1 and more is allocated within Camden for Scenario 2.

The relative amount of nonresidential development is fairly similar between the two scenarios; however, the additional 76,000 square feet of nonresidential projected for the Targeted Development Scenario provides more retail and service development potential within the three Townships. This is because clustering development can open up more market opportunities for retail establishments, such as a grocery store.

Table 3 identifies the distribution of the residential and nonresidential development within each Township by Scenarios.

COMMUNITY CHARACTER

Scenario 1 - Scenario 1 will likely have little impact on community character in Camden County. Development is assumed to be similar to current development patterns, designs, and amenities provided in subdivisions throughout the County.

Scenario 2 - Scenario 2 will impact community character. It will cluster new development in three locations in each Township. Within those development areas will be higher density residential housing options and neighborhood commercial development. Along with these new denser neighborhoods, it is assumed that new community amenities will be provided – walking trails, bike paths, small neighborhood parks, and better access to retail and service establishments.

These new developments could be designed in the fashion of traditional village and hamlet communities. They would provide new opportunities for creating public spaces that are surrounded by commercial and residential development – a great opportunity to create a community "heart." Examples of similar residential densities from village developments in Maine are provided on the following page as an illustration of what this type of development might look like.

Table 9: Land Use Allocation for Scenarios by Township

Scenarios	South Mills			Camden			Shiloh		
	Dwelling Units	Nonresidential Square Footage	Acres	Dwelling Units	Nonresidential Square Footage	Acres	Dwelling Units	Nonresidential Square Footage	Acres
Scenario 1	482	108,000	919	165	118,438	573	278	9,562	660
Scnenario 2	495	123,730	221	408	149,360	205	22	35,910	25

Figure 1: Example of Three Dwelling Units per Acre (Smalls Brook in Cumberland, Maine)

Figure 2: Example of Eight Dwelling Units per Acre (School Street in Brunswick, Maine)

Figure 3: Example of 12 Dwelling Units per Acre (Park Avenue in Northport, Maine

The newly developed South Mills Small Area Plan includes recommendations to build off of the existing development footprint in the core area of South Mills and develop a village area with new commercial, marine, and residential development that is located in close proximity and provides new higher residential density development options.

The figures below illustrate the marina/village green concept laid out in the South Mills Small Area Plan. This concept is best represented by Scenario 2: Targeted Development.

Figure 4: South Mills Village Green/Marina/Townhouse Concept Drawing 1

Figure 5: South Mills Village Green/Marina Concept Drawing 2

TRANSPORTATION

Scenarios 1 and 2 both account for the County's anticipated residential and non-residential growth. These two scenarios would impact the County's transportation system in different ways.

Roadways

Camden County currently experiences few congestion-related circulation issues. As part of the ongoing Comprehensive Transportation Plan process being conducted by the NCDOT, projected traffic volumes were developed for County's roadways for the year 2040. These projections are based on development assumptions similar to those in Scenario 1 (Status Quo). The table below shows projected traffic volumes (i.e., how many vehicles are on the roadway) on key County roadways and compares them to each road's capacity (i.e., how many vehicles the roadway is designed to handle).

Table 10: Projected Traffic Conditions

Roadway	Projected Volume (vpd, 2040)	Capacity	Volume to Capacity Ratio
US 17 (north of NC 343)	37,600	57,000	0.66
Old Swamp Road (SR 1224)	7,500	13,100	0.57
NC 343 (between US 17 and US 158)	5,200	15,900	0.33
US 158 (southwest of NC 343)	26,300	35,700	0.74
NC 34 (north of US 158)	10,200	16,400	0.62
US 158 (between NC 34 and NC 343)	15,900	16,400	0.97
NC 343 (southeast of US 158)	2,700	15,900	0.17

In general, roadways with a volume-to-capacity ratio of less than 1.00 are operating below capacity and typically do not experience significant congestion. As shown in the data, the County's roadways are all anticipated to operate below capacity in 2040 under Scenario 1. Not surprisingly, roadways with the highest traffic volumes are the two roadways designated as US highways: US 17 and US 158. As these roadways, and others, approach their capacity, attention should be focused on intersection improvements to add capacity, such as signalization improvements and the addition of turn lanes and medians. These kinds of spot improvements can relieve stress on roadways without requiring major widening and other infrastructure.

Projected 2040 traffic volumes have not been developed for Scenario 2 (Targeted Development), but the nature of the development leads to different impacts on the transportation system that are worth noting.

Scenario 2 anticipates a range of housing types and densities and clusters higher density residential around commercial development, and in some cases encourages a mix of uses on-site. It is not anticipated that Scenario 2 would have significantly higher or different traffic volumes than Scenario 1, but the nature of the trips and patterns would be different.

Development under Scenario 2 would differ from Scenario 1 in the following ways:

- Higher density and mixed-use developments would produce different types of vehicular trips than the Status Quo Scenario. Some trips would likely be captured on-site (i.e., people living near the commercial developments using those developments instead of driving off-site).

- These commercial and mixed-use developments would also capture trips that normally would leave the County for shopping and other commercial opportunities, reducing the vehicular load on the County's main roadways.
- Targeted development areas also would be more amenable to multimodal transportation opportunities. Because different uses would be concentrated in these areas, they will be significantly more walkable than development under Scenario 1, and would also present opportunities for bicycling.

Under both scenarios, the County should continue to pursue better east-west connections through the County. The County should continue discussions with the NCDOT to develop a viable alternative that meets the County's circulation needs, as well as the needs of those passing through the County to other destinations.

Alternative Modes

Scenario 1 (Status Quo) would continue the same traditional transportation system as seen today that is rural in nature and gives highest priority to vehicles. It is anticipated that most roadways would not have accompanying sidewalks, nor facilities for bicycles (e.g., bike lanes, signed bike routes). Recreational bicycling opportunities would be found with off-street trails.

Scenario 2 (Targeted Development) would offer new opportunities for walking and bicycling, especially in the higher density areas. These areas should be designed to be walkable, with sidewalks, marked crosswalks, and pedestrian accommodations at intersections. These areas should also provide facilities and amenities to encourage bicycling, such as signed and marked lanes on development streets and areas for bicycle parking. In the event that the County develops a fixed-route transit system in the future, targeted development areas would be ideal for transit stops and possible park-and-ride opportunities.

Street and intersection design in targeted development areas should recognize the differing vehicular turning movements and walking and bicycling opportunities with higher density and mix of uses. The cross-sections below illustrate the opportunities for these areas to develop the transportation infrastructure in a way that not only encourages safe and efficient mobility, but adds to the streetscape as well:

Figure 6: Streetscape Cross Section Example 1

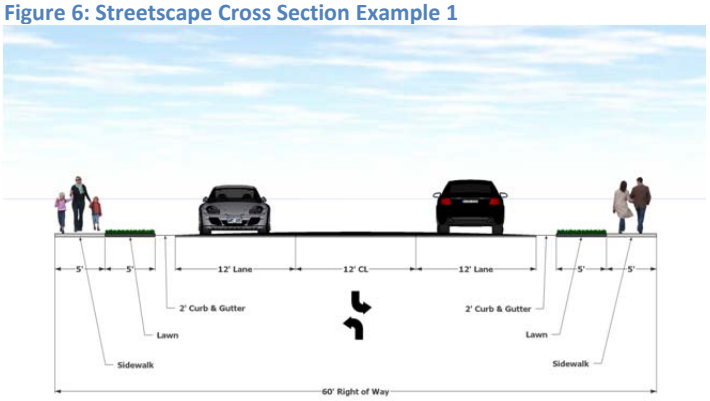
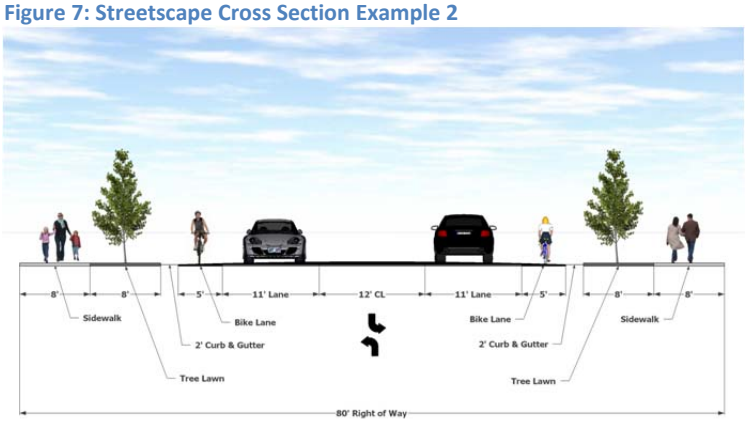


Figure 7: Streetscape Cross Section Example 2



UTILITY SYSTEMS

The two future development scenarios differ substantially with regard to their implications for utility infrastructure in terms of water supply, wastewater treatment and stormwater management. Scenario 1 offers a much more rural form of development that does not rely on centralized infrastructure. Scenario 2 offers a slightly more urban form, emphasizing village centers that would require some degree of intensive infrastructure to function properly. The following is a discussion of the specific implications of each scenario with regard to infrastructure.

SCENARIO 1

Under the current development patterns in Camden County, over 95% of households rely on on-site septic systems to treat wastewater. One of the core assumptions of Scenario 1 is that no new wastewater infrastructure will be developed, so under that Scenario, reliance on septic systems continues. This could be problematic in that the soils that dominate the vast majority of Camden County are mucky and peaty in nature. They tend to be poorly drained with extremely shallow water tables. The soils throughout the County, with a few exceptions, are not conducive to proper septic tank function, and as such, result in significant rates of septic system failure. In fact, according to the most recent NRCS Soil Survey, less than 2% of the soils present in Camden County, are suitable for septic systems.

A 2009 door-to-door survey to identify poorly performing and failing septic tanks is in the community of South Mills found 30 of 89 on-site systems failing, with another 10 problem systems reported by septage haulers. In short, almost half the systems in and around South Mills were experiencing some level of failure.

Failing septic systems result in increased risk for groundwater contamination as well as pollution of nearby surface waters. By continuing septic systems as the primary approach to wastewater treatment, Scenario 1 implies some level of environmental degradation will occur.

With regard to the water supply implications of Scenario 1, The *Long-Range Water and Sewer Comprehensive Master Plan* (McGill, 2010) states that "One of the blessings of the County is also a challenge. The lower population density lengthens the required collection mains and water transmission mains and generally increases costs and rates." Under current development patterns, approximately two thirds of households connect to and utilize one of the two public water supply systems, and the other third rely on community systems and private wells. By continuing the present pattern in Scenario 1, it would be expected that the same split would occur, resulting in the need for expansion of water treatment and distribution capacity. Relative to Scenario 2, the diffuse distribution of households in Scenario 1 will lead to a higher per capita cost of providing water service to new households.

Under Scenario 1, few, if any, new developments will exceed the thresholds of built-upon area that will trigger requirements for intensive stormwater management infrastructure. However, this will not necessarily ensure that water quality degradation from stormwater runoff will not occur. Research by the Center for Watershed Protection has repeatedly shown that significant degradation of receiving water

quality is likely to occur when overall imperviousness in a watershed exceeds 10%. Even with such low density development patterns as those in Scenario 1, development may achieve levels of impervious cover approaching, if not exceeding, that 10% threshold.

SCENARIO 2

Scenario 2 will result in substantial needs for intensive wastewater collection and treatment infrastructure. Under the current regime, the only wastewater treatment plant in the County is located in South Mills, but at present, all of the influent flow to the plant comes from the Camden Core area along Highway 158. The influent has to be pumped to South Mills through a 15-mile force main and often goes septic during the long travel times in the line, leading to treatment difficulties and compliance problems at the plant.

Scenario 2 targets 408 new residential dwelling units in the Camden Core. These new residences would result in approximately110,000 gpd of new wastewater flow. Taken together with the exiting flows from Camden, which are approaching 25,000 gpd, and flows for non-residential development and projects already slated for Camden, and the wastewater demands for Camden will likely exceed 200,000 gpd under Scenario 2.

Given that the 100,000 gpd capacity of the lone wastewater treatment plant in South Mills will be rapidly consumed by needs and projects already under way in that township, and that continuing to pipe larger and larger volumes of wastewater to South Mills is undesirable, Scenario 2 will most likely drive the need to establish a new wastewater treatment plant near and for the Camden Core. The McGill Report recommended construction of a Camden Core WWTP in order to meet the growing wastewater demands in that portion of the County. Identification and acquisition of the funding for development of the plant will be challenging.

With even more development targeted for South Mills, Scenario 2 will also result in the need for expansion of the existing wastewater treatment plant there. However, the development of Camden Plantation and other potential projects already targeted along the Highway 17 corridor South Mills will increase the possibility of engaging in public-private partnerships to aid in the funding needed for expansion of that facility.

Like Scenario 1, Scenario 2 will also result in the need for the expansion of water treatment and distribution systems, and potentially in larger capacity requirements because the higher densities in targeted development pattern will result in a far lower portion of new dwellings relying on private wells for drinking water. However, the increased cost of the higher capacity need will be offset by the lower costs of proving services across a much more dense geographic distribution.

Scenario 2 will also trigger requirements for substantial stormwater management infrastructure, in the form of stormwater ponds and other detention practices to capture and treat runoff from more urbanized landscapes. Hard infrastructure of this nature will require development of more intensive stormwater management programs within the County to cover ongoing needs such as inspection and maintenance of stormwater facilities.

Unfortunately for Camden County, the same soil properties that make most of the County unsuitable for on-site septic systems also make it unsuitable for low impact development (LID) methods to manage stormwater. LID uses a network of smaller landscape-integrated practices to capture, and often infiltrate, stormwater nearer to its source. This "softer" approach to stormwater management has been shown to be less expensive and more environmentally friendly than conventional approaches to stormwater management. The mucky soils and shallow groundwater tables in Camden County will present significant challenges to most of the infiltration-based practices associated with LID.

Collectively, the more intensive infrastructure systems that will be necessary for Scenario 2 will provide greater levels of environmental protection, but they will require substantial public investments.

Fiscal Impacts

The fiscal impacts of the two scenarios were projected using assumptions for each land use based on data derived from the U.S. Census Bureau's Public Use Micro-data Sample (PUMS), and projections of new County revenues and expenditures generated by new development as estimated from FY2010-2011 County budget and level of service data. The Appendix includes the summary tables for these assumptions.

Projected Population and Student Demand from Scenarios

The Status Quo development scenario assumes lower-density, large-lot housing that yields the demand indicators summarized in the Status Quo Demand Bases table included in the report Appendix. New residential development in this scenario is projected to add 2,222 residents and 420 public school students over 19 years.

Targeted Development assumes a variety of housing types, including smaller lots and some attached units. This scenario is projected to add 2,149 new residents and 410 public school students – slightly lower than the Status Quo Scenario. In contrast to these lower demand indicators, the Targeted Development scenario yields slightly higher vehicle trips with a total of 7,225 average weekday trips by 2030. This data is summarized in the Targeted Development Demand Bases table in the Appendix.

Overall Fiscal Projections

Property taxes are the main source of revenue for Camden County, with new development adding a cumulative total of $15.5 million over 19 years. All other revenues associated with new development yield approximately $10.7 million in cumulative revenue. Projected expenditures are shown in six major budget categories, with public safety being the major cost item.

Based on FY2011 expenditure levels, Scenario 1: Status Quo development has a cumulative cost of $28.6 million. In combination, the Status Quo scenario yields a net fiscal deficit of $2.3 million over 19 years, or an average deficit of approximately $122,000 per year.

The fiscal analysis for the Targeted Development scenario indicates a minor cumulative surplus of $611,000 over 19 years. The most important difference is the expectation of higher local option sales tax and other revenues associated with the increase in mixed retail/service development.

The key summary table showing these fiscal projections for the two scenarios is included in the Appendix.

Property Taxes

The projected property tax base for the Status Quo scenario shows that new development adds almost $295 million to Camden County's tax roll. Consistent with the current tax base, most of the increase is due to residential development.

Targeted Development adds almost $303 million to the property tax base by 2030. In comparison to the Status Quo scenario, the greater variety of housing choices yields a $2.7 million increase in the residential property tax base. The assumed increase in nonresidential floor area is the major reason for the overall growth in the property tax base.

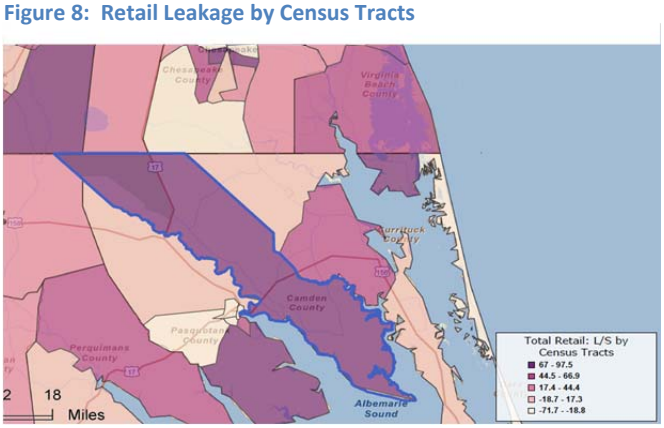
See the Appendix for the Status Quo and Targeted Development Property Tax Summary tables.

Retail Leakage Opportunities

Scenario 2 includes an additional 76,000 square feet of mixed retail/service floor area over the 19-year analysis timeframe. This amount of retail/service space is typical of a neighborhood-scale shopping center with a grocery store.

As shown in the map below, Camden County has a retail leakage score of 67.5 (out of 100), meaning residents are currently obtaining goods from outside the County.[4] Negative scores are shown with lighter shading and indicate areas with an excess supply of retailers.

Figure 8: Retail Leakage by Census Tracts



Grocery store analysis indicates that Camden County, Chesapeake and Suffolk Virginia, were all under served by grocery stores in 2007. Based on retail leakage and a lack of grocery stores, Scenario 2: Targeted Development seems realistic and a good match to market demand.

[4] This retail leakage score is assigned through ESRI market analysis.

NEXT STEPS

The next steps are to present this report to the Camden County Comprehensive Plan Steering Committee and discuss the findings. The outcomes of these discussions will be the basis for generating a county-wide future land use map that will be reviewed by the committee and the general public before being finalized in the final Comprehensive Plan.

APPENDIX

1. Land Suitability Analysis Table of Criteria and Ratings
2. Assumptions and Calculations for Development Capacity Analysis
3. Alternative Development Scenario Assumptions
4. Fiscal Analysis Methodology and Results Summary Tables

Appendix 1:

Camden County Land Suitability Analysis Criteria, Rating, and Weighting

	----------Criteria and Rating----------						
Layer Name	**Least Suitable**	**Low Suitability**	**Medium Suitability**	**High Suitability**	**Assigned Weight**	**Percent Weight**	**Multiplier**
	0	**-2**	**1**	**2**			
Coastal Wetlands	Inside		Outside				
Exceptional and Substantial Noncoastal Wetlands	Inside		Outside				
Estuarine Waters	Inside		Outside				
Protected Lands	Inside		Outside				
Federal Lands	Inside		Outside				
NonEncroachment Lands	Inside		Outside				
State Lands	Inside		Outside				
Beneficial Noncoastal Wetlands		Inside		Outside	*1*	5.000	0.05000
Storm Surge Areas		Inside		Outside	*2*	10.000	0.10000
Flood Zones			AE	X	*2*	10.000	0.10000
Significant Natural Heritage Areas		< 500'		> 500'	*1*	5.000	0.05000
Land Application Sites		< 500'		> 500'	*1*	5.000	0.05000
Hazardous Substance Disposal Sites		< 500'		> 500'	*1*	5.000	0.05000
NPDES Sites		< 500'		> 500'	*1*	5.000	0.05000
Wastewater Treatment Plants		< 500'		> 500'	*1*	5.000	0.05000
Municipal Sewer Discharge Points		< 500'		> 500'	*1*	5.000	0.05000
Developed Land		> 1 mi	.5 - 1 mi	< .5 mi	*1*	5.000	0.05000
Primary Roads		> 1 mi	.5 - 1 mi	< .5 mi	*2*	10.000	0.10000
Water Pipes		> .5 mi	.25 - .5 mi	< .25 mi	*3*	15.000	0.15000
Sewer Pipes		> .5 mi	.25 - .5 mi	< .25 mi	*3*	15.000	0.15000
Total					20	**100.000**	**1.00000**

Assigned weight: 1 = Important 2 = Very important 3 = Most important for development

Sources: William B. Farris; Frederick Steiner, *The Living Landscape* ; Beaufort County Land Suitability Analysis; Kaiser et al, *Urban Land Use Planning* ; review by Onslow County Planning Department.

Calculations for Potential Residential and Commercial Units for Each Zoning District

Residential Unit Yield = Parcel Area / Minimum Lot Size * Development Factor

Suitability Ranking	Development Factor
Med & High Suitability	0.85
Low Suitability	0.75
Least Suitability	0.5

Commercial SF Yield = Parcel Area * Stormwater Coverage Threshold * (1-Parking Factor)

Factor	Threshold
*Stormwater Coverage	0.24
Parking Factor	0.35

**Assumes that stormwater threshold addresses potential enviro factors*

Totals for Potential Residential Units and Non-Residential Square Footage by Suitability

Suitability Ranking	Sum of Acres	Residential Units	Non-Residential Square Footage
High Suitability	7,034.8	2,152	3,017,555
Medium Suitability	35,454.2	9,989	13,990,269
Low Suitability	53,797.9	2,134	0
Least Suitability	12,305.5	7,048	23,268,641
Totals	**108,592.4**	**21,323**	**40,276,465**

From ExistingLandUseClarion2-15-12

Appendix 3: Camden County Alternative Development Scenario Assumptions

Date: February 16, 2012

Scenario 1: Status Quo

Housing and Non-Residential Land Use Projections

Land Use	Development Projections (Woods & Poole) 2020	Planned Development (Approved or Zoned Status)	2030 Projections	2030 Devpt Projections Less Camden Plantation & Town Center & Wharf's Landing (Comm)
Housing (Dus)	1,460	1,996	2,920	924
Retail/Restaurant (sq ft)	69,000	200,000	138,000	(62,000)
All Other Services (sq ft)	110,000	55,000	220,000	165,000
Industrial (sq ft)	34,000	-	68,000	68,000

Development Allocation

Land Use	*Development Assumptions (total units or SF)*	*Density*	*General Location*
Single Family Agricultural	150	1DU/5 acres	Scattered within low-high suitability areas as zoned
Single Family Rural Estate	275	1DU/2acres	Scattered within low-high suitability areas as zoned
Single Family Subdivision	500	1DU/acre	Scattered within med-high suitability areas as zoned
Retail/Restaurant	--		None allocated (projections absorbed by planned development)
All Other Services	165,000 sf		Scattered along 158 Corridor, US 17 Corridor, 343 between townships
Industrial	68,000 sf		Eco Park

Design Assumptions

Follow traditional development pattern of county, SF subdivisions, not linked to services or amenities
Commercial uses segregated from residential, but located somewhat proximate and in higher traffic locations
Other than Camden Plantation, no new parks and trails developed as part of subdivisons, no mixed use development to include community facilities
Assume all new development does not exceed low density threshold of state stormwater management policies for local development in CAMA counties (0.24 impervious surface)

Scenario 2: Targeted Development

Housing and Non-Residential Land Use Projections

Land Use	Development Projections (Woods & Poole) 2020	Planned Development (Approved or Zoned Status)	2030 Projections	2030 Devpt Projections Less Camden Plantation & Town Center & Wharf's Landing (Comm)
Housing (Dus)	1,460	1,996	2,920	924
Retail/Restaurant (sq ft)	138,000	200,000	276,000	76,000
All Other Services (sq ft)	110,000	55,000	220,000	165,000
Industrial (sq ft)	34,000	-	68,000	68,000

Development Allocation

Note: Targeted Development assumes a slightly higher increase in retail/restaurant due to the density and clustering of residential units (additional 76,000)

Land Use	*Development Assumptions (total units or SF)*	*Density*	*General Location*
Single Family Estate (20%)	185	1DU/acre	South Mills, Shiloh
Single Family Neighborhood (20%)	185	2DU/acre	South Mills, Camden
Single Family Cottage (25%)	230	4DU/acre	South Mills, Camden/158
Townhouse/Condo (20%)	185	8DU/acre	South Mills, Camden/158
Apartments (15%)	140	14DU/acre	Camden/158
Mixed Retail and Services	241,000		South Mills, Camden/158, Sandy Hook
Industrial	68000 sf		Eco Park

Design Assumptions

Offer a mix of housing types, located in targeted development locations in heart of townships
Commercial uses located proximate to higher density residential to provide access, some mixed with residential in vertical or horizontal design
Commercial and residential reinforces South Mills village core and creates a new destination for boater, bikers, and recreationalists
Opportunity to develop a town center, commercial and governmental "heart" in Camden
Neighborhood parks and trails developed as part of new subdivisions/developments - creating a network through the county
Greater opportunity to master plan community green spaces in S. Mills and/or Camden
Assumes that development meets the high density threshold of state stormwater management policies for local development in CAMA counties (.60 impervious surface)

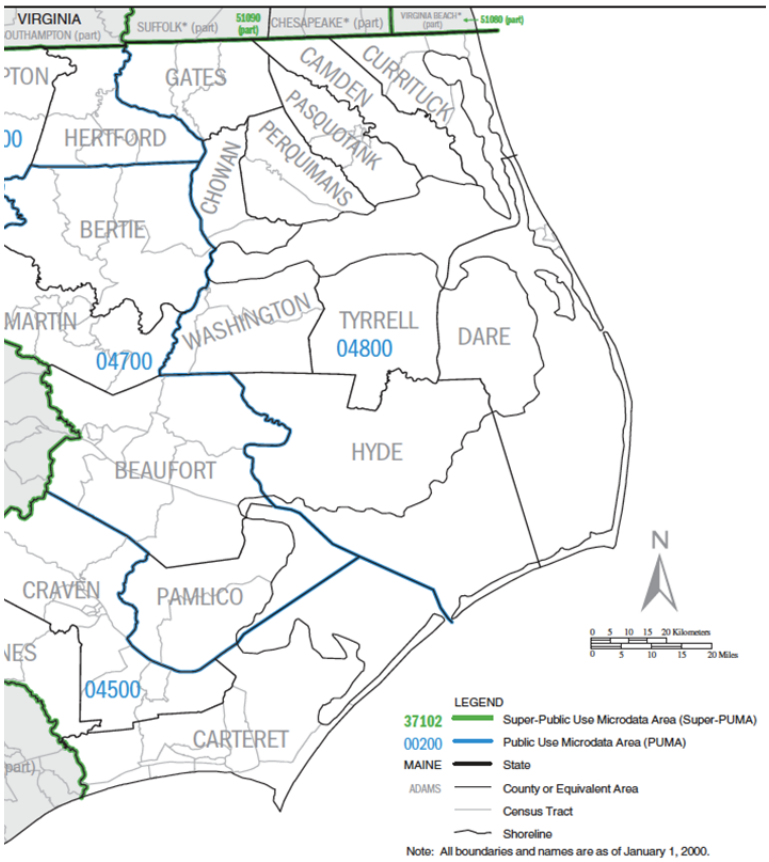
APPENDIX 4: FISCAL ANALYSIS

Development of Assumptions

Deriving Household Demand Indicators

Development of the fiscal analysis was based on assumptions about each land use of the scenarios. These "demand indicators" (i.e., persons per household, number of public school students per household, median residential property value, and number of vehicles per household) for residential land uses were derived from detailed demographic data from the U.S. Census Bureau's Public Use Micro-data Sample (PUMS). Because the data are only available for geographic areas of at least 100,000 persons, Camden County is grouped with ten other counties located in the northeast corner of North Carolina (see the map below).

Figure 1: Northeast NC PUMS Grouping



Given the predominantly rural character of the North Carolina Public Use Micro-data Area (PUMA), two additional areas in Virginia were selected that are contiguous to Camden County, and have more urbanized areas, thus providing a more robust estimate of the impacts of for future development in Camden County. The Virginia PUMSs (shown below) include Chesapeake (03000) and Suffolk/Isle of Wight/Portsmouth (03100).

Figure 2: VA PUMS Grouping

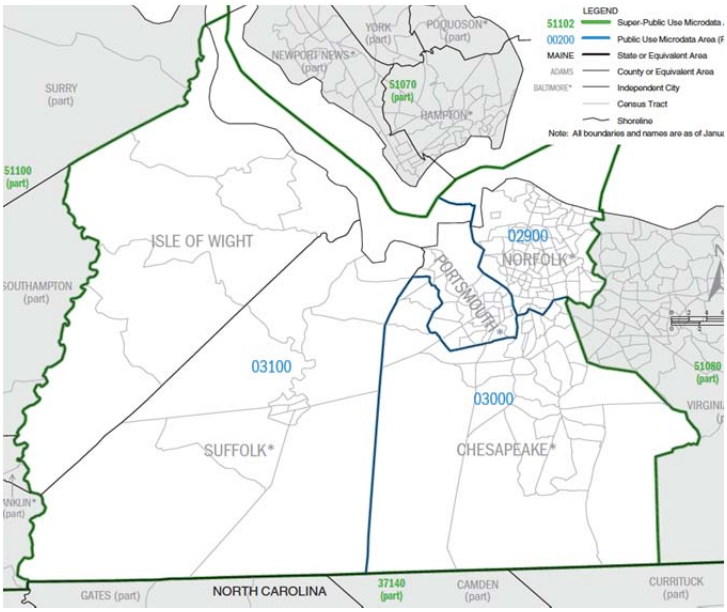


Table 1: Summary of Demand Indicators for Fiscal Analysis, shows the unweighted survey results using 2010 ACS PUMS data for the North Carolina and Virginia PUMSs. The number of persons, public school K-12 students, vehicles available, housing units, and median residential property value were converted to demand indicators per housing unit (see the middle table) and weighting factors by type of residential development (see the bottom table).

To ensure calibration to current data for Camden County, the weighting factors were applied to Camden-specific data. For example, Exurban housing from the PUMS data is 1.12 times Camden's 2010 average of 2.43 persons per housing unit. Exurban includes the three large lot-housing types (SF Agricultural, SF Rural, and SF Subdivision) identified using the lot-size variable in the Census database (1-10 acres and greater than ten acres). To differentiate between Neighborhood and Cottage prototypes, the fiscal analysis assumed Neighborhood units have four or more bedrooms, while Cottage units are 1-3 bedrooms. The Townhouse/Condo category includes single family attached units, duplexes, 3-4, and 5-9 units per structure. Apartments were defined as residential structures with ten or more units.

Table 1: Summary of Demand Indicators for Fiscal Analysis

Demand Indicators by Type of Housing (NC & VA PUMAs)

	Persons	*Students*	*Vehicles*	*Housing Units*	*Median Value*
Exurban	1,023	135	914	414	$239,000
R4_SF_Neigh	1,584	338	1,157	618	$300,000
R5_SF_Cottage	2,211	275	1,785	1,069	$187,000
R6_TH/Condo	764	134	479	375	$190,000
R7_Apartments	180	26	119	130	$200,000
TOTAL	5,762	908	4,454	2,606	$220,000

Demand Indicators per Housing Unit (NC &VA PUMAs)

	Persons	*Students*
Exurban	2.47	0.33
R4_SF_Neigh	2.56	0.55
R5_SF_Cottage	2.07	0.26
R6_TH/Condo	2.04	0.36
R7_Apartments	1.38	0.20
All Units	2.21	0.35

Weighting Factors Based on NC & VA PUMAs

	Persons	*Students*	*Median Value*
Exurban	1.12	0.94	1.09
R4_SF_Neigh	1.16	1.57	1.36
R5_SF_Cottage	0.94	0.74	0.85
R6_TH/Condo	0.92	1.03	0.86
R7_Apartments	0.63	0.57	0.91

Data Source: 2010 ACS PUMS for PUMAs
4800 in NC
3000 and 3100 in VA

Deriving Trip Generation Indicators

Cross tabulations of demographic data by residential land uses provided the input data for custom trip generation rates in the Targeted Development scenario, as shown in the table below. Because the Status Quo scenario only has Exurban housing, the fiscal analysis used the national average rate of 9.57 vehicle trip ends on an average weekday.

Table 2: Average Persons and Trip Ends by Bedroom Range (Scenario 2)

Average Persons and Trip Ends by Bedroom Range

Camden County, NC

	Persons (1)	*Trip Ends (2)*	*Vehicles Available (1)*	*Trip Ends (3)*	*Average Trip Ends*	*Housing Units (1)*	*Trip Ends per Housing Unit*
SF Exurban	1,023	3,055	914	5,360	4,207	414	10.16
SF Neighborhood	1,584	4,548	1,157	6,769	5,658	618	9.16
SF Cottage	2,211	6,160	1,785	10,398	8,279	1,069	7.74
Single Unit Subtotal	4,818	13,763	3,856	22,527	18,145	2,101	8.64

(1) American Community Survey, Public Use Microdata Sample for NC PUMA 4800 and VA PUMAs 3000 & 3100 (2010 unweighted data).
(2) Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2008). For single unit housing (ITE 210), the fitted curve equation is EXP(0.91*LN(persons)+1.52). To approximate the average population in the ITE studies, persons were divided by 9 and the equation result multiplied by 9.
(3) Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2008). For single unit housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.81). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 15 and the equation result multiplied by 15.

Key Input Variables for Fiscal Analysis

Input variables for the fiscal analysis are shown in the following tables. The table below summarizes key assumptions for each residential prototype.

Table 3: Key Assumptions for Fiscal Analysis

RESIDENTIAL:	Trip Rate	Trip Adj Factor	Real Property Value per Unit	Personal Property Value per Unit	Public School Students/Unit	Persons per Unit
SF Exurban	10.16	50%	$250,000	$72,000	0.43	2.68
SF Neighborhood	9.16	50%	$314,000	$72,000	0.71	2.78
SF Cottage	7.74	50%	$196,000	$72,000	0.34	2.25
Townhouse/Condo	5.81	50%	$199,000	$72,000	0.47	2.21
Apartments	6.59	50%	$209,000	$72,000	0.26	1.50

Deriving County Revenues Generated by New Development

Camden County FY2011 tax data are summarized on the following page, yielding the average values of $230,000 per housing unit and $44 per square foot of nonresidential floor area in Camden County. The current tax and property tax collection rate were held constant over the fiscal analysis timeframe.

Table 4: Property Taxes by Property Type (FY2011)

PROPERTY TAXES	Actual Property Tax Revenue	Property Tax Levy	Cumulative Assessed Valuation	Allocation Ratio	Tax Rate	Collection Rate	Current Average Market Values
Residential Real Property			$971,959,089	94%	0.0059	89%	$ 230,000 / Hsg Unit
Com/Ind Real Property			$62,039,942	6%	0.0059	89%	$ 44 / Sq Ft
Residential Personal Property			$272,725,387		0.0059	89%	$ 72,000 / Hshld
Com/Ind Other & Public Service Companies			$32,988,277		0.0059	89%	$ 23 / Sq Ft
			$0		0.0059	89%	
TOTAL	$7,055,955	$7,904,305	$1,339,712,695		0.0059	89%	

In addition to Property Tax revenue, three general revenue categories were used in the fiscal analysis.

Table 5: Other General Revenue Categories Analyzed (FY2011)

Revenue Name	Base Year Bdgt Amt (in $000's)	Revenue Base	Revenue Yield	Base Unit
Local Option Sales & Other Taxes/Licenses	$3,217.061	NR1	$3,201.06	Per Mixed Retail Service
Restricted Intergovernmental	$1,353.562	P	$133.21	Per POPULATION
All Other Revenues	$1,282.939	PJ	$92.39	Per POP & JOBS

Deriving County Expenditures Generated by New Development

Current level-of-service factors for six expenditure categories were derived from Camden County FY2010-11 budget amounts. Because traffic accidents contribute significantly to the workload of public safety personnel, vehicle trips are used as the demand indicator for public safety expenditures. The increase in public school enrollment correlates to education expenditures. Population, or population plus jobs, are the demand indicators for the other four expenditure categories.

Table 6: Estimated County Expenditures and Level of Service Factors

Dept. or Budget Name	Base Year Bdgt Amt (in $000's)	Demand Bases			Level of Service Factors	
		Select	Name	Number		
Public Safety	$4,017.886	TVT	VEH TRIPS	30,694	$130.90	/VEH TRIPS
Education	$1,947.337	TE	TOTAL ENROL	1,922	$1,013.18	/TOTAL ENROL
General Government	$2,195.963	PJ	POP & JOBS	13,886	$158.14	/POP & JOBS
Human Services	$1,280.189	P	POPULATION	10,161	$125.99	/POPULATION
Debt Service	$1,526.161	PJ	POP & JOBS	13,886	$109.91	/POP & JOBS
All Other Expenditures	$2,218.446	P	POPULATION	10,161	$218.33	/POPULATION

Fiscal Analysis Summary Tables

The following two tables identify by year 1, 2, 10, and 19 in the projected planning years (2011-2030) the projected revenues, expenditures, and net fiscal impact of each scenario. Scenario 1 results in a negative fiscal impact and Scenario 2 results in a positive fiscal impact, due to the variety of housing types and the increase in retail/restaurant square footage assumed for Scenario 2.

Table 7: Scenario 1 - Status Quo Fiscal Analysis Summary Table

Budget Summary			**Status Quo Fiscal Analysis**				Camden County, NC
		Year =>	1	2	10	19	Cumulative
(Values in $000's)			2012	2013	2021	2030	Total
REVENUES							
PROP		Residential Real	$59	$118	$590	$1,121	$11,205
TAXES		Nonresidential Real	$3	$6	$28	$54	$536
		Res Personal Prop	$18	$37	$185	$351	$3,508
		Nonres Other Property	$1	$3	$15	$28	$285
Subtotal:	1	Property Taxes	$82	$164	$818	$1,553	$15,533
OTHER	2	Local Option Sales & Other Taxes	$28	$56	$278	$528	$5,282
	3	Restricted Intergovernmental	$16	$31	$156	$296	$2,960
	4	All Other Revenues	$13	$26	$132	$250	$2,503
Subtotal:		Other Revenues	$57	$113	$566	$1,074	$10,745
TOTAL ANNUAL REVENUES:			$138	$277	$1,383	$2,628	$26,278
EXPENSES							
	1	Public Safety	$50	$99	$496	$943	$9,431
	2	Education	$22	$45	$224	$426	$4,258
	3	General Government	$23	$45	$225	$428	$4,284
	4	Human Services	$15	$29	$147	$280	$2,799
	5	Debt Service	$16	$31	$157	$298	$2,977
	6	All Other Expenditures	$26	$51	$255	$485	$4,851
TOTAL ANNUAL COSTS:			$151	$301	$1,505	$2,860	$28,601
NET FISCAL IMPACT							
		Annual	($12)	($24)	($122)	($232)	($2,324)
		Cumulative	($12)	($37)	($673)	($2,324)	

Table 8: Scenario 2 - Targeted Development Fiscal Analysis Summary Table

Budget Summary		Targeted Development	Fiscal Analysis			Camden County, NC	
		Year =>	1	2	10	19	Cumulative
(Values in $000's)			2012	2013	2021	2030	Total
REVENUES							
PROP		Residential Real	$60	$119	$597	$1,135	$11,350
TAXES		Nonresidential Real	$4	$7	$37	$71	$711
		Res Personal Prop	$18	$37	$185	$351	$3,508
		Nonres Other Property	$2	$4	$20	$38	$378
Subtotal:	1	Property Taxes	$84	$168	$839	$1,595	$15,946
OTHER	2	Local Option Sales & Other Taxes	$41	$81	$406	$771	$7,715
	3	Restricted Intergovernmental	$15	$30	$151	$286	$2,862
	4	All Other Revenues	$14	$27	$136	$258	$2,576
Subtotal:		Other Revenues	$69	$138	$692	$1,315	$13,152
TOTAL ANNUAL REVENUES:			$153	$306	$1,531	$2,910	$29,098
EXPENSES							
	1	Public Safety	$50	$100	$498	$946	$9,457
	2	Education	$22	$44	$219	$416	$4,159
	3	General Government	$23	$46	$232	$441	$4,409
	4	Human Services	$14	$28	$142	$271	$2,707
	5	Debt Service	$16	$32	$161	$306	$3,064
	6	All Other Expenditures	$25	$49	$247	$469	$4,691
TOTAL ANNUAL COSTS:			$150	$300	$1,499	$2,849	$28,487
NET FISCAL IMPACT							
		Annual	$3	$6	$32	$61	$611
		Cumulative	$3	$10	$177	$611	

The following two tables identify by year 1, 2, 10, and 19 in the projected planning years (2011-2030) the projected demand bases (population, housing, jobs, residential units, nonresidential floor area, and school enrollment) for each scenario. These demand bases are used along with projected revenue and expenditure data to project the net fiscal impact of each scenario.

Table 9: Scenario 1 - Status Quo Demand Bases Summary Table

Status Quo Fiscal Analysis				Camden County, NC	
		1	2	10	19
		2012	2013	2021	2030
DEMAND BASES (cumulative)					
P	POPULATION	117	234	1,169	2,222
H	HOUSEHOLDS	49	97	487	925
J	JOBS	26	51	256	487
PJ	POP & JOBS	143	285	1,426	2,709
TVT	Total Veh Trips	379	758	3,792	7,205
RT	***Residential Units:***	49	97	487	925
R1	SF Exurban	49	97	487	925
R2	SF Neighborhood	0	0	0	0
R3	SF Cottage	0	0	0	0
R4	Townhouse/Condo	0	0	0	0
R5	Apartments	0	0	0	0
RVT	Res Veh Trips	247	495	2,474	4,700
NRT	***NRes Floor Area (000's):***	12	25	123	233
NR1	Mixed Retail Service	9	17	87	165
NR2	Industrial	4	7	36	68
NRVT	NRes Veh Trips	132	264	1,318	2,504
TE	***School Enrollment:***	22	44	221	420

Table 10: Scenario 2 - Targeted Development Demand Bases Summary Table

Targeted Development Fiscal Analysis					Camden County, NC
		1	2	10	19
		2012	2013	2021	2030
DEMAND BASES (cumulative)					
P	POPULATION	113	226	1,131	2,149
H	HOUSEHOLDS	49	97	487	925
J	JOBS	34	67	336	639
PJ	POP & JOBS	147	293	1,467	2,788
TVT	Total Veh Trips	380	761	3,803	7,225
RT	***Residential Units:***	49	97	487	925
R1	SF Exurban	10	19	97	185
R2	SF Neighborhood	10	19	97	185
R3	SF Cottage	12	24	121	230
R4	Townhouse/Condo	10	19	97	185
R5	Apartments	7	15	74	140
RVT	Res Veh Trips	193	387	1,935	3,676
NRT	***NRes Floor Area (000's):***	16	33	163	309
NR1	Mixed Retail Service	13	25	127	241
NR2	Industrial	4	7	36	68
NRVT	NRes Veh Trips	187	374	1,868	3,549
TE	***School Enrollment:***	22	43	216	410

The following two tables identify by year 1, 2, 10, and 19 in the projected planning years (2011-2030) the projected tax bases for each scenario by land use. These tax bases are used to develop projected County tax revenues.

Table 11: Scenario 1 - Status Quo Tax Bases Summary Table

TAX BASES	Status Quo	Fiscal Analysis		Camden County, NC	
		1	2	10	19
(In $ Millions)		2012	2013	2021	2030
		Annual Market Value Increase due to Residential Develop			
RES	SF Exurban	$11.2	$11.2	$11.2	$11.2
PROPERTY	SF Neighborhood	$0.0	$0.0	$0.0	$0.0
	SF Cottage	$0.0	$0.0	$0.0	$0.0
	Townhouse/Condo	$0.0	$0.0	$0.0	$0.0
	Apartments	$0.0	$0.0	$0.0	$0.0
	Total Annual Increase:	$11.2	$11.2	$11.2	$11.2
	Cum Total Real Res Property:	$11.2	$22.4	$112.0	$212.8
		Annual Market Value Increase due to Nonresidential Dev			
NON-RES	Mixed Retail Service	$0.4	$0.4	$0.4	$0.4
PROPERTY	Industrial	$0.2	$0.2	$0.2	$0.2
	Total Annual Increase:	$0.5	$0.5	$0.5	$0.5
	Cum Total Real Non-Res Prop:	$0.5	$1.1	$5.4	$10.2
PERSONAL	Residential:	$3.5	$7.0	$35.1	$66.6
PROPERTY	Non-Res:	$0.3	$0.6	$2.8	$5.4
	Cum Total Personal Property:	$3.8	$7.6	$37.9	$72.0
	CUMULATIVE TAX BASE:	$15.5	$31.0	$155.2	$294.9

Table 12: Scenario 2 - Targeted Development Tax Bases Summary Table

TAX BASES	Targeted Development	Fiscal Analysis			Camden County, NC
		1	2	10	19
(In $ Millions)		2012	2013	2021	2030
		Annual Market Value Increase due to Residential Develop			
RES	SF Exurban	$2.4	$2.4	$2.4	$2.4
PROPERTY	SF Neighborhood	$3.1	$3.1	$3.1	$3.1
	SF Cottage	$2.4	$2.4	$2.4	$2.4
	Townhouse/Condo	$1.9	$1.9	$1.9	$1.9
	Apartments	$1.5	$1.5	$1.5	$1.5
	Total Annual Increase:	$11.3	$11.3	$11.3	$11.3
	Cum Total Real Res Property:	$11.3	$22.7	$113.4	$215.5
		Annual Market Value Increase due to Nonresidential Dev			
NON-RES	Mixed Retail Service	$0.6	$0.6	$0.6	$0.6
PROPERTY	Industrial	$0.2	$0.2	$0.2	$0.2
	Total Annual Increase:	$0.7	$0.7	$0.7	$0.7
	Cum Total Real Non-Res Prop:	$0.7	$1.4	$7.1	$13.5
PERSONAL	Residential:	$3.5	$7.0	$35.1	$66.6
PROPERTY	Non-Res:	$0.4	$0.8	$3.8	$7.2
	Cum Total Personal Property:	$3.9	$7.8	$38.8	$73.8
	CUMULATIVE TAX BASE:	$15.9	$31.9	$159.3	$302.8