



Town of Leland

CAMA Land Use Plan Update

2011

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Part I. Community Concerns and Aspirations

This update of the Town of Leland's CAMA Land Use Plan is part of a broader comprehensive planning process that has been underway in the Town since 2005. The elements of this planning process and their connections are shown in the chart below. Three of the planning elements completed to date provide a physical framework for growth and development in the community: a set of collector street plans provide the basic transportation framework for the Town; a bicycle plan lays out an important transportation alternative that will be implemented in segments in the coming years; and a parks, recreation, and open space plan provides guidance for preserving passive and active green spaces. The conservation and settlement plan, also called the Leland master plan, builds on the street, bicycle, and open space plans along with additional planning analysis and policies to "provide guidance to Leland's leaders as they make decisions on where and how the community should grow." The master plan also incorporates goals and objectives from the CAMA LUP management topics¹.

The CAMA Land Use Plan Update is directly linked to these planning elements. In addition, however, it includes a planning information base, analysis, and policy development that are required by the CRC CAMA Land Use Planning rules (15A NCAC 07B.0702).

The CAMA planning rules place emphasis on public participation in the planning process. The Town's planning board served as the steering committee for the plan. A number of focused task forces and committees appointed by Town Council participated in specific policy areas in the plan.

Planning Area

This plan covers only the geographic area included within Leland's municipal boundaries. Even though there is a direct connection between growth and development in the town and the typical "extra territorial area," the Town lacks any planning jurisdiction beyond its limits. Construction of the I-140 By-pass, the planning for the "Skyway" that provides a second connection between northern Brunswick County and the Wilmington area, and extensions of water and sewer will create significant development forces in the "extra" area. A goal for future CAMA plan updates is to include the additional area in the Town's planning jurisdiction.

¹ Public access, land use compatibility, infrastructure carrying capacity, water quality, and natural hazards [see 15A NCAC 07B.0702 (d)(3)].

Community Concerns and Planning Aims

Public participation and comment, plus data and trend analysis, provide the basis for identifying the key community concerns and aspirations that drive Leland's land use planning process. To gain the views of the citizens that live and work in Leland, the Town organized two major participation processes. The first included public meetings held at the outset of the CAMA plan update in 2006. The second is a "charrette" that was steered by the Lawrence Group as part of the master planning process. The "charrette" included a general public workshop followed by a weeklong series of small-group workshops with dozens of citizen and business stakeholder groups. Taken as a whole, the results of public participation and data and trend analysis focus on the following concerns and aspirations and key planning issues.

1. **Population growth.** Since 2000, the Town of Leland has seen a steep increase in its population growth trend owing to ongoing real estate development in northern Brunswick County and aggressive annexation by the Town. In 2000, the Census placed the Leland population at 1,938 people. The most recent population estimate by the State Demographer is 13,408 (2009). The population increase for the 9-year period is more than 590%.
2. **Building permits.** The Town began issuing building permits in the 2005-06 fiscal year², and in the past six fiscal years the Town has issued 4,000 residential permits. This permit trend is a measure of the physical affect of the Town's population growth.
3. **Traffic concerns.** To date, the Town's growth has been predominantly residential. While very recent trends show an increase in commercial and business uses in Leland, employment, shopping, and entertainment require trips to New Hanover County by way of the Cape Fear Memorial Bridge. As a result, the Bridge and US17/74/76, which connects Leland to the bridge, are the top two traffic volume locations in the Wilmington MPA.

The Town's adopted bicycle plan provides a comprehensive guide for the development of bicycle facilities in the community. The intent of this plan is to provide an alternative to the automobile for transportation and for bicycles to be part of a long term solution to traffic problems. Implementation of this plan is a focus for the land use plan and the implementation strategy.

In addition to the bicycle plan, the Town Council has actively pursued four major priorities that will help solve traffic problems: (1) widening the causeway between Leland and the Cape Fear Memorial Bridge; (2) completing the I-140 bypass that will direct traffic around the town; (3) installing an intersection at the Old Fayetteville Rd. overpass at

² Before 2005-06, building permits in Leland were issued by Brunswick County.

US 74-76; and (4) completing the connector between NC 133 and US 17 at the Mallory Creek and Brunswick Forest developments.

4. **Public water supply.** North Brunswick Regional Water and Sewer (H2GO) supplies drinking water to a large portion of the Leland planning area. H2GO buys treated water from Brunswick County, which obtains its raw water from the Cape Fear River. Brunswick County also serves a small area of the town, and Leland recently began providing public water service to the Brunswick Forest community. The Town also buys treated water from Brunswick County.

While Brunswick County has a long range plan to increase the capacity of its treatment plant, water supply has not be a significant growth and development issue in the planning area. H2GO recently completed ground storage and elevated storage projects to address a need for increased pressure in their system. System extensions have not been an issue because most extensions are installed by private developers.

5. **Wastewater collection and treatment.** Handling of wastewater is a major concern associated with growth in Leland. Wastewater treatment is handled by Brunswick Regional (H2GO) at a treatment plant near the Belville community and by Brunswick County at a treatment plant near the Phoenix community. The H2GO plant serves a portion of the US 17 corridor and areas outside of the town. The remainder of the Town's service area is served by the Brunswick County treatment plant. The Town has an allocation of 747,600 gpd in the county plant. At the current time, the Town has allocated approximately 2.76M gallons per day of capacity in the plant for planned development. This allocation for planned development is approximately 3.7 times the Town's plant allocation. The Town's actual current daily utilization (2010) is approximately 642,000 gallons per day, or 86% of the total.

Brunswick County has completed preliminary design for a treatment plant expansion and has initiated final design with a construction completion target of 2012. This expansion will meets the regions treatment needs for the near to mid-term at which time an additional expansion will be required.

Also, the county started the process of designing an upgrade and expansion of the transmission system that carries wastewater from the Town's collection system to the treatment plant. This project will be completed concurrently with the plant expansion.

6. **Open space and public access.** The need for public access to public trust waters and to develop open space for recreation and to give form to the community are clearly recognized as goals for the community. Public surveys support this need. The Town has taken steps to provide public access through a gift of a riparian tract on Sturgeon Creek and a subsequent purchase of an adjacent access site on the creek using NC DCM access funding. In addition, the Town has acquired, through gifts, approximately 150 acres of

creek-side property on Mallory Creek. Development of this tract, using a NC PARTF grant, for passive environmental recreation is underway. These acquisitions and development provide a backbone for the Town's access and open space system.

As the amount of land subdivided for more intensive uses grows, the opportunities to reserve open space shrinks. Even though the Town has completed a comprehensive plan for open space and access, implementation of this plan is a key issue addressed by the land use plan and more concretely in the implementation strategy.

6. **Water quality.** In an urban environment, impervious surface is the major obstacle to maintaining and improving water quality. The Town is in the third year of its Phase II NPDES storm water permit program. The program includes an oversight committee, education, remediation, and a storm water ordinance that addresses impervious surface. However, an essential element of the land use plan must be to encourage future settlement patterns and development practices that minimize impervious surfaces.
7. **Housing conditions.** The Town has had success in eliminating dilapidated manufactured homes within its jurisdiction, and it continues to focus efforts in this area. However, a number of occupied, substandard homes remain. In addition, the availability of quality workforce housing that satisfies the needs of families with modest incomes is a priority element of the land use plan.
8. **Community appearance and environmental hazards.** The Town has a number of active and abandoned "junk yards" that represent a visual problem at best and an environmental hazard at worst for the community, residents, and surrounding land uses. The plan should include policies that eliminate or mitigate these problem areas.
9. **Community design.** Public input points clearly to the desire for creation of a traditional mixed use town center along the Village Road corridor. In addition, the plan must include strategies and policies that limit the "strip" effect of commercial development along US 17, that encourage development that is sensitive to the natural systems in the area, and that links future development, in both a design and physical sense, to the existing development in this corridor.
10. **Civic needs.** The Town of Leland as a municipal entity must plan to accommodate the growth forecast. This affects town-provided services and it affects town facilities. The Town is designing and constructing a civic complex on a site at the intersection of Old Fayetteville Road and Town Hall Drive. The plan must include policies that encourage complementary uses in the surrounding areas.

The land use plan update incorporates these key issues in both policies and the future land use map.

Planning Vision Statement

In 2030, the Town of Leland is recognized as the community of choice in southeastern North Carolina.

Leland is the economic center of Brunswick County. Its business-friendly environment encourages existing businesses to remain and grow and it attracts new businesses. The result is ample, well-paying jobs and small business opportunities for residents. The business climate is enhanced by vibrant commerce centers in the Ocean Highway corridor and the traditional downtown at Village Road.

The Town has quality neighborhoods with housing opportunities and designs for people of all income levels, life stages, and personal abilities. Leland's neighborhoods are convenient to community amenities; they are connected with recreation facilities, open space corridors, sidewalks, and walk-bike trails.

The Town is recognized also for its facilities and services that support an evolving program of recreation, arts and cultural activities, and community participation that foster a healthy, cohesive community.

Leland is the Cape Fear Region's model green community. The town has preserved natural areas, urban forests, and tree-lined streets that are woven into its neighborhoods. The Town is noted for its clean water, its programs to manage storm water, its alternatives for mobility, and its efforts to recycle and reuse.

The Town has a multifaceted transportation system that enables people of all ages and incomes to easily get around. The Town has an outstanding system of streets, sidewalks, trails, and bikeways that allow alternatives to the car for transportation. A collector road system manages traffic in the Town's neighborhoods.

Town of Leland Mission Statement

The Town of Leland is dedicated to supporting a livable community for its citizens by delivering quality and high value public services; providing infrastructure systems required for safety, mobility, and health; encouraging community development that preserves natural features and provides living, shopping, working, and civic spaces within easy access; and providing opportunities for citizens to be engaged in the life of the community.

Part 2. Existing and Emerging Conditions - Planning Information Base

This part of the plan is a planning information base that consists of technical studies and information for developing the Town's growth and development policies and the future land use map. This information base suggests alternatives and supports the formulation of policies. The specific elements are consistent with the following requirements of the CAMA planning guidelines:

Population, Housing, and Economy	Analysis of Community Facilities
Natural Systems Analysis	Land Suitability Analysis
Analysis of Existing Land Use and Development	Build-out Analysis
	Existing Policies - Implementation

A. Population, Housing, and Local Economy

This section provides a snapshot of the people who live in Leland. Since the 2000 census, the NC Data Center estimates of population put the town's growth at nearly 600%. Leland has been the fastest growing municipality in North Carolina.

The recent release of the American Community Survey (2005-2009) provides some additional and more current demographic and economic information for the town. The NC State Data Center provides long range population projections for counties and the town's forecasts are based on these projections and the town's past shares of the county's population. The Town will review these forecasts when the 2010 census is available.

I. Population change

The Town of Leland was incorporated in 1989, so there is only a 20 year period for which census population estimates are available. The following table shows the population trend from 1990 to 2009. After a period slow growth between 1990 and 2000, the town experienced a period of rapidly accelerating growth during the 2000-2009 period. According to building permit trends, the town's population growth has dampened somewhat; however, the Town continues to issue a significant number of permits for new houses - an average of 25 permits per month for FY 2009-10 and FY 2010-11 to date.

Town of Leland Population Growth, 1990-2009				
Year	1990	2000	2005	2009
Population	1,801	1,938	5,189	13,408

Sources: US Census; NC State Data Center

2. Population forecast

The State Data Center does not make population projections for municipalities, so Leland's twenty-year population forecast is keyed to the State Data Center's forecast for Brunswick County. The low, moderate, and high forecasts are based on trend analysis and the town's projected share of the county's population. The moderate forecast is considered to be the most realistic and it is used as the plan's population forecast.

Permanent Population Forecast, 2010-30				
		Town of Leland		
Year	Brunswick County	Low	Moderate	High
2010	112,000	13,500	13,500	13,500
2015	129,500	15,000	17,000	25,000
2020	147,000	17,000	22,000	32,000
2025	163,500	24,000	35,000	45,000
2030	180,000	27,000	39,000	51,000
Projections prepared by Leland Planning Department, 2009				

3. Age

Information on the age of Leland's population is based on the Census Bureau's American Community Survey (ACS) 5-year data release. The information is based on data collected between January 2005 and December 2009. Given the town's rapid growth, even this information may be dated, but it is more current than the 2000 census.

It has been generally accepted that Leland's population is "older." However, compared to Brunswick County as a whole, the town's population has younger age characteristics. Nearly 29 percent of Brunswick County's population in the older 60 years+ age group compared to 18.9% in Leland. North Carolina, which has a younger population compared to other states, has 17.5% of its population in the 60 years+ age group — more like Leland's. The town's median age is 37.5 years, which is comparable to the state median age (36.6 years) and which is significantly lower than the county as a whole (46.1 years).

Approximately 10% of the town's population is in the less than 5 years age group, which compared to both the state and the county is a large share of young people. As a whole, Brunswick County has 5.4% of its population in the less than 5 years age group and North Carolina has 7%.

The town's population age structure has important implications for policy development, including physical development of the community and service delivery programs.

4. Housing

Trends. From the 2005-06 fiscal year to the end of 2009-10, the town issued 3,214 permits for new homes. The majority of the new homes are single family attached or detached structures. Four hundred seventy-five apartments and multifamily structures were built since 2005-06 — 15 percent of the total.

Building permit trends	
Year	Number of permits
2005-06	1,092
2006-07	893
2007-08	546
2008-09	353
2009-10	330
Total	3,214
Yearly average for period	643
Source: Town of Leland Inspections	

Physical characteristics. Most of the town's housing stock is single-family detached homes. The 2009 estimate is 71 percent of the units are single-family; 21 percent are mobile homes; and 8 percent are either apartments or duplexes. Approximately 70 percent of the home are owner occupied.

Housing conditions. Town Council's Housing Policy Task Force recognized that housing conditions are still an issue in the community, even with the strong construction trend. Somewhat dated information from HUD shows that about 50 percent of all renters and 33 percent of all owners have housing problems. Among the older residents and the lower income households, the problems are more pronounced.

Leland Housing Conditions				
Percentage of households with housing problems	Elderly renters	All renters	Elderly owners	All owners
Total households	50%	49.4%	35.3%	33.3%

Leland Housing Conditions				
Percentage of households with housing problems	Elderly renters	All renters	Elderly owners	All owners
Very low income households	50%	81.3%	66.7%	66.7%
Moderate income households	50%	27.6%	29.6%	25.2%
Higher income households	0	11.3%	20.9%	11.6%

Source: US HUD, Housing Problems Output for All Households, SOCDS CHAS Data, 2000

5. Local economy

Income. The American Community Survey says that Leland is slightly better off financially than the state as a whole. The median family income in Leland is \$57,569 compared to \$55,529 for the state. The percentage of families living in poverty is comparable to the state — 11.3 percent. However, the percentage of families with children living below the poverty level in Leland is significantly higher than the state. In Leland, 23.2 percent of families with children less than 18 years and 23.9 percent of families with children less than 5 years live below the poverty level. This is compared to 17.4 percent and 19.1 percent respectively for the state.

Employment. The table below shows some dramatic shifts in the occupations of Leland residents associated with dramatic population growth since 2000. During the nine-year period, the percentage of residents employed in service occupations¹ decreased by nearly one-half between 2000 and 2009. Also, the share of residents in management, professional, and similar occupations grew by the same percentage (48%), during the nine years. It is safe to assume that the in-migration of households during the period brought with it a large number of people with employment, skills and training in management and the professions. At the same time, the number of people in service occupations remained relatively constant.

¹ Service occupations include healthcare, protective services, food preparation and serving, maintenance, and personal care.

Leland occupations, 2000 to 2009		
Occupation	Percentage of civilian workforce, age 16+	
	Decade change	
	Leland town 2000	Leland town 2009
Management, professional, and related occupations	21.6%	31.9%
Service occupations	13.5%	7.0%
Sales and office occupations	27.7%	25.7%
Farming, fishing, and forestry occupations	0.0%	0.0%
Construction, extraction, maintenance, and repair occupations	18.1%	17.2%
Production, transportation, and material moving occupations	19.0%	18.3%
Source: US Census Bureau, American Community Survey, 2009 release		

The next table provides a different employment picture. It compares changes in Leland employment by industry between 2000 and 2009. The picture is stable with three exceptions: the share of the workforce employed in construction declined by about 25 percent over the nine-year period; the share of retail trade employment increased by a similar amount (24 percent); and the share of education, health, and social service employment increased by 26 percent during the period. These changes may be associated with the immigration of families over the nine year period and decline in housing construction at the end of the period.

Leland employment, 2000 to 2009		
Industry	Percentage of civilian workforce, age 16+	
	Leland town 2000	Leland town 2009
Agriculture, forestry, fishing and hunting, and mining	0%	0%
Construction	16%	12%
Manufacturing	15%	14%
Wholesale trade	3%	1%
Retail trade	17%	21%
Transportation and warehousing, and utilities	5%	5%
Information	1%	1%

Leland employment, 2000 to 2009		
Finance and insurance, and real estate and rental and leasing	5%	5%
Professional, scientific, and management, and administrative and waste management services	6%	6%
Educational services, and health care and social assistance	14%	19%
Arts, entertainment, and recreation, and accommodation and food services	9%	6%
Other services, except public administration	6%	6%
Public administration	3%	4%
Source: US Census Bureau, American Community Survey, 2009 release		

B. Consideration of Leland's Natural Systems

Leland's natural systems provide the foundation for developing the kind of community described in the vision statement. The community's lifestyle is dependent on all the elements of the coastal environment; certain systems, like soils, present opportunities and limitations; and natural hazards, like floods and coastal storms, require planning to manage their affects on life and property.

The purpose of this section is to present an assessment of major elements of the town's natural systems that provide a key part of the physical framework for land use plan development. The assessment follows the requirements of the CAMA planning guidelines.

I. Natural systems analysis

a. Areas of Environmental Concern

An area of environmental concern (AEC) is land or water where uncontrolled or incompatible development may cause irreversible damage and may result in destruction of features of the North Carolina coast that make it economically, aesthetically, and ecologically rich.² In Leland, there are four categories of AECs: coastal wetlands, estuarine waters, public trust areas, and coastal shorelines. The following are descriptions of these categories from the Coastal Resources Commission administrative rules (Subchapter 7H):

Leland's AECs

Coastal wetlands are defined as any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (even if the tide waters reach the marshland areas through natural or artificial watercourses), provided this shall not include hurricane or tropical storm tides. Coastal wetlands are characterized by the presence of marsh plant species that are detailed in Subchapter 7H.

Estuarine waters include all the waters of the rivers and streams seaward of the dividing line between coastal fishing waters and inland fishing waters. The boundaries between inland and coastal fishing waters are set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environment and Natural Resources and in the most current revision of the North Carolina Marine Fisheries Regulations for Coastal Waters. In Leland, the Brunswick River for its entire length next to the town is the only water body classified as an estuarine water. (The Brunswick River for its entire length is a joint water by agreement between Marine Fisheries and the Wildlife Resources Commission.) The rest of the major creek systems in the town are classed as inland waters.

Public trust areas applicable to Leland are described in the CRC rules as follows:

- Natural bodies of water subject to measurable lunar tides and lands there under to the normal high water or normal water level;
- Navigable natural bodies of water and lands thereunder to normal high water or normal water level as the case may be, except privately-owned lakes to which the public has no right of access;

² State Guidelines for Areas of Environmental Concern.

- Waters in artificially created bodies of water containing public fishing resources or other public resources which are accessible to the public by navigation from bodies of water in which the public has rights of navigation; and
- Waters in artificially created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication, or any other means.

Coastal shorelines include estuarine shorelines and public trust shorelines.

The **estuarine shoreline** AEC includes non-ocean shorelines extending from the normal high water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters, and public trust areas for a distance of 75 feet landward. The shoreline of the Brunswick River is the only estuarine shore in the town.

Public trust shorelines are non-ocean shorelines immediately contiguous to public trust areas located inland of the dividing line between coastal fishing waters and inland fishing waters and extending 30 feet landward of the normal high water level or normal water level. The shorelines of the major creek systems — Town Creek, Mallory Creek, Jackeys Creek, and Sturgeon Creek — are classified as public trust shorelines.

Development Objectives for Leland’s AECs

The planning area’s AECs and their development objectives are described in greater detail below.

(i.) **Public trust area AEC.** The public trust areas AEC covers all of the surface waters in the planning area. The management objective for this AEC is “to protect public rights for navigation and recreation and to conserve and manage public trust areas to safeguard and perpetuate their biological, economic, and aesthetic value.”

(ii.) **Estuarine waters AEC.** The Brunswick River is the only estuarine water AEC and it is a subset of public trust waters.

The use standards for the estuarine water AEC give highest priority to conservation of estuarine waters and their vital components. Second priority of estuarine waters use shall be given to those types of development activities that require water access and use which cannot function elsewhere such as simple access channels; structures to prevent erosion; navigation channels; boat docks, marinas, piers, wharves, and mooring pilings.

(iii.) **Coastal shoreline AEC.** The *estuarine shoreline* is a band of dry land that extends landward from the normal high water line a distance of 75 feet. It is intimately connected to the Brunswick River, meaning that incompatible development within the estuarine shoreline can have serious effects on estuarine water quality. The *public trust shoreline* includes the non-estuarine shoreline immediately contiguous to public trust areas. This shoreline AEC extends 30 feet landward of the normal high water level or normal water level.

The shoreline AECs are considered to be especially vulnerable to erosion and the adverse effects of wind and water. Key guidelines for land uses and development in these areas include:

- Should not weaken or eliminate the shoreline’s natural barriers to erosion;
- Limit impervious surfaces to the amount necessary to support the use – may not exceed 30% of the AEC area;
- Develop or other impacts within 50’ from normal water level may require approval from the Division of Water Quality; within 75 feet landward from normal water level may require CAMA permit.

(iv.) **Coastal Wetlands AEC.** No coastal wetlands were identified in the planning

Maps of Leland's AECs are available on the Town's website or from the town planning department.

b. **Soils.**

In Leland, with community sewer collection and treatment services available, the typical soil assessment of septic tank suitability is not applicable. However, the characteristics of the planning area soils have an important link with storm water runoff and water quality.

The federal Soil Conservation Service (NRCD) Curve Number Method provides a simple tool for evaluating soils and runoff. The curve number approach provides an estimate of the amount of runoff generated from a storm event based on the soil's hydrologic group (HSG) and the type of land cover or land use. The higher the curve number the greater the volume of runoff from a given storm event.

The NRCD provides the following descriptions of the four HSGs (type A through D):

- A. Soils with a high infiltration rate when thoroughly wet and a low runoff potential. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.
- B. Soils with a moderate infiltration rate when thoroughly wetted and consists chiefly or moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.
- C. Soils with low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.
- D. This HSG has the highest runoff potential. Soils have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material.

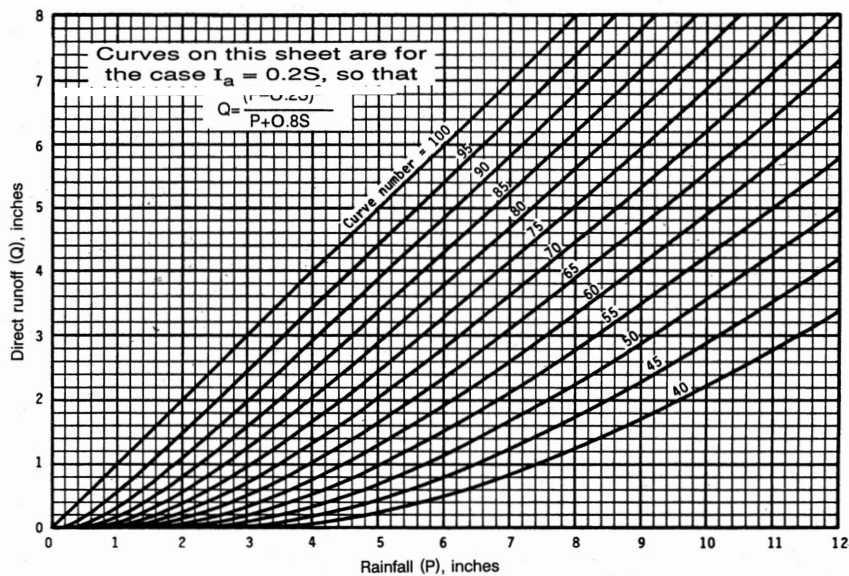
The distribution of soil HSGs in the Leland planning area is as follows: A – 24%, B – 14%, C – 26%, and D – 36%. Development and land disturbing activities on approximately 62% of the soils in the watershed, without storm water management practices, have higher risks of affecting water quality. The matrix in table below shows the relationship between HSG, land cover, and land use.

Land use, hydrologic soil group, and curve number					
Land uses and land cover types	Est.% Impervious Area	Hydrologic Soil Group			
		A	B	C	D
Cultivated	-	64	75	82	85
Grassland	-	39	61	74	80
Forest	-	30	55	70	77
Lawns, golf courses, and similar areas	-	49	69	79	84
Commercial	85	89	92	94	95
Low density residential (0.5ac+)	25	54	70	80	85
Moderate density residential (0.25ac-0.5ac)	38	61	75	83	87
High density residential (<0.25ac)	65	77	85	90	92

Source: SCS, USDA, 1986.

The curves associated with the curve numbers shown in the matrix are illustrated in the figure below from the Soil Conservation Service.

Land use intensity, site planning and development, and storm water best management practices should take into account the distribution patterns of HSG and the specific HSGs found on development sites.



c. **Natural hazard areas**

The planning area's highest priority natural hazard is flooding caused by rain events and storm surge from coastal storms. The flooding is concentrated in the stream margins along Sturgeon Creek, Jackey's Creek, Mallory Creek, Town Creek, and the Brunswick River. These areas are either Zone A or Zone AE. The maps for storm surge from both fast and slow moving hurricanes overlay the A and AE flood zones. The Town has policies and ordinances in place to address development in these flood prone areas.

Man made hazards. The town has active and inactive auto wrecking yards and possible hazardous material storage areas. These sites are possible water quality and public health concerns. They also affect the types of development that are possible nearby these uses. The plan should include strategies and policies to address these existing land uses.

No problem underground storage tanks (USTs), either in operation or abandoned, were identified.

d. **Non coastal wetlands**

The coastal management process incorporates non-coastal wetlands as well as salt water wetlands, even though they have not received the same level of protection. The US Army Corps of Engineers defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency of duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions."³

Mapping from the Division of Coastal Management provides a rating scheme for non-coastal wetlands that reflects their overall importance from the standpoint of water quality protection, flood mitigation, and habitat. These ratings from least to most significant are beneficial, substantial, and exceptional. These ratings are used in the wetland analysis. Since one of the major thrusts of the CAMA land use plan is water quality, only substantial and exceptional wetlands are mapped. These wetlands must be a part of the land development calculus to adequately protect water quality. These wetlands overlap with soil limitations and their development is either regulated USACOE, NCDWQ, NCDLQ, or the local storm water management program.

e. **Fragile areas**

There are several important "natural and fragile" sites in the Leland planning area. All are either in public or non profit ownership.

The Town owns three of the sites: (1) The Kirby Sullivan tract/Townsend parcel is located on Mill Creek and accessed by Appleton Way. The Sullivan portion of this site is a 26-acre freshwater swamp that was donated to the Town. The Town bought the adjacent Town-

³ US Army Corps of Engineers, *Wetlands Delineation Manual*.

send parcel, with assistance from NCDCCM, to provide enhanced access to Mill Creek. The site is planned for public access and an environmental education center. (2) The Town also owns two parcels on Eagles Island. One of the parcels is inside town limits and the other, which is jointly owned with Lower Cape Fear RC&D, is located near the Town limits. The Town is participating with other owners and natural resource non profits to develop a conservation and interpretation plan for the island. (3) Westgate Nature Park is a 150+acre natural area in the Jackeys Creek stream margin. The Town recently received a PARTF grant to initiate development of this park. The development will support interpretive and educational programs and passive recreation uses. The fourth site consists of conservation easements along Town Creek owned by the North Carolina Conservation Land Trust. This land is either in or next to the town limits.

The town's plan will take into account the significance of these areas and the possible affects of various land uses and development processes.

The Fragile Areas Map, which depicts the general location of fragile areas, may be accessed on the Town's website.

Threatened and endangered species. The NC Natural Heritage Program identifies six threatened or endangered animal and plant species that may be located in Brunswick County and possibly the Town of Leland. These include the rough-leaf loosestrife, Cooley's meadowrue, red-cockaded woodpecker, bald eagle, wood stork, and American alligator. The most important of these species are described in more detail below.

Rough-leaf loosestrife – Threatened

Rough-leaf loosestrife is native to the coastal plain and sandhills of North Carolina. The existing populations in North Carolina are located in the following counties: Beaufort, Bladen, Brunswick, Carteret, Cumberland, Harnett, Hoke, New Hanover, Onslow, Pamlico, Pender, Richmond and Scotland. Its habitat includes tidal marshes, non-tidal marshes, and shrub swamps, and non-tidal wetlands.

Cooley's meadowrue – Endangered

Cooley's meadowrue is currently found in 11 locations in North Carolina. The plant is typically found in wet pine savannas, grass-sedge bogs, and savanna like areas with soils that range in acidic to alkaline where the habitat is kept open by frequent fire or other disturbance. The plant is threatened by habitat loss due to drainage, conversion to forestry, agriculture or development, and succession through fire suppression.

Red-cockaded woodpecker – Endangered

Red-cockaded woodpeckers need live, large older pines in which to excavate their cavities. Longleaf pines (*Pinus palustris*) are most commonly used, but other species of southern pine are also acceptable. Dense stands (stands that are primarily hardwoods, or

that have a dense hardwood understory) are avoided. Foraging habitat is provided in pine and pine hardwood stands 30 years old or older with foraging preference for pine trees 10 inches or larger in diameter. Eighty to one hundred twenty-five acres of good, moderately-stocked, pine habitat, are required for foraging.

Bald eagle – Endangered

Bald Eagles live near large bodies of open water in estuarine and public trust shorelines and coastal wetlands where there are plenty of fish to eat and tall trees for nesting and roosting. In 1982, there were zero bald eagle nests in North Carolina. In 1998, there were 17 nests; in 2000, there were 34 nests.

Wood stork – Endangered

Storks prefer freshwater and brackish wetlands. They search for food in the shallow water of ponds, lakes, narrow tidal creeks, flooded tidal pools, and marshes particularly where the water level is dropping and food is trapped in isolated pools. Storks frequently nest in cypress trees. The threat to the bird comes from loss of habitat and alteration of natural hydrology. Logging of cypress trees is a major threat element. Policies that protect wetland habitats help protect the stork.

f. Composite environmental map

Map I, the Composite Environmental Map on the following page, shows the extent and overlap of the town’s major natural systems and features that are described in this subsection. The map provides a visual guide for locating areas that may have fewer environmental limitations for development or those areas that present the greatest opportunities. The map is a tailored version of the model provided by DCM. Map I is found on the following page.

The following chart shows the factors and the assessments used to prepare the map.

Environmental Factor	Class I	Class II	Class III
Soil characteristics	HSG 1/2	HSG 3/4	
Non-coastal wetlands	Beneficial	Substantial	Exceptional
Flood hazard area (zones)		A and AE	

The classes shown in this table and on the composite map are defined below:

Class I	Land containing only minimal hazards and limitations that may be addressed by commonly accepted land planning and development practices.
Class II	Land containing development hazards and limitations that may be addressed by methods such as restriction on types of land uses; special site planning; or the provision of public services.
Class III	Land containing serious hazards for development of land where the impact of development may cause serious and irreversible damage to the functions of natural systems located there.

The map shows that most of the planning area to be in either Class I or Class II. Old Leland and the developing Brunswick Forest community have predominantly Class I and Class II areas. The areas with concentrated Class III are in the Magnolia Greens and Waterford communities that are already developed.

2. Environmental conditions

CAMA planning guidelines require a land use planning assessment of special conditions associated with water quality, natural hazards, and natural resources with a focus on identifying limitations and opportunities for development. For the Leland area, the core environmental condition is water quality. Natural resources, in the form of preserved natural areas, are also considerations in plan development. Each of these is described in more detail below.

There are no locations in the planning area that have experienced repetitive losses due to storms.

a. Water quality

The draft 2005 update of the Cape Fear Basinwide Water Quality Plan⁴ is the source for water quality information. The plan provides details two streams in the planning area: the Brunswick River, which borders the eastern limit of the planning area; and Town Creek, which borders the southern and western boundaries. The Brunswick River is impaired for Aquatic Life from its source to the Cape Fear River; it is assessed as satisfactory for recreation. Station BA707 is the location where criteria were not met. This location is near outside of the planning area and is near Brunswick County's NE Regional Wastewater Treatment Plant.

The Brunswick River is the only delineated shellfish harvesting area. This area is classified as prohibited.

Non-point source pollution. No specific non-point sources are identified as being associated with the impaired condition of the Brunswick River. However, for land use planning purposes, it is reasonable to assume that water quality in the river is related to non-point source pollution. It is also useful to consider that water quality in Town Creek is satisfactory.

⁴ <http://h2o.enr.state.nc.us/basinwide/documents/chapter17subbasin-17.pdf>. Accessed 2.24.11.

Land use and development policies and storm water management can help improve water quality in the Brunswick River and protect water quality in Town Creek.

b. **Natural resource areas**

Subsection 5, Fragile Areas, describes several preserved natural areas in the Leland planning area. Preservation of these natural areas is an essential consideration in design of the land use plan.

C. Existing land use and development

This section provides a “snap shot” of current development the Leland planning area about how the land is currently used and the development trends that are emerging. The analysis provides a base for projecting future development patterns and future land needs. A map that illustrates existing land use, an assessment of growth areas, and a projection of future land needs are included here.

1. Existing land use patterns

Over the past decade, the planning area experienced rapid expansion through the annexation of both contiguous and satellite areas. At the same time, the original Leland core also saw substantial renewal of deteriorated housing areas and some new development. These new and emerging development trends are made possible by the provision of community water and sewer services.

2. Existing land use

The amount of land in various land use categories is shown in the table below.⁵ The total land area of Leland is approximately 13,700 acres, or 21.4 square miles. The predominant land use is for residential purposes, 18% of the total area. This residential total reflects the strong residential development trend over the past decade. Commercial and industrial uses occupy only 1% of the total area for each category. These percentages are somewhat lower than might be expected in an older, more developmentally mature community. For example, a community study in Georgia⁶ found that approximately 12% of total area was devoted to commercial uses and 2% to industrial uses. The same study found a much smaller percentage of the total area classified as vacant — 26%.

As Leland continues to develop, it is expected that a larger number of commercial services will be provided close-at-hand in the community and that employment opportunities will increase. If these trends materialize, the share of commercial and industrial land uses will increase. Likewise, the percentage of land in civic uses will increase and the percentage of vacant land will decline.

⁵ Land use area calculated from Brunswick County land records.

⁶ <http://www.dca.state.ga.us/development/PlanningQualityGrowth/programs>. Accessed 3.1.11.

Land use category	Acres	Percentage of total (does not add to 100% due to rounding)
Residential	2,499	18%
Commercial	104	1%
Industrial	96	1%
Civic	210	2%
Vacant land	10,777	79%
Total	13,686	100%

Beginning in 2005, the Town of Leland focused mitigation efforts on the physical deterioration and environmental hazards at several mobile home parks in old Leland. These efforts have been largely successful with eight of the parks either demolished or closed. The park sites are shown the mobile home park map below. The closure and removal of these mobile home parks will make revitalizing areas in old Leland less complicated.

Map 2 shows the town’s generalized pattern of existing land use. It is found on the following page.

3. Land use patterns, trends, and growth areas

There are trends in Leland’s land use and development that will influence the design of the land use plan. Some of these trends are detailed below:

- Residential development is trending toward higher densities and somewhat smaller houses. These trends are related somewhat to the national economy and changes in the real estate market; however, people appear to be looking for different lifestyles as well. This trend will last beyond the real estate issues.
- Current residential real estate development also appears to be amenity oriented, with value placed on open space, bike trails, and the like. Pedestrian and bike orientation and the ability to walk or bike to satisfy daily shopping needs are increasingly seen as important components of residential development.
- At the current time, commercial development in Leland is not keeping pace with residential development. However, the future may favor smaller “box” development that is closely connected to residential neighborhoods.
- There is some traditional industrial development in Leland. However, most residents must commute to work. There does not seem to be a measurable trend to location and development of traditional industrial-type land uses.

- In the last few years, there has been a heightened interest in creation of public spaces like parks, water access facilities, and open space corridors. Linkages with existing communities are seen as important parts of this overall trend.

All annexed areas have experienced growth over the past decade. Some of the annexed communities are “built out.” However, recently three areas continue to experience some growth: Brunswick Forest, which targets middle and upper income; Mallory Creek, which targets middle income homeowners; and Windsor Park, which targets young families and “empty nesters.”

These trends provide an additional part of the framework for designing the land use plan.

D. Community facilities

Community facilities — sewer, water, roads, and storm water management systems — can be the major growth generators and guides for the planning area. They provide the fourth part of the basic land use planning framework for the town. Where these facilities are in place and have adequate capacity, they may generate and attract development; where they are not in place or where they are not adequate, they may inhibit development. Land use and development policy must consider community facilities, their current and future location, and possible upgrade where they are not adequate.

I. Sewer and water service

a. Sewer

Service and service areas. Sewer service in Leland is complex. The incorporated area is served by three water and sewer providers. The Town of Leland operates a sewer collection system that serves the new developing areas in the northern portion of the US 17 corridor, the Brunswick Forest community south of US 17, a large portion of the old Leland area between US 74/76 and Sturgeon/Mill Creek, and Windsor Park, which is a satellite residential community. Brunswick Regional Water and Sewer collection system (BRWS) serves mainly the new developing area south of the US 17 corridor and the area in old Leland west of Sturgeon Creek. BRWS also serves the Grayson Park satellite community.

Brunswick County operates the Northeast Regional Wastewater Treatment Plant (NRWPT) that treats wastewater from the Town and the BRWS collection system.⁷ A regional wastewater transmission system carries wastewater from the collection systems to the plant. BRWS operates a treatment plant in Belville. This plant treats wastewater from the

⁷ This plant also treats wastewater from collection systems operated by Brunswick County, the Town of Northwest, and the Town of Sandy Creek.

Leland areas south and east of US 17. Operation, maintenance, and expansions to this facility are paid for by the NE Partners.⁸

Treatment. The treatment capacity at NRWPT is 1.65 mgd. Leland's allocation at the plant is 747,600 gpd, or 45% of the plant's capacity. To date, Leland has allocated approximately 2.76 mgd of flow to the plant, which is more than 300% of the Town's allocated capacity. Of the total allocated by the Town, NCDWQ has permitted 2.72 mgd of flow to the plant.

Even though allocated and permitted flow is well above the plant's capacity, actual flow to the plant is a more important consideration. According to Town records, the average daily flow from the Leland system to the plant in 2010 was 608,000 gpd, which is 81% of the Town's allocation. NCDWQ rules require the process to upgrade and expand treatment plants to begin when flow reaches 80%. This process is underway at the NRWPT. Engineering design and permitting is underway for an expansion from 1.65 mgd to 2.475 mgd. Leland is allocated one-half of the expansion, or 0.4125 mgd, for a total town after-upgrade capacity of 1.16 mgd. When the expansion is complete in late 2012, the Town's current flow will be approximately 50% of total capacity.

This expansion should satisfy Leland's needs until about 2022⁹ when another expansion process will be required. However, if the rapid pace of development returns, then the expansion will be required sooner.

Collection. Initial installation of Leland's collection system, including lift stations and force mains, is the responsibility of developers. Ongoing maintenance, replacements, and expansions and upgrades are the responsibility of the Town. A regional transmission system, owned and operated by Brunswick County but financed by NE Partners, connects the individual collection systems to the NRWPT.

An evaluation of the transmission system concludes that the system is capable of handling the current 1.65 mgd design capacity of the NRWPT. Flows beyond this amount will require upgrades and expansions to the system. Specifically, it will be necessary to upgrade two major lift stations and upgrade associated force mains in concert with the expansion of NRWPT. Initial engineering analysis required for these upgrades are complete and design will begin soon.

b. **Water**

Leland has three entities that supply drinking water: Brunswick County in the Windsor Park community; the Town in Brunswick Forest; and NBWS in the remainder of the incorporated area. The Town's system in Brunswick Forest is new. Service was initiated in November 2010. The system has approximately 550 customers and it is expected to grow to 1,500 customers by 2015.

⁸ NE Partners are Leland, Navassa, BRWS, Northwest, and Brunswick County.

⁹ According to flow projections by WK Dickson Engineers, 2011.

Brunswick County provides treated water to all three systems from its treatment plant at Kings Bluff on the Cape Fear River. The county system is adequate to meet the treated water needs of the three systems. However, there have been some pressure issues during high summer demand periods. NBWS recently put new ground and elevated storage facilities in service, which has significantly improved pressure for its service area. Pressure in town's Brunswick Forest system is excellent; however, elevated storage will be required long term beyond the period of this plan.

A Water and Sewer Service Area Map, which shows the current sewer and water service areas of Leland, Brunswick County, and the North Brunswick Regional W&S in the incorporated area in Leland, may be accessed on the Town's website.

3. **Streets, highways, and supporting facilities**

Current thoroughfare plan. The thoroughfare plan for Leland was adopted by the town and the Metropolitan Planning Organization (MPO) in 2005. The plan designates US 74/76, a portion of US 17, and the Causeway that connects Leland to the Cape Fear Memorial Bridge as urban principal arterials, or freeways. As freeways, these highways have controlled access. Village Road, from Lanvale Road to the US74/76-US17 intersection is designated as an urban minor arterial. The function of this road is to provide access to the older developed area of Leland and to interconnect US74/76 and US17. Lanvale Road, Old Fayetteville Road, and River Road, NC 133, are designated as urban collector highways. They provide access within the developed areas of the town. According to the MPO, the following highways or intersections have failing service levels of "E" or "F": Lanvale Road/US74-76 intersection; Village Road, from South Navassa Road to US 74/76-US 17; and the Causeway from the Village Road intersection to the Memorial Bridge. The illustration on page _ shows a schematic of these highway facilities.

TIP and system improvements. An upgrade and expansion of the section of Village Road between S. Navassa Road and the Causeway intersection is currently underway and scheduled for completion in 2011. At completion, Village Road will be a divided four-lane street with a planted median. The Village Road/S. Navassa Road intersection is being realigned to remove the existing offset.

The current Transportation Improvement Program (TIP) includes four projects that affect traffic in the Leland planning area: the I-140 bypass that will connect I-40 in New Hanover County with US 17 just south of Leland; expansion of the Causeway between Leland and Wilmington to add one additional travel lane in each direction; expansion of Village Road from S. Navassa Road to Mt. Misery Road; and the "Cape Fear Skyway," which is a toll road and bridge to connect I-140 with southern New Hanover County. The northern portion of I-140 is complete and construction of southern section from US 17 to US74/76 is underway. Construction of the "middle" section is planned in the current TIP.

NCDOT completed preliminary investigations for an interchange at US74/76 and Old Fayetteville Road, but this project is not included in the current TIP.

Leland priorities. In June 2010, Town Council approved the following transportation priorities for funding in the TIP:

- Widening the Causeway between Leland and Wilmington;
- Install an interchange on Old Fayetteville Road at US74/76;
- Install bike lanes on Village Road and Old Fayetteville Road;
- Establish a safe bicycle and pedestrian crossing for the US 17 freeway; and
- Provide a bike connection from the US 17 commercial areas to the residential areas along River Road (NC 133).

Along with these priorities, the Council also adopted policies that affect current TIP projects. In 2010, Town Council declined to approve the official corridor map for the Cape Fear Skyway after the required public hearing. The Council concluded that reserving the corridor for the facility would not be in the best interest of Leland residents and property owners due to environmental impacts, neighborhood impacts, and the cost of construction and operation of the facility.

In 2011, Council adopted a resolution requesting NCDOT to downsize phase 2 of Village Road from a four-lane to a two-lane facility with a multipurpose path. The reasons for requesting the downsizing are (1) that traffic does not justify a four-lane street; (2) that a four-lane street is not consistent with the Town's master plan; and (3) that cost savings could be applied to other needed projects in the planning area.

4. Storm water management

Leland has an approved Phase II NPDES storm water permit and is in its third year of implementing the plan required by the permit. Town Council adopted a Phase II Stormwater Ordinance in 2009 and the Town's stormwater manager is responsible for implementation and enforcement. The Leland Town Council appoints a stormwater committee to monitor the program and to advise staff and council on implementation. The ordinance follows a NCDENR model that includes standards for high density and low density development.

The stormwater implementation program includes the following activities:

- public education and outreach
- public participation
- detection and elimination of illicit discharges
- construction site and post construction site runoff controls
- pollution prevention and good housekeeping for Town of Leland operations
- Short-nosed sturgeon (endangered species) awareness program

There are numerous private storm water systems in the Leland planning area. The only system with known violations is in the Westport neighborhood on the south side of

Leland near River Road (NC133). The HOA and developer are working with NCDWQ to resolve the problems.

The Belville WWTP, operated by BRWS, is the only known permitted point-source in the planning area. This plant complies with its discharge permit.

E. Land suitability analysis

The purpose of the land suitability analysis is to determine the town's supply of land that is suited for development based on the following considerations: natural systems; compatibility with existing development and land uses; local, state, and federal land use policies; and the availability of water, sewer, transportation, and stormwater infrastructure.

The suitability analysis illustrated in Map 3, which is found on the following page, is an element of the Town's conservation and settlement plan, prepared in 2007-08. The key components of the analysis are summarized below:

- **Least suitable.** These are areas with significant environmental limitations where development may have an unacceptable affect on natural systems or where there are natural hazards that may affect lives or property. The least suitable areas include exceptional wetlands, floodways and buffers, and existing parks and natural areas under public or nonprofit management options.
- **Somewhat suitable.** These are areas that have substantial limitations for development either from the standpoint of natural systems and hazards or from the lack of availability of necessary services and infrastructure, like water and sewer and highways. The somewhat suitable areas include substantial wetlands, flood hazard areas, and other lands at some distance from the existing infrastructure network. These areas are best suited for low intensity development.
- **Very suitable.** These are the areas that have minimal limitations for development. They are not within sensitive environmental systems; they can be reached easily by water and sewer service; and they have easy access to the existing highway system. These areas are suited for the most intensive development patterns. In addition, the old Leland area is suited for infill and redevelopment programs.

G. Review of implementation of 1999 CAMA plan

A brief analysis of the implementation of key policy statements in the 1999 CAMA Land Use Plan is provided below. The 1999 plan includes a large array of policies that address the planning requirements that existed then. These policies are summarized below:

- To preserve, protect and enhance the planning area's natural resources.

- To minimize development and encourage low intensity development in areas with man-made and natural hazards.
- To prohibit development in AECs that is not consistent with the CRC use standards.
- To minimize further deterioration of water quality in planning area surface waters, to restore water quality to the highest standards possible, and to prevent the loss of public trust water access.
- To preserve open space and to develop parks and a trail system for the community.

The Town has made consistent progress toward implementing regulations, policies, and programs that address these CAMA land use policies. These implementation measures are described below:

1. The Town Council adopted a zoning ordinance and subdivision regulations in 2002.
2. The Town Council adopted a Flood Damage Prevention Ordinance in 2006. The ordinance is enforced by the flood plain administrator.
3. The Town began enforcing the state building code in 2005.
4. The town adopted a stormwater management program and ordinance in 2009.
5. The town has developed three public access sites:
 - A) “Kirby Sullivan tract” on Mill Creek.
 - B) Townsend property on Mill Creek.
 - C) Natural area on Jackeys Creek.

The town is actively pursuing public access improvements on these sites.

6. Town Council has a housing policy committee to address housing needs. The Town also enforces a minimum housing code to encourage rehab or demolition of substandard structures.
7. The town enforces a system of environmental codes to address illegal dumping.

Part 3. Leland Future Land Use Plan—Community Goals, Growth and Development Policies, and Future Land Use Map

A. Land Use and Development Goals

Leland's goals for future land use describe in detail the community's desired outcomes in terms of land use and physical development for the planning horizon. The goals are a product of several stages of the planning process, including public meetings, dialogue with the steering committee (Planning Board), and suggestions from the Town Council. The goals are intended to provide guidance for policies and the future land use map. They are not intended to contain town policy.

1. Preserve adequate amounts of open space, protect areas of natural beauty and critical environmental systems, including AECs.
2. Guide new development toward existing neighborhoods and communities and make sure that it fits with existing development patterns, building designs, and land uses.
3. Achieve compact and sustainable neighborhood and building designs that make future communities more accessible with fewer affects on the natural environment.
4. Encourage cool neighborhoods that foster a sense of community and commitment to the town.
5. Encourage mixed land uses where they are appropriate.
6. Connect town neighborhoods to make them walkable and "bikeable."
7. Provide a range of transportation choices for Leland and ensure that planned transportation projects are designed to minimize their negative affects on existing neighborhoods and on the town's future plans.
8. Create a range of living options for current and future town residents.
9. Make land use and development in Leland a collaborative process for the community and its stakeholders.

B. Leland’s Future Land Use Policy Framework

The CAMA planning guidelines require land use plans to include a set of future policies. In this plan, a policy is a principle to guide community decisions so that the town’s goals are realized. The planning guidelines also specify five policy focus areas that the plan must address. The five areas are public access, development and use of resources, infrastructure carrying capacity, natural and man made hazard areas, and water quality. The plan also includes policies that address local concerns. Leland’s policies are detailed below.

I.0 Public access to creeks and rivers

The aim of town’s access policies is to manage the shorelines of the planning area so that current and future residents will have appropriate access to public trust waters. The town’s policies focus on access in four areas: Mill Creek in the northeastern part of the planning area; the Brunswick River in the northern area; and Jackeys Creek in the central area. Access to the Cape Fear River in the southeastern area and Sturgeon Creek in the northern part of the planning area are very long range objectives.

- I.1 The town is committed to creating neighborhood and community-level public access facilities and environmental education centers to improve and enhance access to public trust waters for residents. Access includes active uses of the resource like fishing or boating, and passive uses like nature photography or bird watching.
 - I.1.1 Mill Creek Environmental Education Park is a multiphase project that will include a small launch facility for canoes and kayaks, additional parking, universal accessibility improvements, an interpretative trail and outdoor classroom, and connections to the surrounding neighborhoods. Capital planning for this facility includes five budget years.
 - I.1.2 Westgate Nature Park has a complete master plan that a passive recreation and environmental education park. A 3.35 acre upland tract of land, located in the middle of the surrounding single and multifamily residential and commercial developments, will act as a trail head for the Westgate Trail System which will provide approximately 4.9 miles of multi-use greenway through 146.5 scenic acres of cypress swamps, a large water lily pond, woody wetlands, pine forest, and tidal creek ecosystems. Capital planning for this facility includes five budget years.
 - I.1.3 Leland-Eagles Island-Navassa Paddle Trail is a regional access concept that involves several local entities. The plan is to link Leland, Navassa, and Eagles Island by means of a system of paddle trails that provide recreation, natural and historic interpretation of Eagles Island, and a base for ecotourism programs. Leland and Navassa will serve as anchors for this project. Capital planning for this project is five years+.
- I.2 The Town will begin planning for additional community-level access locations at the Brunswick and Cape Fear River shorelines. These access locations will accommodate motor craft, sport fishing, as well passive recreation.

- I.3 Through the development review process and incentive options, the town will encourage property owners and development interests to reserve access locations where natural resources and other site characteristics are appropriate.
- I.4 The town will encourage the NC DOT to incorporate access sites in its highway and bridge plans where such sites are applicable, considering location, highway conditions, space available, and the visual and biological quality of the shoreline and public trust waters.

2.0 Land use compatibility

The aim of the town's land use compatibility policies is to provide assurance that the development and use of land avoids direct and secondary environmental affects to the extent possible, avoids public health and safety risks, and minimizes any negative affects of new development on existing land uses. The policies provide an appropriate balance between resource protection and community economic development.

The land use compatibility policies are organized in a six-part sector framework: Preserved open space sector; Very low intensity sector; Restricted growth sector; Controlled growth sector; Intended growth sector; and Infill-redevelopment sector. Policies for each of these sectors are described below.

- 2.1 Preserved open space sector. This planning sector includes the community's basic green space, which provides protection of water quality and sensitive natural systems, preserves critical wildlife habitat, provides protection from flooding, and provides needed recreation and green space for the community's residents.
 - 2.1.1 Land resources included in this sector:
 - 2.1.1.1 Exceptional¹ wetlands with a 50-foot riparian buffer.
 - 2.1.1.2 Floodways.
 - 2.1.1.3 Existing parks.
 - 2.1.1.4 Land in public resource management by public or nonprofit organizations.
 - 2.1.2 Appropriate land use and development types in this sector:
 - 2.1.2.1 Conservation areas.
 - 2.1.2.2 Parks and greenways.
 - 2.1.2.3 Agriculture and forestry.
 - 2.1.2.4 Limited civic uses, such as schools.
- 2.2 Very low intensity sector. This planning sector includes land that has the lowest potential for development as a result of the limitations or risks associated with natural system or the difficulty of providing public infrastructure and services. For the planning horizon, these areas should remain in a predominantly rural state.
 - 2.2.1 Land resources included in this sector:

¹ NC-CREWS Wetlands Study. NC Division of Coastal Management.

- 2.2.1.1 Substantial² wetlands.
- 2.2.1.2 Flood zones A,AE, and X500 (100 and 500-year flood zones).
- 2.2.1.3 Areas designated as *least suitable* on the Land suitability analysis map.
- 2.2.2 Appropriate land uses and development types in the sector:
 - 2.2.2.1 Conservation areas.
 - 2.2.2.2 Parks and greenway systems.
 - 2.2.2.3 Agriculture and forestry.
 - 2.2.2.4 Limited civic uses, such as schools.
 - 2.2.2.5 Very low density residential development on large individual lots (typically 5 ac. gross) or in clusters.
- 2.3 Restricted growth sector. This planning sector is intended for very limited development under tight guidelines for the plan horizon. The land in this sector does not have the significant environmental constraints of the very low intensity sector (2.2), but it is located at some distance from the planning area thoroughfare system. In addition, land in the restricted growth sector is located at some distance from planned neighborhoods and regional centers. These are forecasted to be low growth areas due to limited access to transportation, utilities, and other amenities.
 - 2.3.1 Land resources included in this sector: Beneficial wetlands³ and other land not proximate to streets and highways, utilities, regional centers, and other community amenities.
 - 2.3.2 Appropriate land uses and development types in the sector:
 - 2.3.2.1 Low density cluster developments or hamlets.
 - 2.3.2.2 Low density residential development (up to 1 dwelling unit per 2 acre gross).
 - 2.3.2.3 Limited convenience retail uses.
 - 2.3.2.4 Civic uses, such as parks, schools, religious uses, and government operations.
- 2.4 Controlled growth sector. This planning sector includes more dense, mixed use development with neighborhood centers and suburban, residential development characterized by traditional, walkable neighborhoods.
 - 2.4.1 Land in this sector is close to thoroughfare network and at key cross-road locations. It has utility services close-at-hand.
 - 2.4.2 Appropriate land uses and development types in the sector:
 - 2.4.2.1 Traditional neighborhood development.
 - 2.4.2.2 Neighborhood centers.
 - 2.4.2.3 Single-family and multifamily residential development.
 - 2.4.2.4 Neighborhood-serving commercial uses (office and retail).
 - 2.4.2.5 Civic uses.
 - 2.4.2.6 Limited industrial uses.

² NC-CREWS.

³ NC-CREWS.

- 2.5 Intended growth sector. This planning sector is located along the US 17 corridor, where transportation access and public utility services are readily available. It is intended for higher intensity regional center developments that accommodate the widest range of land use and development types.
- 2.5.1 Planning for this sector includes land along high-capacity regional arterials, at major transportation nodes, and along portions of highly traveled corridors.
- 2.5.2 Appropriate land uses and development types in the sector:
- 2.5.2.1 Single-family and multifamily residential.
 - 2.5.2.2 Neighborhood serving commercial uses.
 - 2.5.2.3 Civic uses.
 - 2.5.2.4 Traditional neighborhood developments.
 - 2.5.2.5 Neighborhood centers.
 - 2.5.2.6 Regional centers.
 - 2.5.2.7 Industrial districts.
- 2.6 Infill—Redevelopment sector. This planning sector includes areas in “Old Leland” where there is an existing street grid and public utility services are available. The planning sector is divided into two subareas: downtown and mid-town. Village Road and Old Fayetteville Road are the main corridors defining this planning sector. The land use and development concepts for these areas are described as follows:
- 2.6.1 Downtown Area
- Redevelop existing shopping centers, out-parcels, and ancillary uses, like storage, to retail/office centers with major anchors like supermarkets and cinemas.
 - Areas currently occupied by outparcel developments are planned for conversion to “urban blocks” with streets lined by 3-story buildings and parking provided interior to the block.
 - Expand the existing street system to create a new network of smaller, local and collector streets to establish the block structure.
- 2.6.2 Mid-Town Area
- Main streets lined with apartments or small commercial buildings (mixed uses).
 - Apartments and town homes provide a transition between the mixed-uses along the corridor and the existing single-family developments.
 - A civic center is planned for the area around the existing Town Hall site. It will include civic uses such as Town Hall and public safety building, community center, town park, library, and religious facilities.
 - Develop an interconnected street grid to support existing and new development.
- 2.7 The town will reserve 30% of site development areas as open space for active and passive recreation and for protection of critical natural systems. The reservation area will include any required buffers or wetlands.

3.0 Transportation and public utilities

The overall aim of the transportation and public utilities policies is to ensure that the town’s infrastructure system are capable of meeting current and future requirements. The policies recognize

that thorough planning is required at the town and regional level and that collaboration with state agencies is a requirement for cost effective development of the systems.

3.1 Transportation policies.

3.1.1 The town will advocate for inclusion of highway upgrade and improvement projects on the State Transportation Improvement Program (STIP) based on consistency of the projects with the town's long range plans and the cost effectiveness of the projects in addressing community transportation needs.

3.1.1.1 The town will work toward completion, within the time horizon of this plan, of two STIP projects that are essential for traffic management in the community:

- Causeway widening (US17/74/76 connector to Cape Fear Memorial Bridge). Even though the town's preferred option is to add two travel lanes east and west rather than one lane in each direction, the town urges NCDOT to complete this project on schedule.
- Completion of Section B, I-140 bypass. Completion of the by-pass will address current level-of-service problems and will prevent deterioration of LOS on some facilities to unacceptable levels.

3.1.1.2 Village Road Phase II. The town has determined that the current concept plan for Village Road Phase II project (4 travel lanes with median and sidewalks), included in the STIP for design, is inconsistent with the town's long range plans and is not justified by current or future traffic. The town encourages the NCDOT to redesign the project to be consistent with community plans and traffic needs.

3.1.1.3 Skyway Bridge Corridor. The town has determined that the corridor for Skyway Bridge currently aligned through the southern sector of the planning area is (1) incompatible with the natural systems within and adjacent to the corridor; (2) is incompatible with existing and planned land uses in the area; and (3) that the project is not cost effective in addressing the town's transportation needs. The town opposes the current Skyway Bridge project design and strongly urges the NCDOT to select another option for the project or to cancel the Skyway Bridge project.

3.1.2 The town will advocate for adding an interchange at the Old Fayetteville Road crossing at US 74-76. This interchange serves Leland Middle School and North Brunswick High School. Installation at this location will allow direct access to the schools and will relieve large volumes of traffic from the local street system. Installation of the interchange supports the Town's long range plan to make Old Fayetteville Road a "main street" in old Leland. The interchange will help manage any unforeseen future traffic on Village Road and will enhance the town's emergency management programs by improving access to two emergency shelters.

3.1.3 New residential or commercial development is required to upgrade the transportation system when it is determined that the traffic generated by the development exceeds the capacity of the street or highway system. Residential developments with 100 units or more and commercial developments greater than 7 acres may be required to perform a transportation impact analysis before approval.

3.1.4 Creating walkable and bikable neighborhoods is a fundamental element of the town's future land use plan. The town is committed to implementation of its bike and pedestrian plan and will work with the NCDOT, community stakeholders, and private entities to identify and construct priority projects.

- 3.1.4.1 Mid-town bike trail. The town's priority bicycle improvement project includes a safe bike/pedestrian crossing at the commercial corridor on US 17 and a link from the commercial area to the residential neighborhoods on NC 133 (River Road) and the Brunswick County Nature Park on Town Creek.
- 3.1.5 The town encourages expansion of the transit services in Leland to serve residents that lack access to automobiles or chose to use transit rather than automobiles.
- 3.1.6 The town will continue working toward construction of the NC 133—US 17 connector. It will be a town street even though it will serve a wider region. The street will help reduce congestion on NC 133 and the NC 133/Causeway intersection; it will greatly improve safety of residents in the NC 133 corridor during emergencies; and it will improve use of the town fire station on NC 133.
- 3.2 Sewer system policies
 - 3.2.1 The town will work with its regional partners to ensure that wastewater collection, transmission, and treatment systems have sufficient capacity to meet current and projected growth needs. To support this policy, the town will develop financial plans to ensure that its pro rata share of transmission and treatment system costs are met.
 - 3.2.2 The town will operate its wastewater collection system in strict compliance with the rules and requirements of the NC Division of Water Quality. The town will regularly inspect its system to identify and eliminate sources of inflow and infiltration to extend treatment plant life and to manage costs.
 - 3.2.3 The town will continue to assess the need and timing for installation of major sewer force mains to serve the growing US 17 corridor.
 - 3.2.4 The town manage wastewater flow allocation to protect the capacity of the transmission system and the treatment plant.
 - 3.2.5 The town will use its development review process to evaluate extension of wastewater collection or transmission lines to ensure that any development or land uses supported by the lines is consistent with town plans for resource protection.
- 3.3 Water system policies
 - 3.3.1 The town will continue to operate as a wholesale treated water customer of Brunswick County. The town will operate its water distribution system in strict compliance with the regulations and policies of the NC Public Water Supply Section (PWSS).
 - 3.3.2 The town will continue to assess the need for ground and elevated storage to meet the fire protection and water supply requirements of its customers and PWSS.
 - 3.3.3 The town will evaluate alternatives to the use of treated water for irrigation purposes. After a workable alternative is identified, the town will develop policies to discourage continued use of treated water for irrigation.
 - 3.3.4 The town will seek opportunities to expand its water distribution system to provide higher quality drinking water to a wider area and to help manage the per customer cost of distribution.

4.0 Natural hazards

The overall aim of the natural hazard area policies is to manage the town's flood plains to maintain their storm protection function and to prevent development in hazard areas that would

result in unnecessary loss of life or property. In addition, the policies are designed to protect the capacity of the town's emergency evacuation routes and resources.

- 4.1 The town will continue to enforce and to make continuous improvements to the Flood Damage Prevention Ordinance, which is the major tool for balancing resource protection and protection of life and property in areas with flood and storm hazards.
- 4.2 The town will continue to participate in the multi-jurisdictional Brunswick County Hazard Mitigation Plan process, which allows the town to maximize hazard planning resources and to ensure effective coordination with other municipalities, the county, and the state.
- 4.3 The town will work to ensure that the emergency evacuation system addresses the needs of its residents for both relocation from the area and relocation to emergency shelters.
- 4.3.1 The town will use its development review process to help ensure that the major evacuation routes have adequate capacity in case of an emergency. In addition, the town encourages the NC DOT to consider emergency evacuation needs when setting priorities for improving the highway network.
- 4.3.2 The town will advocate for installation of an interchange at US74/76 and Old Fayetteville Road. This interchange will provide substantially improved access to the town's two emergency shelters and it will allow residents better access to the evacuation routes.
- 4.3.3 The town will take necessary steps to complete the NC133-US17 connector through Mallory Creek and Brunswick Forest. This route will facilitate the evacuation of residents along the NC 133 corridor who otherwise may be trapped and it will greatly enhance the functionality of the town fire station on NC 133.
- 4.4 The town will maintain its "Are You OK?" call system to ensure that the needs of impaired residents are met in emergency situations.
- 4.5 The town will collaborate with Brunswick County to inform residents about actions that they can take to protect themselves from natural hazards.

5.0 Water quality

The aim of the town's water quality policies is to preserve water quality in Town Creek and other streams that are satisfactory and to improve water quality in the Brunswick River or other streams that are impaired. The Brunswick River is the only designated shellfishing area and it is classified as prohibited.

- 5.1 Protect Town Creek. The town will organize a collaborative effort to develop a strategy that ensures protection of the water quality in Town Creek. The effort will involve public, private, and non profit stakeholders and the strategy will include a range of tools and incentives to protect water quality in this preeminent stream. The results of this protection effort will inform similar efforts on other streams.
- 5.2 The town will continue implementation of its Phase II stormwater program to ensure that existing point and non point sources of water pollution are managed and that non point sources from new development are minimized.
- 5.3 The town will require soil erosion and sedimentation control permits before any land disturbing development; the town will work with the NC Division of Land Quality to ensure compliance with these permits.
- 5.4 The town will encourage developers to use innovative site planning and low impact development options to protect water quality.

- 5.5 The town will establish a 50-foot riparian buffer to help protect water quality.

6.0 Community excellence

The Town of Leland has been North Carolina's fastest growing municipality for several years. Rapid growth is bringing new neighborhoods, new communities, and new residents to the town. The growth brings with it an opportunity to create a community of excellence where Leland is regarded as the world class community in the Cape Fear region. The following policies are aimed toward that goal.

- 6.1 **Community building.** The town will sponsor and will collaborate with other community organizations to implement projects and programs that build a more cohesive community.
- 6.1.1 The town will develop a comprehensive community center facility and assist in providing programs and activities that serve the entire community.
- 6.1.2 The town will develop a new town center that features a new town hall and public safety center as the focal point. The town center will be an anchor for the Old Fayetteville Road corridor.
- 6.1.3 The town will renew its commitment to citizen involvement by strengthening its neighborhood level citizen participation efforts and expanding the tools used for informing and gaining insight from residents about events, programs, and issues.
- 6.2 **Age-friendly community.** The town will continue its age-friendly community planning process. It will focus on making neighborhoods safe and accessible, supporting affordable, livable housing for older residents, and supporting programs for recreation, socialization, education, and nutrition.
- 6.3 **Growing greener.** The town is committed to creating a sustainable community and it encourages property owners, builders, and land developers to incorporate sustainable design and practices into their development, building, and business operations. The town will provide leadership by using sustainable design and operation practices in public projects.
- 6.3.1 The town of Leland will design and implement a sustainable development and building recognition program to support this policy.
- 6.4 **21st Century economic development.** The town encourages creation of new businesses in the community that rely on an up-to-date communications infrastructure that supports an educated workforce. A community-based strategic planning process for economic development will assist the town in implementing priority programs and projects to support this outcome.
- 6.5 **Eagles Island.** The town recognizes the importance of Eagles Island to the region's maritime and to the history of the rice plantations that are part of the Gullah-Geechee heritage. Many organizations and individuals are interested in committed to a vision for the island where economic and ecological interests are properly balanced. These organizations have recognized the importance of coordination to avoid duplication of effort and missed opportunities, leading to the formation of the *Eagles Island Coalition*. The town actively supports these efforts. (Please see policy 1.1.3.)

C. Future land use map—framework plan

The future land use map is a “picture” of the town’s policies for growth and development and it illustrates the desired patterns of future land development. The map also incorporates development constraints related to natural systems and the availability of basic services. The future land use map is intended as a guide; it is not intended to be a zoning map or ordinance.

The map follows the same framework that is described in the land use compatibility section of the growth and development policies in section B above.

- S-1 Preserved open space sector
- S-2 Very low intensity sector
- S-3 Restricted growth sector
- S-4 Controlled growth sector
- S-5 Intended growth sector
- S-6 Infill—redevelopment sector

Planning concepts for each of these sectors, or land use classifications, is described below.

S-1 Preserved open space sector

This planning sector includes the community’s basic green space, which provides protection of water quality and sensitive natural systems, preserves critical wildlife habitat, provides protection from flooding, and provides needed recreation and green space for the community’s residents.

Appropriate land use and development types in this sector:

- Conservation areas.
- Parks and greenways.
- Agriculture and forestry.
- Limited civic uses, such as schools.

S-2 Very low intensity sector

This planning sector includes land that has the lowest potential for development as a result of the limitations or risks associated with natural system or the difficulty of providing public infrastructure and services. For the planning horizon, these areas should remain in a predominantly rural state.

Appropriate land uses and development types in the sector:

- Conservation areas.
- Parks and greenway systems.
- Agriculture and forestry.
- Limited civic uses, such as schools.
- Very low density residential development on large individual lots (typically 5 ac. gross) or in clusters.

S-3 Restricted growth sector

Intended for very limited development under tight guidelines for the planning horizon.

The land in this sector does not have the significant environmental constraints of the very low intensity sector, but it is located at some distance from the planning area thoroughfare system. In addition, land in the restricted growth sector is located at some distance from planned neighborhoods and regional centers. These are forecasted to be low growth areas due to limited access to transportation, utilities, and other amenities.

Appropriate land uses and development types in the sector:

Low density cluster developments or hamlets.

Low density residential development (up to 1 dwelling unit per 2 ac. gross).

Limited convenience retail uses.

Civic uses, such as parks, schools, religious uses, and government operations.

S-4 Controlled growth sector

Intended for more dense, mixed use development with neighborhood centers and suburban, residential development characterized by traditional, walkable neighborhoods.

Land in this sector has good accessibility to community services and transportation.

Appropriate land uses and development types in the sector:

Traditional neighborhood development.

Neighborhood centers.

Single-family and multifamily residential development.

Neighborhood-serving commercial uses (office and retail).

Civic uses.

Limited industrial uses.

S-5 Intended growth sector

Intended for higher intensity regional center developments that accommodate the widest range of land use and development types.

This planning sector is located along the US 17 corridor, where transportation access and public utility services are readily accessible.

Appropriate land uses and development types in the sector:

Single-family and multifamily residential.

Neighborhood serving commercial uses.

Civic uses.

Traditional neighborhood developments.

Neighborhood centers.

Regional centers.

Industrial districts.

S-6 Infill—redevelopment sector

This planning sector includes areas in “Old Leland” where there is an existing street grid and public utility services are available. The planning sector is divided into two subareas: downtown and mid-

town. Village Road and Old Fayetteville Road are the main corridors defining this planning sector. The land use and development concepts for these areas are described as follows:

Downtown Area

- Redevelop existing shopping centers, out-parcels, and ancillary uses, like storage, to retail/office centers with major anchors like supermarkets and cinemas.
- Areas currently occupied by outparcel developments are planned for conversion to “urban blocks” with streets lined by 3-story buildings and parking provided interior to the block.
- Expand the existing street system to create a new network of smaller, local and collector streets to establish the block structure.

Mid-Town Area

- Main streets lined with apartments or small commercial buildings (mixed uses).
- Apartments and town homes provide a transition between the mixed-uses along the corridor and the existing single-family developments.
- A civic center is planned for the area around the existing Town Hall site. It will include civic uses such as Town Hall and public safety building, community center, town park, library, and religious facilities.
- Develop an interconnected street grid to support existing and new development.

The future land use map (Map 4) shows these land use classifications in the planning area. Map 4 is located on the following page.

Part 4. Tools for Managing Development

Implementation of Leland's land use plan is the key to an effective planning process. This section details the role of the plan in guiding and making decisions about development and land uses in the community. It also describes the town's existing program for managing development, changes to the existing program, and new management tools that will be added. The part also includes an implementation schedule.

A. Role and Status of Plan (or How to Use the Plan)

The Leland land use plan is a guide for Town Council, the Planning Board, and citizens as they make day-to-day and long-term decisions affecting development. The land use plan serves as an overall "blueprint" for development of the planning area that when implemented, should result in the most suitable and appropriate use of the land and protection of the area's natural systems. Besides serving as a guide to the overall development of the town, the land use plan will be used by local, state, and federal officials in CAMA permitting decisions, project funding, and project consistency determinations.

State-CRC Use of the Plan

The State relies on CAMA, the Governor's executive order number 15, 15A NCAC Chapter 7 Coastal Rules – previously accepted by the federal Office of Coastal Resource Management, and local government zoning enabling legislation to support its role in implementation of the policies contained in the plan. The following provides a summary of the measures used by the State:

CAMA specifies that no development permit may be issued which is inconsistent with the local plan. To comply with this requirement, DCM uses the following criteria:

- DCM will not issue permits for development in the town that are inconsistent with the approved CAMA land use plan.
- Local ordinances or other local regulation that apply to land in an AEC and that are inconsistent with the land use plan are not allowed. Existing town regulations that apply to AECs must be reviewed in light of the land use plan policies and modified if necessary to make them consistent with the plan.
- State agencies undertaking projects and activities in AECs must obtain CAMA permits before continuing. Projects must meet CRC development standards and be consistent with the land use plan to be permitted. CRC development standards and local land use plan policies are applied to state projects throughout the planning area.
- "Acquisition, use, and disposition of land" by state agencies must be consistent with the town's approved CAMA land use plan.

North Carolina zoning enabling legislation requires the town's zoning regulations, including changes to the text or the map, to be consistent with the land use plan.

Local Use of the Land Use Plan

The Leland land use plan establishes policy for both short-term and long-range planning. Town staff, the Planning Board, and the Town Council will use the plan to inform day-to-day and short-term decisions concerning development and administration of its regulations. The plan will also guide long term decisions for ordinance amendments, project planning and implementation, and budget processes.

Property owners and developers will use the plan to determine the types of land uses and development that are desired by the community. They will use this information to design or formulate development proposals (such as rezoning requests, special use permits, and subdivision approvals) that are consistent with the land use plan, thus increasing chances for approval. The land use plan will also provide information to property owners to help them understand the capabilities and limitations of their property.

B. Existing development management program

The following table describes the essential parts of the town’s development management program. The program includes ordinances and regulations and proactive tools, like the capital budget, to effect a comprehensive development program that addresses town policies and achieves its development and land use goals.

Development management tool	Description of development management role
Zoning ordinance	The zoning ordinance defines how property in various areas of Leland can be used. The ordinance specifies permitted uses in zones and it regulates lot size, placement of structures, and density and height of structures. The ordinance also has a provision for <i>planned unit development</i> that allows comprehensive land planning for blocks of land and allows greater flexibility to work with environmental limits and opportunities.
Subdivision regulations	These regulations set standards for the design of residential, commercial, or industrial subdivisions within the town. They determine the design of streets and sidewalks, water and sewer, design and capacity of storm water management systems, the amount of parks and open space provided, and what will be dedicated to the town upon completion.
Site plan review	This review process is included in the zoning ordinance and it is intended to perform implement the same standards as subdivision regulations but for projects that do not involve subdivision of land.
Storm water management program	This is a comprehensive program designed to manage the quantity and quality of stormwater runoff into the town’s surface waters. The central feature of the program is the Phase II Stormwater Ordinance that sets standards for impervious surfaces and stormwater systems, which are implemented by a permit system. The program also includes education and remediation components. The stormwater program is in its 3rd year of operation.
Flood damage prevention ordinance	These regulations control development or alteration of land that is subject to flooding. The regulations prohibit development that might result in increased flooding; they prohibit alteration of the flood plain where the alteration will result in additional flooding; and they require that development within the flood plain to be protected from flooding, either by construction methods or materials or by elevation above the flood level. Flood hazard areas are incorporated into the plan’s policies.

Development management tool	Description of development management role
Minimum housing code	This code is a tool that may be used to force repair or demolition of homes that have been determined to be either deteriorated or dilapidated and unfit for human habitation. The code is only applied in extreme cases where other remedies fail.
Environmental nuisance code	This code is used to address environmental conditions that are determined to be detrimental to public health or safety, or that may be dangerous. It targets situations such as overgrown lots and abandoned or junked vehicles.
Capital improvement program	This program is part of the town's annual operating budget. It includes a schedule and target budget for major capital expenditures like sewer, water, streets, or parks. It is updated annually and it relies on local revenues and grant funds.
Wastewater flow allocation policy	This policy is intended to assist the town in managing wastewater flow to its collection system, the transmission system, and to the treatment plan. Requested flow allocations must be approved by Town Council and reviewed and approved by Brunswick County before permit applications are submitted to NCDWQ for final approval.

C. Additional tools for plan implementation

The town has a comprehensive set of tools for managing development already in place. The key components are the zoning ordinance, subdivision regulations, flood damage prevention ordinance, and the stormwater management program. The flood damage prevention ordinance is consistent with the models produced by NCDWM and FEMA. No significant changes in this ordinance are anticipated during the plan horizon. Likewise, no significant changes to the Phase II Stormwater Management Program are anticipated. This program is new and it is a model for small communities. Changes are needed in the zoning ordinance and subdivision regulations.

1. Flex Code. The town's zoning ordinance is a traditional Euclidian-type code that is not well-suited to implement the plan's land use and development policies. The existing code does not easily support innovative site design, mixed use, and connected neighborhoods, which are keystones of the new plan.

The town will develop and implement a new form-based development code that will be fully implemented over a multi-year term. This code will change the zoning focus to resource protection, mixed use and walkable neighborhoods, and the quality of the town's "public realm."

The Flex Code will be implemented as a parallel to the traditional zoning ordinance and subdivision regulations for a time. Developers will be allowed to elect to use the new provisions. Over time, the goal is to replace the traditional zoning and subregs with the Flex Code.

An initial draft of the Flex Code is targeted for completion in 2011, with implementation in 2012. A number of housekeeping amendments are required to the zoning ordinance and subdivision regulations. These changes are to be completed in early 2012, with implementation in 2012-13.

2. Vegetation conservation program. Conserving the town's native vegetation is an important component of the plan. A comprehensive program that includes education, conservation guidelines, and preservation requirements is needed. This program's priority is moderate to high, which means that it can be developed and implemented in the early part of the implementation schedule.

3. Capital improvement program. The CIP is the budget program for major acquisitions and improvements to town facilities. Program initiatives tied to the land use plan policies will require an update to the plan. Additions to the plan are listed below:

- US 17 Corridor Wastewater Forcemain
- Upgrade of the wastewater transmission system
- Upgrade and expansion of the Northeast Wastewater Treatment Plant
- Mill Creek Access Park Improvements
- Westgate Nature Park Improvements
- Leland Community Center Project
- Leland Town Center Project
- NC133-US17 Connector Project

D. Action plan and schedule

The chart below illustrates the projects and ongoing programs related to implementation of the plan. It also shows a projected schedule. This chart will be updated regularly during the plan horizon.

Project, program, or activity	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Flex Code Draft	→					
Flex Code Implementation	↔					
Zoning Ordinance Amendments		↔				
Subdivision Regulation Amendments		↔				
Wastewater Treatment Upgrades and Expansions			↔			
Mill Creek and Westgate Park Enhancements					↔	
Community Center	↔					
Town Center		↔				
NC133-US17 Connector					↔	