

Chapter XII:

FACILITIES & INFRASTRUCTURE

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Introduction

The Facilities and Infrastructure Chapter attempts to summarize the existing public services provided by the Town to its citizens. Included in the summary is a general analysis of the efficiency of the systems and public infrastructure used by the Town to help provide these services. This analysis will incorporate several recommendations aimed at improving public service delivery in four major categories: Community Facilities, Public Utilities, Stormwater Management, and Open Space, Parks and Recreation. This chapter includes a separate summary and analysis section for each of these four categories in the following sections.

COMMUNITY FACILITIES

Community facilities consist of all public buildings, utilities, services and lands serving Smithfield area residents. One of the main functions of local government is to provide police and fire protection, water and sewer services, parks and recreation facilities and other services needed by the community. It is the responsibility of the Town of Smithfield to provide these services within the bounds of its legal authority and its financial capability. The following paragraphs briefly summarize existing conditions of community facilities in the Town with a few general forecasts.

Government Facilities

The Town's governmental facilities are currently divided between several buildings in the Downtown area. The Town Manager's and Town Clerk's offices are located at 315 Main Street. Old Town Hall, a two-story building located at 310 Institute Street, houses the Town's administrative offices, including the Treasurer's Office, Information technology, and the Department of Planning, Engineering and Public Works. Public Work and Utilities crews work out of the Town Operations Facility at 292 Cary Street. The Smithfield Police Department is located along the South Church Street entrance corridor at 1613 S. Church Street. The emergency location for central dispatching for all emergency services in the county (including police, fire and rescue) is based at Town Hall. The Town's primary fire station is located on Grace Street. As the Town's population continues to grow, more space will be needed to

accommodate additional personnel and equipment. The Town should continue searching for feasible sites in the Downtown Area that would be suitable for the construction of a new Town Hall.

Smithfield Center

All Council and Planning Commission meetings are held at the Smithfield Center. One of the premier conference and community event centers in Hampton Roads. The Center is a Town-owned building offering multi-purpose space for community events. The Center opened on November 30, 2000. Since the grand opening, the Center has hosted numerous events including parties, weddings, trade shows and business and governmental meetings. The Center was completed at a cost of approximately \$2.6 million, funded jointly by the Town, Isle of Wight County, and Smithfield Foods, Inc. The Town should continue to maintain and make upgrades when necessary to enable the Center to remain a modern facility and a competitive site for regional and community events.

Police

The Smithfield Police Department consists of one Chief of Police, and twenty-one (21) uniformed officers. The Chief of Police reports directly to the Town Manager. Clerical and dispatching duties are performed by a support staff of four (4). State police standards recommend a proportion of 2 officers to every 1000 residents in urban areas. Staffing levels in Smithfield currently meet this recommendation. The Town's police force is supplemented by approximately six (6) state troopers assigned to the Smithfield vicinity; the nearest state police facility is based in Southampton County.

The Town of Smithfield itself does not operate a jail. Isle of Wight County and the Cities of Franklin and Suffolk contribute funds to a regional facility located in Suffolk. The present facility is currently filled to its design capacity (150 inmates). A new addition to the jail is currently under construction in Suffolk at the crossroads of Routes 10 and 460.

The Town police department utilizes twenty-two (22) patrol cars. Replacement of police vehicles will be necessary on an occasional basis as dictated by mileage and circumstance. An enhanced E-911 system compliments and accompanies the Police Department's communication operation.

Fire Protection Services

The Smithfield Volunteer Fire Department provides fire protection to the Town of Smithfield and its surrounding environs. The Department, which was established in 1939, currently has a 40+ member crew. The Department's service area covers approximately 165 square miles, and includes the Town as well as those adjoining areas of Isle of Wight County lying north of the Isle of Wight Courthouse, west of Benn's Church and southeast of the Wrenn's Mill Subdivision. The Department coordinates its service with the volunteer fire departments in the Towns of Carrollton, Rushmere and Windsor.

The Town's primary fire station is located on Grace Street. The station is owned by the Town, while all of the fire fighting equipment is owned by the Department. The Town of Smithfield, Isle of Wight County and the Department itself jointly fund the Department's activities. The Fire Department maintains three engines/pumper trucks, one support rescue truck, one elevated rescue platform truck, one brush truck, one support vehicle, two rescue boats and two support cars for use by the Chief and his assistant.

Hydrant Location and Testing

The Town of Smithfield maintains a total of approximately 210 fire hydrants in Smithfield for firefighting purposes. These hydrants provide coverage throughout the Town. All of the Town's fire hydrants are tested on an annual basis, and they are maintained by the Smithfield Public Utilities Department.

Community Involvement

The Smithfield Volunteer Fire Department Fire promotes fire education and safety within the community by giving demonstrations to area schools and civic groups. In addition, each year the Department observes Fire Prevention Week by having its officers visit the local elementary schools. The Department also conducts fire inspections of homes and commercial establishments upon request and provides recommendations regarding fire safety on an advisory basis.

Emergency Medical Services

The Isle of Wight Volunteer Rescue Squad was established in 1968, and it provides emergency medical services to the Town and the northern half of Isle of Wight County. Approximately 50 volunteers serve as rescue squad members. The Isle of Wight Rescue Squad is housed in a modern four-bay rescue squad facility located on South Church Street. The Smithfield rescue squad is one of two in the County and receives financial support from both the Town and the

County. The other rescue squad in the County is located in the Town of Windsor and provides services to that town and the southern half of the County.

Medical/Health Facilities

The Isle of Wight County Health Department maintains a large, modern health facility on Grace Street in Downtown Smithfield. At present, there are no hospitals in Smithfield or Isle of Wight County; the nearest hospital facilities are located in Suffolk, Franklin and Newport News. The Town is home to two privately operated medical centers, the Smithfield Medical Center and the Riverside Health Center both of which are located on South Church Street. There is also a mental health center, a physical therapy center and a nursing home/convalescent center located within Smithfield.

In the Citizens' Survey completed as part of this Comprehensive Plan Update, citizens were asked what additional health care/medical services not currently offered in Town would be most desirable in Smithfield. The most frequently cited responses were as follows:

- | | | |
|------|--|-----------|
| 1). | 24-HR EMERGENCY & MEDICAL SERVICES/URGENT CARE | (258-41%) |
| 2). | NEW LOCAL HOSPITAL | (83-13%) |
| 3). | OPHTHALMOLOGIST OFFICE (EYE CARE CENTER) | (30-5%) |
| 4). | OUTPATIENT CARE/CLINIC | (25-4%) |
| 5). | DENTIST | (19-3%) |
| 6). | PEDIATRICIAN | (14-2%) |
| 7). | OBGYN | (9-1%) |
| 8). | CANCER CENTER/TREATMENT | (5-1%) |
| 9). | GENERAL MEDICAL DIAGNOSTIC CENTER | (4-1%) |
| 10). | DOC-IN-A-BOX | (4-1%) |

A clear void exists in the current health care marketplace for a 24-hour urgent care facility. Within the upcoming planning period, urgent care facilities and nursing home facilities in the region will be an important consideration of health care providers, consumers and policy makers. The Town's elderly population is expected to mirror regional and national demographic trends, and will continue to increase at a rate faster than any other age group. Several assisted living projects have been developed in the Town over the past decade in response to the growing demand of elderly housing. The Future Land Use Plan attempts to encourage and facilitate this ongoing trend by encouraging the development of elderly housing and assisted living communities within several vacant, developable tracts of land in the Town.

Public Works

The Town of Smithfield's Departments of Public Works and Public Utilities are administered by individual superintendents who report directly to the Director of Planning , Engineering and Public Works. The Departments are responsible for the following major tasks, many of which are sub-contracted to the private sector:

- *Street repair and maintenance;*
- *Maintenance, repair and installation of street signs and parking signs;*
- *Snow removal;*
- *Installation, maintenance and repair of water and sewer lines, and lift and pump stations;*
- *Maintenance and repair of all Town buildings and structures;*
- *Mowing along all Town street right-of-ways and Town grounds;*
- *Maintenance and repair of all Town vehicles and equipment; and*
- *Meter reading, and Miss-utility markings.*

The Town also perform daily facility checks and maintains a complaint and request log to ensure expedient and effective handling of these requests. At present, Public Works and Public Utilities have fourteen (14) full-time equivalent employees. These departments also own and maintain a wide variety of service vehicles and other assorted equipment, including portable generators, a mudhog (water leak pump), jackhammers, several trucks, a backhoe/trencher, compressors, welding machines, several tractors, several sewer pumps and numerous lawnmowers.

Solid Waste Collection and Waste Disposal

The Town of Smithfield's contracted refuse collection and disposal services are financed entirely from its general fund without assessment of service fees. The Town offers three basic types of services to its residents:

- *Twice weekly pick-up and disposal of residential refuse;*
- *Twice weekly pick-up of yard debris (grass clippings and small brush); and,*
- *Bi-weekly curbside pick-up of recyclable materials including paper, glass, cardboard and aluminum.*

In addition, Town residents may request special pick-ups of oversized refuse and debris for a small fee. The Town also provides some seasonal curbside leaf collection. Although the Town does not provide refuse collection services to Town businesses, it does collect recyclables from businesses at no extra cost. The Town's refuse collection and disposal services are provided through a private hauler. The curbside pickup of recyclable materials is provided by the Southeast Public Service Authority (SPSA). Both the solid waste and the recyclable materials are transported to the regional landfill which is owned and operated by the SPSA. SPSA's landfill is located in Suffolk on Route 58 about 20 miles from the Town limits.

Telecommunications

Recent advances in telecommunications technology have dictated the need for local communities to plan for the siting of telecommunications towers to provide private regional service to local residents. While the Town owns no such towers and does not provide telecommunications services of this nature, it will become increasingly important for the Town to include the consideration of tower siting strategies in its future land use planning efforts. The Town's recently revised Zoning Ordinance prohibits any telecommunications tower from being located within five hundred (500) feet of a residential district unless an applicant clearly demonstrates by providing coverage/interference and capacity analysis that the location of the antenna is necessary to meet the frequency reuse and spacing needs of the wireless telecommunications facility and to provide adequate coverage and capacity to areas which cannot be adequately served by locating the tower(s) in a less sensitive area. Tower(s) or structures supporting telecommunication antenna(s) or otherwise conforming to all the applicable provisions of this Ordinance are permitted subject to approval of a special use permit in the following zoning districts when the tower(s) are considered an accessory use: Office Transitional, Light Industrial and Heavy Industrial. The Town prefers that communications towers be located in rural areas away from development and should include multiple uses on the same site as approved by the Town Staff. Thus, telecommunications towers, including cellular telephone relay stations and towers should be designed, arranged and located so as to accommodate future multiple uses (i.e. digital, analog and cellular facilities) within the same site. Also, the identified facilities should include space for additional expansion and location of new towers on the site.

Public Library

The Smithfield Branch of Isle of Wight Libraries is located in the old Smithfield High School building on James Street. The first floor adaptive reuse of this building was undertaken in 1989 in conjunction with Community Development Block Grant (CDBG) improvements in the adjacent Riverview neighborhood. The Smithfield library presently has over 12,000 volumes available for checkout with a variety of other reading programs and services offered. It offers

seating space capable of supporting thirty-five (35) users and also includes several community meeting rooms. The library has experienced strong growth in circulation in recent years, which is largely attributable to the accessibility and excellent design of the facility. The remainder of the old school facility, still owned by Isle of Wight County, includes a classroom extension facility for Paul D. Camp Community College and the Smithfield YMCA.

School Facilities

Residents in the Town of Smithfield are served by the Isle of Wight County Public School System. Hardy Elementary School (Grades K-3) is located within the Town limits, while Carrollton Elementary School (K-3), Smithfield Middle School (Grades 4-7) and Smithfield High School (Grades 8-12) are located in the County outside of the Town's existing corporate limits. Each of these schools are currently operating within design capacity; however, the Isle of Wight County School System has requested that the Town consider the future expansion needs of the Middle School located on Route 258 West in its land use planning efforts. Ideally, the school would expand its current campus onto the adjacent vacant parcel located directly behind the existing building. The Town has incorporated this request into the Future Land Use Plan as is discussed in the summary of the West Main Planning Area in the Future Land Use Plan chapter and as is reflected on the Future Land Use Plan Map.

In the Citizens’ Survey conducted in support of this Comprehensive Plan Update, citizens were asked to list the additional services which currently are unavailable in Smithfield would be most desirable to be provided by the Town. The following services were most frequently mentioned:

- 1). TRASH SERVICE (EXPAND ALLOWED ITEMS, PICK-UP TIMES ETC.) (8%)
- 2). IMPROVED EMERGENCY SERVICES (6%)
- 3). RECYCLING (EXPAND/INC. ITEMS PICK UP) (4%)
- 4). WATER QUALITY & RATES (3%)
- 5). ADDITIONAL TRAFFIC LIGHTS-SPECIFIC LOCATIONS MENTIONED (3%)
- 6). INCREASED PUBLIC TRANSPORTATION OPPORTUNITIES (2%)
- 7). EXPAND, REFURBISH AND CLEAN SIDEWALKS (2%)
- 8). HIRE ADDITIONAL POLICE OFFICERS/EXPAND SERVICES (2%)
- 9). CLEANER STREETS (2%)
- 10). NONE (2%)
- 11). MOVIE THEATER (1%)
- 12). NEW LOCAL HOSPITAL (1%)
- 13). DRAINAGE IMPROVEMENTS (1%)
- 14). INCREASED DAY CARE OPPORTUNITIES (1%)

PUBLIC UTILITIES

Water

The Town of Smithfield has owned and operated a public water system since 1905. Water is available to almost every resident and business in the Town, and over 98% of them are currently connected to the Town's system. Since 1985, the Town has sold water wholesale to the County for use by those residences and businesses located just outside the Town limits. The Town of Smithfield obtains its water solely from five underground wells which draw groundwater. These wells are located in the following places:

- *Cary Street;*
- *West Street (Jersey Park);*
- *Jefferson Drive;*
- *Mercer Street; and*
- *South Church Street*

The current maximum potential output of these wells significantly exceeds the average daily demand, 0.83 MGD, consumed within the Town. The Town's current maximum permitted output from the wells is 1.24 MGD. Because of this excess water capacity, the Town has sold water since 1988 and currently sells water wholesale to Isle of Wight County, and more specifically Gatling Pointe (0.15 MGD).

Water Storage

The Town's water storage system includes three water towers and one hydro-pneumatic tank with a combined storage capacity of 625,000 gallons. The location and storage capacity of each tank is summarized below:

Location Capacity:

<i>Wilson Road</i>	<i>150,000 gallons;</i>
<i>South Church Street</i>	<i>400,000 gallons;</i>
<i>Cary Street</i>	<i>70,000 gallons;</i>
<i>Pinewood Drive</i>	<i>5,000 gallons; and</i>
<i>Battery Park Road</i>	<i>500,000 gallons (under construction)</i>

A 500,000 gallon water storage tank is currently under construction on Battery Park Road adjacent to the proposed Mallory Pointe subdivision. The existing tank and wells are planned to be shut down once the reverse osmosis plant is completed, online and functional (see details in the following section). At that time, the tanks and wells will be used as reserve storage for emergency (fire coverage) use.

Water Distribution

The Town's existing water distribution system extends to almost all of the developed areas of the Town, and consists of approximately 32 miles of water line with pipe sizes ranging from two inches to twelve inches in diameter. The Town's system consists primarily of six-inch lines in the residential areas and eight-inch lines in the industrial and commercial districts. The water system is divided into two zones: the West Zone and the East Zone. The West Zone services historic Smithfield and the other non-historic parts of the Town west of Cypress Creek. The East Zone serves the more recently developed parts of the Town east of Cypress Creek.

Currently, there are 2,918 connections to the Town's water system. Over 90% of these are residential taps. The principle industries in the Town, Smithfield Packing and Smithfield Foods, are not connected to the Town's distribution system, but do rely on six private wells. Town policies and guidelines for water services are established in the Town Code. Water billing and administrative tasks are performed by the Town Treasurer's Department in conjunction with the Hampton Roads Utility Billing System. Bills are distributed every two months. Water lines also extend from the Town's public water system into some portions of the County. Various lines are operated by the County and the County School Board. In March 1988, the Town entered into a Utilities Agreement with the County. This agreement was amended in 1998. Pursuant to that agreement, the Town sells water wholesale to the County for distribution through the extensions to the Gatling Pointe and Gatling Pointe South subdivisions along Route 704, as well as to Smithfield High School located south of Town along Route 10. The Town sells to the County an average of 0.18 million gallons per day. The Town charges the County a separate rate.

The Town of Smithfield entered into a Consent Order with the Virginia Department of Health in 2004 for an agreed upon plan of action to reduce the naturally occurring levels of fluoride found in our public water system's deep wells. The town contracted with the engineering firm of Buchart Horn, Inc. of Baltimore, Maryland to find an appropriate fluoride removal solution. Upon the completion of their Preliminary Engineering Report, Buchart Horn, Inc. recommended that the town construct a Reverse Osmosis membrane technology Water Treatment Plant. The VDH has concurred with the engineer's recommendations, and the town

proceeded to drill a new production well in 2005. Construction is scheduled to begin in 2009 on the facility adjacent to South Church Street. It is scheduled to be completed by 2010, and will serve the entire town and some outlying areas.

Other system improvements that will be required include a new water storage tank to be located along the Battery Park Road corridor, which is scheduled to be completed in the fall of 2009. Additional “looping” projects are under construction and planned to improve water pressure and fire flow throughout the system. As a result the town’s utility rate structure was amended in 2005 and the town has issued a general obligation bond in order to pay for these required improvements.

In November 2005, the Town began the process of upgrading its water withdrawal permit from the Virginia Department of Environmental Quality. Shortly thereafter, the Town received a technical response from DEQ requesting additional information; Buchart Horn has provided DEQ with this information. In 2006, the Town adopted formal water conservation policies that will be required under the new permit.

Water Master Plan

In conjunction with the development of the Town’s Comprehensive Plan Update, the Town of Smithfield commissioned AES Consulting Engineers to develop a Utility Master Plan to provide a schedule of recommended water and wastewater infrastructure improvements. This master plan incorporates the present and future needs of the Town by developing a separate master plan for both water and sewer services. With respect to water service specifically, the master plan delineates a schedule for the development of the water component of this plan. As a precursor to the development of this schedule, the consultants analyzed and evaluated the existing system using Hasted Methods and WaterCad software (a system modeling program). The consultant found the Town's water system to be in satisfactory condition overall; however, the evaluated data also revealed potential system needs that the Town of Smithfield should address. These needs are summarized below and are described in more detail in the final Master Utility Plan report prepared for the Town (the Plan is available for review in the Town Manager’s office). In addition to these specific problems, the master utility plan advises the Town Staff to maintain its vigilant monitoring of Town water system demand levels as development occurs within the recently annexed areas.

Recommended Water System Improvements:

- *Looping the system at several locations;*
- *Upgrading several water lines;*

- *Installation of new water meters;*
- *Installing a Fluoride treatment system; and*
- *Install an additional water storage tank.*

Sewerage

Currently, there are approximately 2,766 connections to the Town's sewer system, representing approximately 95% of the Town. The remaining 5%, approximately 125 residences and businesses are not served by the Town wastewater collection system and use private septic systems. The Town of Smithfield also provides domestic and industrial wastewater collection throughout the entire Town as well as in certain portions of the County. Sewer services are available to almost all of the residences and businesses within the Town. The Town of Smithfield's current sewerage system consists of approximately 33.9 miles of sewer lines and 17.8 miles of force mains. The system uses a combination of gravity and force sewer mains. In addition, the system uses twenty-seven lift stations to assist the gravity mains, due to the flat topography, which complicates sewerage throughout the Town and the region. The pipelines are predominantly 8-inch lines; however, there is a 16-inch line on Battery Park Road in anticipation of future development. The Town's sewage collection system is maintained by the Town's Public Utilities Department.

The March 1, 1988 Utilities Agreement between the Town and the County, referred to in the section above, provided that the Town could own and operate extensions of its sewer system in the County. Those customers in the County who are served by the Town's sewerage system are located primarily in the Gatling Pointe subdivisions. The Town served these areas of the County through 5.8 miles of Town-owned sewer lines and 1.9 miles of Town-owned force mains, until the 1998 annexation. These lines are now owned and maintained by Isle of Wight County. Sewage billing and administrative tasks for customers in the Town as well as the County are performed by the Town Treasurer's Department in conjunction with the Hampton Roads Utility Billing System.

Septic Tank Pump-Out Program

Under mandate of the Virginia Chesapeake Bay Preservation Area Program, the Town of Smithfield is implementing a Septic Tank Pump-Out Program. The program is authorized by the Commonwealth of Virginia, under Code Section 9VAC 10-20-120.7, and the Town of Smithfield, under Section G:2.d. of the local Chesapeake Bay Preservation Overlay District Ordinance. The program aims to preserve and enhance the quality of Chesapeake Bay waters by requiring routine pump-outs of on-site septic systems. Septic systems that are overloaded with solids, leaking, flooding or otherwise impaired are known to contribute pollutants to the ground and surface waters that discharge into the Bay.

The new Septic Tank Pump-Out Program is intended to promote routine maintenance to extend the life of on-site septic systems, which is of benefit to the Bay, as well as the homeowner. All on-site sewage disposal systems not requiring a Virginia Pollution Discharge Elimination System (VPDES) permit shall be pumped out at least once every five years. In 2008, the estimated cost of a Septic Tank Pump-Out ranged from between \$250 and \$350.

Key points of the Septic Tank Pump-Out Program are as follows:

- *It applies only to those properties that contain on-site septic systems and are located within the Town of Smithfield;*
- *Septic systems will be tracked via a database set up by the Town in cooperation with property owners;*
- *The program will be implemented in September 2008; and*
- *Once notified by the Town to register affected septic systems, property owners will have two years to have the initial Septic Pump-Outs performed, and then all following pump-outs will be required to be performed every five years.*

Sewage Treatment

Prior to July 1996, the Town operated its own sewage treatment facility, which handled an average flow of .425 million gallons of sewage per day from residents within the Town and in limited areas in the County. On July 10, 1996, the Town discontinued use of its facility and connected to the new sewage collection line installed by the Hampton Roads Sanitation District (HRSD) along Routes 17 and 10 in the County and the Town. All sewage collected by the Town is now treated by HRSD. Currently, it is estimated that the Town has an average flow of approximately 0.7 mgd and peak flow of approximately 1.76 mgd.

Sewer Master Plan

The Sewer Master Plan prepared by AES Consulting Engineers as part of the overall Utility Master Plan provides an inventory of existing wastewater facilities and a recommended schedule of sewer infrastructure improvements. Additionally, projected costs, funding opportunities and strategies for anticipated capital maintenance are included in the final adopted report, which is available for review in the Town Manager's office. The consultant's analysis of the collected sewerage data was evaluated using multiple computer spreadsheets. These spreadsheets analyzed the existing utilities, such as the gravity system, the force main and the pumping stations.

A check for Inflow and Infiltration was also incorporated into the analysis. Although this was a non-detailed analysis, it generally assessed problem areas. After conducting several rounds of analysis of the comprehensive wastewater system, the consultant concluded that the Town's wastewater system is in satisfactory condition overall. Nevertheless, several improvement projects were recommended in the master plan. A summary of these improvements are provided below.

Recommended Sewer System Improvements

- *General improvements to pumping station buildings; including wetwell ventilation repairs and electrical junction box installations;*
- *A comprehensive Inflow and Infiltration analysis;*
- *HRSD flow Monitoring and evaluation;*
- *One additional connection to HRSD; and*
- *Complete filling of lagoons at former waste-water treatment plant.*

STORMWATER MANAGEMENT

Storm or surface runoff is stormwater that moves along the ground by gravity and flows into streams, rivers, ponds, lakes and oceans. Almost all site development projects affect runoff in some way as they typically result in the remodeling and sculpting of the earth's surface as well as changes in surface character. These changes may significantly alter stormwater runoff patterns in terms of rate, volume and direction. Thus, the continuing urbanization of watersheds presents a myriad of potential problems. Construction activities can generate sediment and nutrient loading issues at several times the normal rate. Impervious pavements increase both the volume of stormwater runoff and the magnitude of peak flood flows. Furthermore, runoff from urban areas is often highly polluted with nutrients, oils and toxic metals. The net result of these problems is that water quality may be seriously degraded, property damage may be excessive and in many instances the aesthetic quality of natural areas can be destroyed.

Stormwater management consists of basic principles and techniques used to respond creatively to these and other problems posed by development in the natural environment. The proper design of any management system requires an interdisciplinary approach, including professional expertise in ecology, engineering, hydrology and landscape architecture. The contemporary approach regarding stormwater management is to develop a comprehensive, integrated approach which addresses the effects of storm runoff on water quality in addition to volume and rate of runoff.

Regional Hydrologic Characteristics

Smithfield lies within the Atlantic coastal plain of Tidewater Virginia, on the higher ground of an escarpment adjacent to a navigable river. The land rises rather steeply from an elevation a few feet above sea level at the marsh's edge to broad flat plains ranging from 20 to 40 feet above sea level. The highest elevations occur in the far western area of Town, generally increasing as one moves inland from the Pagan River.

Generally, the topography is characterized by relatively flat peninsulas of land formed by rivers, streams, creeks, and tidal shorelines that cut and erode the land, causing sandy and marshy areas, wetlands and areas subject to frequent flooding and tidal action. These wetland and marsh areas are recognized as vitally significant components of environmental systems, contributing to water filtration and purification, shoreline stabilization and serving as breeding grounds for various forms of wildlife.

In the vast majority of the Town, land generally drains well. However, much of the upland areas located in the Battery Park North and Battery Park South Planning Areas are so flat that storm water tends to drain slowly. Soil conditions in this area further complicate drainage and also pose considerable shrink swell soil problems. Serious flooding in the Town is confined to the lower elevations, usually from high tides associated with tropical storms. Cedar Street and Great Springs Road have also suffered flooding during significant rain events.

Watershed

Smithfield lies within the James River drainage basin. The confluence of the Pagan and the James River is approximately 4 miles northeast of the Downtown Area. The James River ultimately flows into the Chesapeake Bay about 30 miles to the east at Hampton Roads.

Floodplains

Floodplains are defined as areas exhibiting a 100 percent probability of being flooded over a 100-year span; or conversely, a 1 percent chance of being flooded in any year. Federal Emergency Management Agency (FEMA) requirements prohibit development within the floodway (water channel) and strongly discourage development in the areas adjacent to the 100-year floodway fringe. The Town of Smithfield has adopted a Floodplain Ordinance that identifies a formal flood plain district. The basis for delineation of the Flood Plain District is the 100-year floodplain elevations or profiles contained in the Flood Insurance Rate Map prepared by FEMA in 2002. Prior to the adoption of the Floodplain Ordinance, some flood-prone areas in Smithfield were developed for urban purposes, most notably on Commerce Street and on South Church Street near the edge of the wetlands. Steep slopes (those exceeding 15%) in Smithfield occur predominantly along the major creeks and tidal marshes.

Embankments above the Pagan River and Mount Holly Creek are the steepest in the Town, while more gradual relief is found adjacent to Cypress Creek, Moone and Jones Creek. In the outlying areas, most residences are sufficiently set back from creek embankments; however, accessory and water-dependent uses (garages, boathouses, walkways) are often built adjacent to banks and waterways. Few developed areas infringe upon steep slopes. The few exceptions are found in some of the older residences along Main Street and south of Cedar Street above Little Creek. Bluffs and steep slopes of any kind have unusual development problems and should be avoided.

Water Quantity Issues

A variety of changes in stream hydrology result from new development. One such change is its effect on the quantity of stormwater runoff flowing downstream. As land is developed, the area of imperviousness almost always increases. This increase accelerates the runoff of rainfall and increases the peak rates of flow. If measures are not taken during the design of stormwater management facilities, this increased rate of flow can cause downstream flooding, erosion and sedimentation problems. The use of properly designed stormwater management facilities can provide a solution to these problems. However, many areas exist within the Town where development has occurred without consideration of these problems. The Town does have an Erosion and Sedimentation Control Ordinance that should limit these problems in the future, however. The ordinance requires all developers to convey runoff to adequate channels, or to prevent an increase of runoff from their properties.

Water Quality Issues

Another troubling change in stream hydrology commonly caused by new development is the degradation of the quality of stormwater. Pollutants are accumulated on paved and other impervious surfaces and are flushed from these surfaces during a storm; therefore, developed areas aid in the collection and concentration of pollutants. They also provide new sources for pollution, as contaminants may be released through corrosion, decay and automobile fuel or oil leaks. Developed areas also contribute herbicides, pesticides and fertilizers into the environment which further degrade the quality of water in adjacent streams, ponds and lakes.

As a means of removing pollutants caused by urban development, Best Management Practices (BMPs) have been introduced as a major component in stormwater management practices. BMPs are measures that have been developed to control, store and/or treat stormwater runoff from developed areas for the purpose of reducing flooding or removing pollutants while maintaining or enhancing environmental quality. The effectiveness of BMPs to remove pollutants depends on the removal mechanism used, the fraction of the annual runoff that is

effectively treated and the nature of the pollutant being removed. With thoughtful site design, regular maintenance and creative landscape architecture, most BMPs can be not only efficient and utilitarian, but also an attractive (or at least unobtrusive) addition to any community. In evaluating the BMP options for the Town, care should be taken to implement BMPs that would provide the desired level of pollutant removal and ensure compatibility between the natural and human environment. The proper control of these pollutants will help preserve the quality of water in every watershed in the Town.

Existing Manmade Stormwater Management Facilities

Installation of curbs, gutters and storm drainage is governed by the Town's Subdivision Ordinance which encourages the installation of a drainage system in all new Town subdivisions to insure adequate drainage of surface and storm water. All plans and specifications for installation and construction of storm drainage systems, including culverts and catch basins, must be approved by the Planning Commission. Unfortunately, many of the older subdivisions in the Town, such as Grimesland, Red Pointe Heights and the Moonefield community were developed without these manmade drainage systems. As a result, flooding is a major problem in many of the established neighborhoods. Given the limited land available within the small lots of these communities, there is little in the way of economically feasible alternatives that the Town may implement to alleviate these existing problems. The Town should ensure that the new regulations regarding curb and gutter included in the revised Zoning and Subdivision Ordinances are implemented so that the Town may avoid suffering from these same drainage problems in future developments.

All costs of storm drainage, curb, gutter, and sidewalk improvements are the responsibility of the subdivider for a new development unless the Town Council directs that the subdivider is responsible for only a portion of the costs. Before filing the application for a final subdivision plat, the subdivider must either install the improvements or execute an agreement and post a bond to cover the estimated costs of the improvements.

The Town Subdivision Ordinance also encourages the installation of curbs, gutters and sidewalks, in subdivisions where such improvements are warranted. Such improvements must conform to the specifications of the Virginia Department of Transportation (VDOT) and the Town. The Town has successfully obtained Community Development Block Grants (CDBG) to provide curbs, gutters and sidewalks to the existing subdivisions of Lakeside and Jersey Park development which are lower-income neighborhoods located off West Main Street/ Route 258 West. Similar improvements were made within the Rising Star community located off Battery Park Road.

In 2007, the Town adopted a comprehensive Stormwater Management Plan. The Plan defines the Town's new comprehensive approach to managing stormwater runoff in order to maintain the environmental balance of the region. The objective of this plan is to provide a comprehensive and unified framework for stormwater management which follows the Comprehensive Plan, complies with all regulations and includes location-specific recommendations that translate into a Capital Improvement Program that will benefit the entire Town. The plan addresses water quantity and water quality issues as defined above, as well as offering detailed recommendations regarding the proper implementation of Best Management Practices useful in protecting the environment from the impact of future development. The Plan focuses upon establishing economically feasible solutions, if any are indeed available, for improving drainage in the numerous older residential subdivisions in Smithfield that suffer from flooding during even minor storm events. As outlined in the Planning Area summaries in the Future Land Use Plan chapter, the most critical areas in need of analysis are the neighborhoods located within the Pagan Pines and Battery Park North Planning Areas.

Storm Water Management Facilities Maintenance Program

At the recommendation of the Chesapeake Bay Local Assistance Board and in order to remain in compliance with the tenets of the Commonwealth's Chesapeake Bay Preservation Act, a Storm Water Management Facilities Maintenance Program was implemented by the town in 2008. This program requires the owners of all such structures to enter into an agreement with the Town of Smithfield. The agreement requires the annual inspection of and the proper maintenance of existing and future storm water management structures within the town limits.

RECOMMENDED FUTURE STORMWATER MANAGEMENT IMPROVEMENTS

Decisions the Town makes now regarding stormwater management issues will have a direct effect on future water quality, storm drain performance and system condition. In response to the issues addressed in this section of the Plan, the Town should implement the following projects:

1. *Develop a Stormwater Management Design Manual.* The Town should develop this manual as a means of aiding developers and Staff in their interpretation of proper engineering techniques and design details encouraged in the Storm water Management Master Plan. The manual, which would complement the Town's existing Construction Design Standards Manual, would eliminate any confusion over the Town's future expectations with respect to modern design standards.
2. *Introduce a Stormwater Management Ordinance to aid in the implementation of the strategies recommended in the Stormwater Management Plan.* A Stormwater Management Ordinance should be introduced to augment the existing Chesapeake Bay Preservation and Sedimentation Control ordinances that govern stormwater management requirements. This recommended ordinance should be designed to help prevent illicit discharges and dumping into storm drains. The ordinance would grant the Town the legal tools needed to implement the strategies outlined in the Comprehensive Stormwater Management Plan. These tools include the prohibition by law of putting any gasoline, oil, antifreeze or other pollutants into the storm system. It also prohibits anyone from putting anything in the gutter, ditch, storm drain or other drainage way that impedes or interferes with the free flow of stormwater. Chlorinated swimming pool water also cannot be discharged into the Town storm drain system.
3. *Implement a new Stormwater Management Facility Inspection Program.* Stormwater management facilities require regular maintenance to ensure that the facilities operate properly. It is recommended that the Town obtain a maintenance agreement from the owners of private BMP structures to ensure that the BMPs are properly maintained. The maintenance requirements for a regional BMP facility include periodic inspection, landscaping maintenance, trash and debris removal, pipe and outlet structure cleaning, sediment removal and dam maintenance. The Town should inspect all private BMP structures that have a maintenance agreement at least once a year.

4. *Foster a regional stormwater approach going forward emphasizing regional BMPs over small, on-site facilities in an attempt to protect water quality.* Best Management Practices (BMPs) are required by the Chesapeake Bay Preservation Area ordinance as a way to reduce nonpoint source pollution while providing effective stormwater management. As dictated by the ordinance, a BMP for a specific new development site should be designed to control runoff, maximize pollutant removal and integrate with the natural and built landscape to the highest degree possible. Included in this design scheme should be a consideration for maintenance requirements, costs and responsibilities. Through proper planning and sound design, stormwater management facilities can serve multiple uses, provide community and aesthetic amenities, create safe environments and reduce overall development costs. In many cases, regional Town-owned BMP's are preferable to the small, on-site facilities. Often times, smaller structures have a greater chance of performance failure due to poor construction practices or a lack of maintenance. Moreover, large BMPs serve a larger drainage area and are usually more cost effective to construct and maintain than several smaller on-site BMPs. Large BMPs also have greater potential to control downstream flooding and other water quantity problems caused by development. BMP selection criteria include stormwater management objectives, water quality objectives and appropriateness to specific site conditions, including climate, soils, topography, proposed and existing land use and surface cover. The suitability of recommended BMPs is strongly correlated to the engineering properties of the site's soils. Since many of the traditional BMP measures incorporate infiltration and detention facilities, geotechnical evaluations must focus on the soil's inherent permeability ratings, hydrologic groupings and drainage characteristics.

OPEN SPACE, PARKS AND RECREATION

Public recreation facilities and programs administered by the County are available to the residents of the Town. Smithfield residents have access to a wide variety of park and recreational facilities, both within the Town itself and in sites located throughout Isle of Wight County and the greater Tidewater region. Nevertheless, the Town remains ever mindful for opportunities to acquire land for parks and recreation, open space, and public access to the water. The Town has set aside funds in the current CIP to enable the future acquisition of land suitable for any or all of these purposes it becomes available. The following section provides a brief summary of the existing recreational facilities, both public and private, in the area and offers several implementation recommendations concerning future parks and recreation planning.

Town Public Recreation Facilities

Two major parks are located within Town limits: Riverview Park and Westside Elementary School Park. Several other smaller public parks are also located within the Town's limits. Residents of the Town and the County all use these facilities free of charge, the one exception being fishing in the town lake.

Riverview Park

Riverview Park is a relatively new park located adjacent to the Smithfield library at the old Smithfield High School site on James Street in the Riverview neighborhood. The park covers over 27 acres and offers lighted tennis courts, a baseball field, picnic area, exercise court, a walking/jogging trail and open space. There is a handicap-accessible playground area for the children and a senior citizens recreation area with a shelter and gazebo. The facility is owned and maintained by Isle of Wight County.

Westside Elementary School Park

The Westside Elementary School Park is located off West Main Street adjacent to the school facility. This park offers basketball, baseball and soccer fields.

Jersey Park Tot Lot

The Jersey Park Tot Lot is located on Windsor Avenue in the Jersey Park neighborhood. The park includes playground equipment, a picnic shelter, a sand volleyball court and horseshoe pit. The facility is open during the daylight hours and is owned and maintained by the Town of Smithfield.

Robert S. Clontz Memorial Park

Robert S. Clontz Memorial Park is equipped with a gazebo, picnic tables and fishing pier for those who enjoy the natural beauty of the outdoors. It is located off North Church Street on the northern bank of the Pagan River. The park is named after a noted artist who resided in Smithfield.

Pinewood Heights Tot Lot

An additional neighborhood-scaled playground is located on Pinewood Drive.

Fishing Lake

The Town of Smithfield owns a 4.5-acre lake located off Waterworks Road. Daily or annual permits are required for fishing; they can be obtained at the Town of Smithfield Treasurer's Department for a nominal fee.

County Public Recreation Facilities

Carrollton Nike Park

The Carrollton Nike Park is located on Route 699 (Nike Park Road) east of Smithfield. It provides several recreational opportunities, including baseball, softball, basketball, tennis, soccer, playgrounds and picnicking facilities. The park is managed and maintained by the County's Public Recreational Facilities Authority. Approximately half of the site is developed, leaving the remainder overlooking the river. It is owned and maintained by the County of Isle of Wight.

Smithfield High School

Smithfield High School, located off Route 10 south of Town, has a myriad of ball fields, tennis courts, basketball courts and playing fields. It is owned and maintained by the County of Isle of Wight. As is the case with several other public schools designed for the multi-use of recreational facilities, the recreational facilities are utilized by the School Board during regular school hours, extra-curricular activities included, and by the Public Recreational Facilities Authority (for sponsored recreation programs) at other times.

Public Boat Ramp

The nearest public boat ramp is located on Jones Creek in Rescue. There is also a ramp at Tyler's Beach near Rushmere. The Planning Commission and the Town Staff has identified the provision of a public boat ramp in the Town as a high priority.

Private Recreational Facilities

Beale Park

Beale Park, located on Moonefield Drive at the corner of Lumar Road, is also within the Town's limits. Beale Park has tennis courts, a baseball field and a swimming pool. The park is operated by the Smithfield Recreation Association (SRA), which is a private community athletic association. Membership in the SRA is open to all residents of the Town, provided that citizens pay an annual membership fee. However, the swimming pool has a separate restricted membership with a current waiting list.

Private Marinas

Privately-operated marinas are located on South Church Street at the Smithfield Station complex and on Jones Creek in the community of Rescue in Isle of Wight County.

Recommended Parks and Recreation Facilities Improvements

As part of the development of its Comprehensive Plan, Isle of Wight County has completed an inventory of existing recreation areas and facilities in the entire County, including Town facilities, as well as an analysis of this supply relative to projections of facility demand through 2010. This analysis concludes that the County is well-equipped to meet future demand with the exception of one or two areas of significant concern. Specific County-wide parks and recreation concerns listed in the Isle of Wight County Comprehensive Plan focus on limited public waterfront access and the lack of active recreation field space availability.

Similar needs and desires for additional opportunities have been expressed repeatedly by Town residents during public work sessions and in the citizen surveys distributed as part of the development of the Town's Comprehensive Plan. In the Citizen's Survey conducted as part of the Comprehensive Plan Update, only 28% of those surveyed responded that existing parks and recreational facilities in the Town adequately serve the community's needs. Thirty-eight percent of those responding disagreed or strongly disagreed with this statement. When asked what additional recreational facilities would be most desirable in the Town, the respondents listed the following most often:

- | | |
|-----------------------------------|---------------------------------|
| 1). PARK/PLAYGROUND/FIELDS (14%) | 7). TENNIS COURTS (4%) |
| 2). HIKE, BIKE, WALK TRAILS (14%) | 8). BASEBALL FIELDS (3%) |
| 3). MOVIE THEATER (14%) | 9). YOUTH, TEEN, YMCA CLUB (2%) |
| 4). BOWLING ALLEY (9%) | 10). PICNIC AREA (2%) |
| 5). SWIMMING POOL (8%) | 11). BASKETBALL COURT (1%) |
| 6). BOAT RAMP/ACCESS (4%) | 12). AMPHITHEATER (<1%) |

Further, eighty-three percent of the respondents agreed or strongly agreed that the protection and preservation of the Town's waterfront areas are high priorities, and should be a major goal for future land use planning in Smithfield. This represented the fourth strongest response measured in the entire survey. Also, the absence of direct access and linkage between historic and prominent tourist areas with spaces suitable for public recreation has been frequently mentioned during Comprehensive Plan public work sessions as a missing economic development opportunity in the Town.

Windsor Castle Park

In response to these needs expressed via both formal County study and citizen input during the Comprehensive Plan Update, the Town adopted the Windsor Castle Park Master Plan in 2008. The town's adopted master plan, prepared by the LandMark Design Group, provides for passive recreational use on the site, being sensitive to the state historic conservation easement which has presently been placed on 42 acres of the overall property including the private home and outbuildings.

As part of the master plan, extensive trails will encompass the property affording the public the opportunity to experience the diversity of the site from woodlands, agricultural fields and marsh. The Town has also placed a major emphasis on incorporating a master trail and pedestrian plan into the surrounding area (identified in the Land Use Plan as Sub-Area 2 of the Jericho Planning Area). The trail system also includes proposed pedestrian boardwalk connections to other areas within the historic district. A kayak and canoe launch is planned along Cypress Creek and equestrian trails are included as well on a portion of the park. Opportunities exist to integrate public open spaces and park facilities, both active (potentially in later phases) and passive into the Sub-Area. A master trail and pedestrian plan should be implemented to link these open spaces and park facilities with the historic Windsor Castle site, and beyond to South Church Street and the Downtown Area via thoughtfully planned pedestrian linkages.

This plan should be carefully integrated with the preservation of key portions of the Windsor Castle estate. The preservation of key portions of the Windsor Castle estate could provide a significant impetus towards meeting the Town's established goals of boosting tourism in the area and providing more public open space for its citizens. The proposed design and phasing of improvements should be done in close coordination with the Virginia Department of Historic Resources, Virginia Marine Resources Commission, US Army Corps of Engineers, Isle of Wight County Wetlands Board and the town's appointed boards and citizens. See the Jericho Planning Area land use summary for more details.

Cary Street Park

The Town supports another new park location in Sub-Area 5 within the West Main Planning Area. The site is located between the Route 10 Bypass and Cary Street. Given the location of this Sub-Area within the Town (more specifically its proximity to other Town and County park facilities and the Luter Family YMCA and its potential for accessibility to the Route 10 Bypass) and its ideal topographic attributes, Sub-Area 5 holds strong potential to serve as the requested new Town park facility. It is recommended that the park include soccer, baseball and softball fields, basketball and tennis courts, bicycle and walking trails, and ample open space. Strong

pedestrian and bicycle linkages (via sidewalks and dedicated bicycle paths) connecting the park to the adjacent Luter Family YMCA across Cary Street should be included in the future master plan for the park. Ideally, the entrance would be located directly across Cary Street from the Luter Family YMCA in order to build upon the outstanding services provided in the youth and family-oriented facility, and to provide cross-linkages between the two uses.

Beale Park Extension

The Town supports the logical extension of Lumar Road to the south of its existing boundaries. As part of this plan, Lumar Drive should be extended to provide suitable access to this southern property.

Active Recreation Facility Needs

Even with the announcement of the master plan for the future use of the Windsor Castle property as public park space, the Town should continue to explore adding a new facility to its existing portfolio of recreational areas. The Town has prepared a concept plan to add new recreation facilities on the Town's old Sewage Treatment Plant property adjacent to Cary Street. Plans for the new facility include softball and baseball fields on the site where the old sewage treatment plant lagoons are located.

Citizens have also mentioned that the Town needs to identify additional opportunities for public boat landings. The Town should explore the feasibility of acquiring the vacant lots adjacent to the Pagan River off Riverview Avenue, and constructing a public boat ramp offering direct access to the river. If economically and environmentally feasible, this site could provide a valuable resource to the community. Special care must be taken to ensure that such a project abide by all Chesapeake Bay Preservation Act requirements, especially those concerning shoreline erosion, water quality impacts and public water access.