

INTRODUCTION

Past decisions concerning the use of land in Warsaw are reflected in the present-day community. Likewise, land-use decisions made today and tomorrow will have a great impact on the Town environment for future generations.

Emerging conditions of industrialization, population growth, and land development and environmental awareness have created new public requirements by directly affecting the public interest. Due to the Town's "friendly" annexation agreement with Richmond County, the coordination of land use plans and utility provisions become major elements of this Plan. Warsaw must establish policy guidance for the future to allow for informed decision-making concerning the use of land within current and future boundaries of the Town. Failure to do so may cause inappropriate, piecemeal land use decisions that may take generations to rectify. The role, then, of the Comprehensive Plan is to serve as a policy guide by providing a framework for long-range considerations regarding the use and development of land.

Statutory Authority for the Comprehensive Plan

In order to be effective, planning must be regarded as a continuing process. The Plan should be reviewed regularly and revised if needed (the Virginia Code requires review every five years). The Plan itself should establish policies concerning the desirable physical form and character of the community, and it should recommend actions on the part of the local government that will encourage the desired forms of future development.

Under §15.2-2223 of the Code of Virginia, the Town is required to prepare a Comprehensive Plan for the physical development of territory within its jurisdiction. Specifically, the Code of Virginia states:

The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.

In the preparation of a comprehensive plan the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants.

The comprehensive plan shall be general in nature, in that it shall designate the general or approximate location, character, and extent of each feature shown on the plan and shall indicate where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use as the case may be.

The plan, with the accompanying maps, plats, charts, and descriptive matter, shall show the locality's long-range recommendations for the general development of the territory covered by the plan. It may include, but need not be limited to:

1. The designation of areas for various types of public and private development and use, such as different kinds of residential, business, industrial, agricultural, mineral resources, conservation, recreation, public service, flood plain and drainage, and other areas;
2. The designation of a system of transportation facilities such as streets, roads, highways, parkways, railways, bridges, viaducts, waterways, airports, ports, terminals, and other like facilities;
3. The designation of a system of community service facilities such as parks, forests, schools, playgrounds, public buildings and institutions, hospitals, community centers, waterworks, sewage disposal or waste disposal areas, and the like;
4. The designation of historical areas and areas for urban renewal or other treatment;
5. The designation of areas for the implementation of reasonable ground water protection measures;
6. An official map, a capital improvements program, a subdivision ordinance, a zoning ordinance and zoning district maps, mineral resource district maps and agricultural and forestal district maps, where applicable;
7. The location of existing or proposed recycling centers; and
8. The designation of areas for the implementation of measures to promote the construction and maintenance of affordable housing, sufficient to meet the current and future needs of residents of all levels of income in the locality while considering the current and future needs of the planning district within which the locality is situated.

Chesapeake Bay Preservation Act

The Chesapeake Bay Preservation Act was enacted by the Virginia General Assembly to protect water quality and natural resources that are fundamental to economic development in the Commonwealth. More significantly, the General Assembly's action recognized the economic and socio-cultural importance of protecting the Chesapeake Bay and its tributaries from pollution. The resulting Chesapeake Bay Preservation Act Regulations established a program to protect and improve the water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effects of human activities upon these waters.

The Chesapeake Bay Preservation Act Program is a cooperative state-local government effort designed to protect environmentally sensitive feature that, when disturbed or developed

inappropriately, lead to the degradation of water quality. The Act provided local governments a framework to identify sensitive areas; and to enact water quality protection measures in order to better plan land activities on and around these areas. The criteria developed by the Chesapeake Bay Local Assistance Board were established for local governments to use in delineating Chesapeake Bay Preservation Areas; and in granting, denying or modifying requests to rezone, subdivide, or to use and develop land within Preservation Areas. Implementation of the criteria is achieved through the use of performance standards, best management practices, and various planning and zoning concepts. Consequently, all of the Tidewater area local governments have adopted local regulations to conform to the Local Assistance Board's criteria that address the following:

- Preserving vegetation and establishing buffer areas along streams and other sensitive environmental features;
- Minimizing land disturbance;
- Minimizing impervious cover;
- Controlling storm water runoff so pollutant loads are not increased; and
- Maintaining septic tanks

Under the Act, the Town of Warsaw is called to promote the following:

- Protection of existing high quality state waters and restoration of all other state waters to a condition or quality that will permit all reasonable public uses, or will support the propagation and growth of all aquatic life which might reasonably be expected to inhabit them;
- Safeguarding the clean waters of the Commonwealth from pollution;
- Prevention of any increase in pollution;
- Reduction of existing pollution; and
- Promotion of water resource conservation in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.

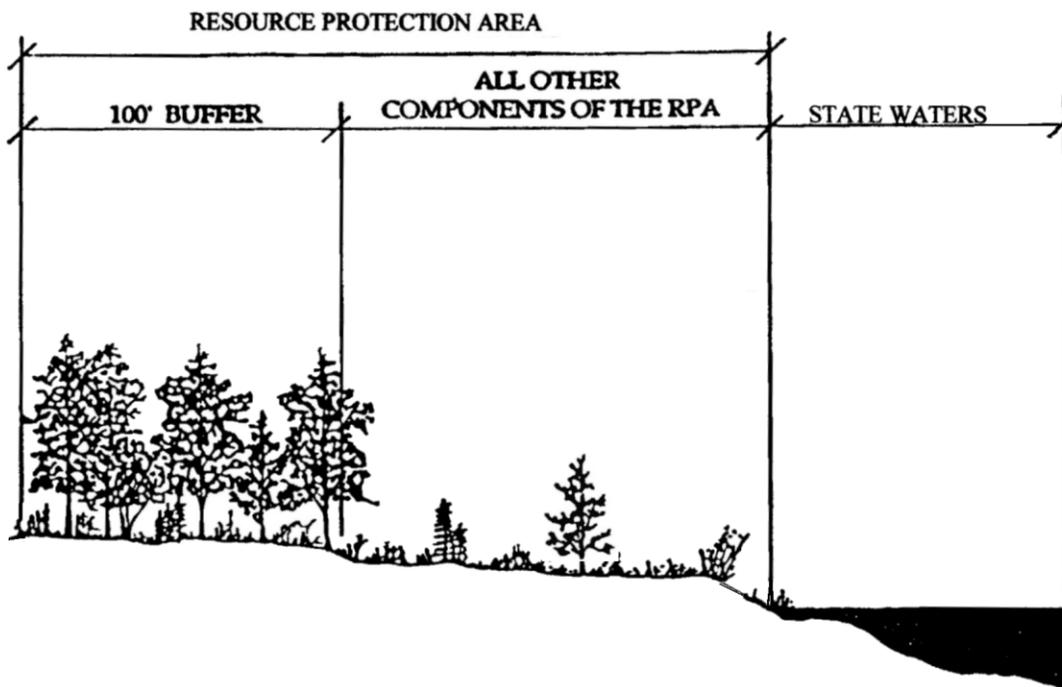
On September 5, 1990, the Warsaw Town Council adopted a map delineating Chesapeake Bay Preservation Areas and an ordinance implementing water quality protection performance criteria. On January 25, 1991, the Chesapeake Bay Local Assistance Board reviewed the Town's adopted program and found it to be in compliance with § 10.1-2109 of the Preservation Act and §.2.2.A and B of the Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01, hereinafter the Regulations).

Chesapeake Bay Preservation Areas (CBPAs) were mapped for the Town of Warsaw by Richmond County, in accordance with guidance established in the Regulations (“Chesapeake Bay Preservation Areas Map”). The mapping of CBPAs, which included Resource Protection Areas (RPAs) and Resource Management Areas (RMAs), was based upon the findings of an inventory of environmental features identified as important to water quality protection in the Regulations. Resources used by the County in preparing this inventory included U.S. Geological Survey (USGS) quadrangles, U.S. Fish and Wildlife Service National Wetlands Inventory maps, U.S. Soil Conservation Service soil surveys, VirGIS soil maps, and other technical sources. The environmental information from these resources were incorporated as data layers into the

Richmond County Resource Information System or RIS, a computerized data base of geographic information.

Resource Protection Areas

Resource Protection Areas (RPAs) are lands at or near the shoreline that have an intrinsic value to water quality protection because of the ecological and biological processes they perform. These lands are the most sensitive component of CBPAs. RPA features include: tidal shores; tidal wetlands; non-tidal wetlands connected by surface flow and contiguous to tidal-wetlands or tributary streams; and a 100-foot vegetated buffer area adjacent to and landward of the other RPA features and tributary streams. Figure 1 shows a general cross-section of a Resource Protection Area (RPA), illustrating a surface water body, sensitive environmental features included in the RPA designation, and the 100 foot buffer area.



**Figure 1 -
Resource Protection Area Cross-Section**

Source: Local Assistance Manual
Chesapeake Bay Local Assistance Department

The Town's designated RPA consists of non-tidal wetlands contiguous to tributary streams within the Town and the 100-foot buffer area landward of these features and along both sides of tributary streams. Tributary streams in the Town include Jug's Creek in the south and Clark's Run in the north. Little Carter Creek west of Town and Little Totuskey Creek east of Town have been designated as RPAs by Richmond County.

Resource Management Areas

Resource Management Areas (RMAs) include land types that, if improperly used or developed, have the potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area. RMAs are comprised of the following land categories: 100-year floodplains; highly erodible soils, including steep slopes; highly permeable soils; non-tidal wetlands not included in the RPA; and other lands necessary to protect water quality.

Given the prevalence of sensitive RMA land types within the Town; as well as a belief that water quality protection afforded by the performance criteria in the Regulations constitutes good land use management, the remainder of Town lands outside of the RPA has been designated as a Resource Management Area.

Purpose and Scope of the Comprehensive Plan

The Warsaw Comprehensive Plan is the policy document around which the Town endeavors to set a path for its future. The focus of the Plan is to establish a policy framework for the specific issues of land use and water quality protection. As such, this document represents the Town of Warsaw's recognition of its role in the protection of state waters and the Chesapeake Bay and its tributaries. The Plan is intended to carry out the goals of the Chesapeake Bay Preservation Act and has been developed in accordance to the Chesapeake Bay Preservation Area Designation and Management Regulations.

It should be emphasized here that this Plan does not substantially address other typical areas of concern in a community's comprehensive plan such as education, employment and economic development, housing and health care, historic resources, recreation, utilities, transportation and capital improvements, except when these issues have been determined to have land use and water quality protection significance. The Planning Commission has committed to planning for these other community development issues immediately following the completion of this Plan.

PART TWO - - EXISTING CONDITIONS

EXISTING CONDITIONS

The Town of Warsaw is located in the historic Northern Neck, approximately five miles north of the Rappahannock River. The Town is generally in the center of Richmond County, a rural county on the Northern Neck peninsula of Tidewater Virginia. The peninsula is framed by the Potomac and Rappahannock Rivers to the north and south respectively, and by the Chesapeake Bay to the east. Warsaw is located on the Northern Neck plateau at the intersection of U.S. Route 360 and State Highway 3.

The Town is located at what has always been an important crossroads for the Northern Neck region. Warsaw first became the county seat of Richmond County in 1748, when the Richmond County Courthouse was built. The Town was known as "Richmond Courthouse" until 1846, when it was renamed Warsaw in sympathy for the Polish people in their struggle for independence. The Town has played and continues to play an important role as a regional center of commerce, education, and government. The original Richmond County Courthouse, which was extensively remodeled in the nineteenth century, still stands in the center of Warsaw, along with the old jail and clerk's office. The Town is in the center of a region known for its historic landmarks.

Warsaw operates under a Charter that was first approved by the Virginia General Assembly in 1948. The Town has a Mayor-Council form of government. The Town Council, which includes the Mayor, sets Town policy. There are eight members on the Warsaw Town Council. The Mayor and Vice-Mayor are chosen by the Council from among its own members. The Council further employs a Town Manager whom operates as the Town's Chief Executive Officer.

A. Size in Area

The Town of Warsaw is approximately 1,894.94 acres or 2.96 square miles in size. In 2000, a population of 1,375 people lived within Warsaw's boundaries; which calculates to a density of 465 people per square mile.

B. Population

The populations of Warsaw and Richmond County grew modestly from 1960 through 1990. However, the Town and County grew at a much faster pace during the ten-year period from 1990-2000. Table 1 demonstrates that Richmond County had steady growth until the 1920s, out-migration from the 1930s to the late 1950s, and a gradual population increase through the year 2000, now surpassing the previous population peak of the 1920s. The population declines during the 1930s, '40s and '50s reflect the devastation of local economies during the Depression and the migration to the cities following World War II. Starting with the 1960s, the region began again a steady population increase that provides a more accurate representation of the prolonged growth of this region.

The population increase during the last three or four decades also reflects the region's transition from a rural economy to a more diversified service/industrial-based economy; as is

noted by the influx of new citizens due to waterfront and retirement housing development (with concurrent land value appreciation) in both the Town and the County. This population increase is further explained by the construction of two correctional facilities in Richmond County. These are the Northern Neck Regional Jail in the Town of Warsaw and the Commonwealth of Virginia's Haynesville Correctional Center in Richmond County.

TABLE 1. RICHMOND COUNTY POPULATION, 1900 - 2000

| <u>Year</u> | <u>Population</u> | <u>Percent Change</u> |
|-------------|-------------------|-----------------------|
| 1900 | 7,088 | - |
| 1910 | 7,415 | 5% |
| 1920 | 7,434 | 0.2% |
| 1930 | 6,878 | -7% |
| 1940 | 6,634 | -4% |
| 1950 | 6,189 | -7% |
| 1960 | 6,375 | 3% |
| 1970 | 6,504 | 2% |
| 1980 | 6,952 | 7% |
| 1990 | 7,273 | 5% |
| 2000 | 8,809 | 21% |

Town population trends are sometimes difficult to follow because of annexation gains and other variables. Warsaw's data must be interpreted with the awareness that the Town was not incorporated until 1949. Table 2 describes population changes within Warsaw during the past four U. S. Decennial Census periods.

TABLE 2. POPULATION, WARSAW & RICHMOND CO.: 1970 – 2000

| | <u>1970</u> | <u>1980</u> | <u>1990</u> | <u>2000</u> | <u>1990-2000 % Change</u> |
|-----------------|-------------|-------------|-------------|-------------|-------------------------------|
| Town of Warsaw | 755 | 771 | 961 | 1,375 | 43% |
| Richmond County | 6,504 | 6,952 | 7,273 | 8,809 | 21% |

Table 2 shows a series of increases in Warsaw's population, the most dramatic of which occurred in the last decade from 1990-2000. Earlier population increases are explained by the Town's annexation of approximately 504 acres of land in 1975, which resulted in only a modest population gain since most of the land annexed was agricultural. The Town's population further increased by almost 25 percent from 1980 to 1990, which is attributable to the opening of a 180 bed nursing home in the Town in the 1980s (see below). Another annexation of agricultural lands on the west side of the Town in 1987 added slightly to the population. The most recent increase in the population of Warsaw from 1990–2000 is attributed to the opening of the Northern Neck Regional Jail Facility and a new elderly care facility within the Town.

TABLE 3 - TOWN OF WARSAW: Population by Age Cohort

| | 1980 | | 1990 | | 2000 | |
|-----------------------|--------|---------|--------|---------|--------|---------|
| | Number | Percent | Number | Percent | Number | Percent |
| Total Persons | 771 | 100.0 | 961 | 100.0 | 1,375 | 100.0 |
| Gender and Age | | | | | | |
| Male | 356 | 46.2 | 403 | 41.9 | 695 | 50.5 |
| Female | 415 | 53.8 | 558 | 58.1 | 680 | 49.5 |
| Under 5 years | 48 | 6.2 | 43 | 4.5 | 42 | 3.1 |
| 5 to 9 years | * | * | 45 | 4.7 | 52 | 3.8 |
| 10 to 14 years | * | * | 53 | 5.5 | 56 | 4.1 |
| 15 to 19 years | * | * | 40 | 4.2 | 68 | 4.9 |
| 20 to 24 years | * | * | 29 | 3.0 | 98 | 7.1 |
| 25 to 34 years | * | * | 98 | 10.2 | 202 | 14.7 |
| 35 to 44 years | * | * | 129 | 13.4 | 185 | 13.5 |
| 45 to 54 years | 93 | 12.1 | 59 | 6.1 | 169 | 12.3 |
| 55 to 59 years | 51 | 6.6 | 49 | 5.1 | 51 | 3.7 |
| 60 to 64 years | 55 | 7.1 | 53 | 5.5 | 47 | 3.4 |
| 65 to 74 years | 97 | 12.6 | 127 | 13.2 | 132 | 9.6 |
| 75 to 84 years | 40 | 5.2 | 153 | 15.9 | 151 | 11 |
| 85 years and over | 7 | 0.9 | 83 | 8.6 | 122 | 8.9 |
| 18 years and over | 592 | 76.8 | 794 | 82.6 | 1,192 | 86.7 |
| Male | * | * | 316 | 32.9 | 607 | 44.1 |
| Female | * | * | 478 | 49.7 | 585 | 42.5 |
| 65 years and over | 144 | 18.7 | 363 | 37.8 | 405 | 29.5 |
| Male | * | * | 109 | 11.3 | 111 | 8.1 |
| Female | * | * | 254 | 26.4 | 294 | 21.4 |
| Median Age (years) | 39.8 | (X) | 51.5 | (X) | 44.1 | (X) |

* - Figures not available

(X) - Not applicable

Source: U.S. Census Bureau: Census 2000, 1990 Census of Population and Housing Summary Tape File 1, 1980 Census of Population and Housing Summary Characteristics for Governmental Units and Standard

Table 3 shows Warsaw's population by age groups (cohorts). Several trends are significant, with the first one being the substantial increases in the 75 and older cohorts from 1980-1990. These groups increased in size five-fold (from 47 to 236), which was due to the opening of a nursing home facility. Secondly, the sharp increase in the 15 to 54 year old cohort from 1990–2000 reflects population increase due to construction of the Regional Jail. However, all these trends may also reveal specific developments within Warsaw and deserve closer scrutiny.

It is difficult to project the future population of small towns because even relatively small developments can have significant impacts on their populations. This is illustrated by the impact

of the elderly care/nursing home facility to Warsaw's population and demographics (a 120 bed facility built in the early 1980s, expanded to 180 beds in 1985); as well as the impact of the Northern Neck Regional Jail in the 1990's. These types of changes can cause atypical employment opportunities and have significant implications for health and social service demand; as well as for public revenue generation. The Virginia Employment Commission (VEC) develops the Commonwealth's official population estimates and projections. Population projection and forecast figures are available for counties and cities, but unfortunately, data on births, deaths and migration is not available for Virginia towns. Therefore official population projections for Warsaw are not available.

In March 1999, the Virginia Employment Commission published Virginia population projections for 2000 and 2010. The Commission's population projection for Richmond County has been revised to reflect the County's faster rate of growth.

TABLE 4: 1999 VEC POPULATION PROJECTIONS FOR RICHMOND COUNTY

| <u>Year</u> | <u>Estimated Pop</u> | <u>Estimated Population Increase</u> | <u>Growth Rate</u> |
|-------------|----------------------|--------------------------------------|--------------------|
| 1990 | 7,273 | | |
| 2000 | 9,000 | 1,727 | 23.75% |
| 2010 | 10,599 | 1,599 | 17.77% |

Source: Virginia Population Projections 2000 and 2010, The Virginia Employment Commission, March 1999.

The following tables (tables 5 & 6) examine these revised population growth projections. It is possible to extrapolate how the Towns' population growth might change, based on several scenarios. The 2000 Census identified that Warsaw's population of 1,375 persons constituted 15.61% of the total Richmond County population. If Warsaw grows at the same rate as Richmond County, its population growth projection is shown in the following table.

TABLE 5: TOWN POPULATION PROJECTION (As a Percentage of Richmond County's Population (15.61 %))

| <u>Year</u> | <u>County Population</u> | <u>Estimated Town Population</u> | <u>Estimated Increase</u> |
|-------------|--------------------------|----------------------------------|---------------------------|
| 1990 | 7,273 | 1,135 | |
| 2000 | 9,000 | 1,405 | 270 |
| 2010 | 10,599 | 1,655 | 250 |

Source: Virginia Population Projections 2000 and 2010, The Virginia Employment Commission, March 1999.

TABLE 6: WARSAW GROWTH SCENARIO (Based on 27% of County Growth)

| <u>Year</u> | <u>Co. Population Increase</u> | <u>Town Population Growth</u> | <u>Total Pop. Growth</u> |
|-------------|--------------------------------|-------------------------------|--------------------------|
|-------------|--------------------------------|-------------------------------|--------------------------|

| | | | |
|------|-------|-----|-------|
| 2000 | 1,122 | 414 | 1,536 |
| 2010 | 1,167 | 432 | 1,599 |

However, since Warsaw is designated as the County's growth center, and since it has many desirable amenities (municipal services, schools, employment, commercial activity and residential opportunities) the Town may grow at a faster rate than the rural County. This will be reinforced by the Town's recent annexation of developable lands and its commitment to provide services. From 1990 to 2000 the county's population increased from 7,273 to 8,809, a 1,536 person increase. Yet for the same period, the Town's population increased by 414 persons, which is 27 percent of the County's increase. If 27 percent of the projected County population growth is captured by Warsaw in the decade from 2000-2010; then the Town's population will increase more dramatically than as shown in Table 5. Using this projection method, the Town's population would increase to 1,807 by the year 2010.

Estimates of the future demographic trends are speculative and caution is advised. Slow, steady growth can be expected in the Town, unless new institutional, industrial, or residential developments occur, causing a sudden influx of population. Warsaw's recent annexations may have set the stage for larger scale developments, with substantial housing and employment opportunities. If the Town's population doubles within the next twenty years, most of this fairly dense settlement will likely occur within the future annexation area, rather than in the nearby County area. This may be attributable to utility availability and housing development trends, and be consistent with Richmond County's proposed Comprehensive Plan designation of the Town as a growth center. Other, more specific trends can be anticipated: with the greying of the "baby boomers, " the trend in nursing home development and expansion can be expected to continue. More elderly residents will likely require expansion of health care and service facilities in the Town and place different demands on park and recreation facilities such as walking, bike, and cart paths and create a need for enhanced pedestrian safety measures such as sidewalks, crosswalks and special signalization.

The recently annexed Belle Ville Area, largely undeveloped now, is well suited for the development of moderate to high-density residential uses with associated mixed-use commercial and light industrial development; tied together with recreational and pedestrian facilities. Both Richmond County and the Town have recognized the need to provide the Belle Ville area with utility services in order to direct and promote future growth and economic development.

C. Employment and Economic Development

In addition to its role as county seat, Warsaw is the commercial and community center of Richmond County. The economy of the region continues to shift away from the agriculture/forestry/fishing and manufacturing industries towards the service, retail and government sectors. The service, retail and government sectors, combined, account for 60% of the total businesses located in the Town whereas agriculture/forestry/fishing and manufacturing account for just 8% of Warsaw businesses. This trend has been solidified by the availability of water and sewer services in Warsaw, through which the Town has attracted commercial activities and slow, steady residential development. Currently, the Town of Warsaw is home to approximately 175 business establishments. Additionally, the Town is home to several of the

Northern Neck’s regional institutions; including the regional jail that employs an estimated 100 people.

TOWN OF WARSAW: Employment by Industry

| Industry | Number of Establishments | Percent of Total | Average Employment |
|---|--------------------------|------------------|--------------------|
| Agriculture, Forestry, Fishing | 6 | 3.4% | 39 |
| Mining | 0 | 0 | 0 |
| Construction | 16 | 9.1 | 66 |
| Manufacturing | 8 | 4.6 | 32 |
| Transportation, Communication, Electric | 7 | 4.0 | 248 |
| Wholesale Trade | 20 | 11.4 | 160 |
| Retail Trade | 34 | 19.4 | 366 |
| Finance, Insurance Real Estate | 12 | 6.9 | 82 |
| Services | 50 | 28.6 | 187 |
| Government | 22 | 12.6 | 477 |
| <i>Total</i> | <i>175</i> | | <i>1657</i> |

Source: Virginia Employment Commission, Covered Employment and Wages in Virginia by Two-Digit SIC Code, First Quarter 2000

* Figures for Number of Establishments and Average Employment are estimates taken from Virginia Employment Commission reports and an in-house survey, and have been adjusted to reflect the downsizing of Gannon Technologies.

Despite this growth, the Town has experienced major obstacles as a result of the closing of the Levi Strauss plant in 1999 and a substantial reduction in employment at Gannon Technologies in 2001, which has caused residents to seek employment outside of the Town and in some cases outside of the region. Some of this loss of employment has been offset by the opening of the Northern Neck Regional Jail and Warsaw Health Care Center, now two of the largest employers in Warsaw. Additionally, Richmond County is beginning efforts to develop a new industrial park in a parcel of the Belle Ville property. This park has the potential to attract mixed-use commercial, light industrial uses, or possibly become home to relocated and consolidated County government buildings/uses. Any of these development scenarios would complement the existing character of the Town, while providing further economic opportunities for its citizens.

TOWN OF WARSAW: Top 10 Employers

| Rank | Trade Name | SIC Code | Employee Range |
|------|---------------------------------------|----------|----------------|
| 01 | Warsaw Health Care Center | 80 | 100 - 249 |
| 02 | Verizon, Inc. | 48 | 100 - 249 |
| 03 | Virginia Department of Transportation | 16 | 50 - 99 |
| 04 | Northern Neck Regional Jail | 92 | 50 - 99 |
| 05 | Food Lion | 54 | 50 - 99 |
| 06 | McDonald's Family Restaurant | 58 | 50 - 99 |
| 07 | Northern Neck Electric Cooperative | 49 | 50 - 99 |
| 08 | Ames Department Store | 53 | 20 - 49 |
| 09 | Northern Neck State Bank | 60 | 20 - 49 |
| 10 | Frederick Northup, Inc. | 51 | 20 - 49 |

Source: Virginia Employment Commission, Third Quarter 2000. The list has been adjusted to reflect the downsizing of Gannon Technologies in 2001.

Average unemployment for Richmond County has shown a steady decline since the recession of the early 1990's. For the Northern Neck, seasonal employment has been a problem, as unemployment figures in Lancaster and Northumberland Counties increase between 10 and 15 percentage points during the winter months. Seasonal employment is less of an issue for businesses in Richmond County and Warsaw where the unemployment figure rises just a few percentage points.

RICHMOND COUNTY: Annual Unemployment 1990 - 2000

| Year | Civilian Labor Force | Employed | Unemployed | Unemployment Rate |
|------|----------------------|----------|------------|-------------------|
| 1990 | 3,483 | 3,247 | 236 | 6.8 |
| 1991 | 3,655 | 3,377 | 278 | 7.6 |
| 1992 | 3,816 | 3,433 | 383 | 10.0 |
| 1993 | 3,746 | 3,437 | 309 | 8.2 |
| 1994 | 4,028 | 3,748 | 280 | 7.0 |
| 1995 | 4,048 | 3,796 | 252 | 6.2 |
| 1996 | 3,908 | 3,608 | 300 | 7.7 |
| 1997 | 3,867 | 3,624 | 243 | 6.3 |
| 1998 | 3,931 | 3,743 | 188 | 4.8 |
| 1999 | 4,112 | 3,930 | 182 | 4.4 |
| 2000 | 4,003 | 3,830 | 173 | 4.3 |

Source: Virginia Employment Commission, Historical Report on Labor Force and Unemployment

To offset the loss of the region's traditional industries, the Town should strive to develop greater employment diversity and a broader economic base. The Town of Warsaw should stay

actively involved with Richmond County and the Northern Neck’s efforts to develop tourism and the travel/hospitality industries. Other avenues of economic diversification should be explored and developed as well.

D. Housing

The Town of Warsaw had a total of 468 housing units in 2000. In 1990, the Town of Warsaw had a total of 370 housing units. The number of housing units in the Town of Warsaw has increased by 98 units, a 26.49% increase. According to both the 1990 and 2000 U.S. Censuses, the Town of Warsaw has a very high occupancy rate. In 1990 the occupancy rate was 94.6%. In 2000, the occupancy rate had risen to 95.1% occupied.

One change that has occurred concerning housing units in the Town of Warsaw is the ratio of owner occupied housing units to renter occupied housing units. In 1990, 70.86% of housing units were owner occupied and 29.14% were renter occupied. In 2000, the number of owner occupied housing units had decreased to 58% of all housing units; while the number of renter occupied housing units had increased to 42% of the total housing stock. This change in occupancy can be understood more clearly when studying the number of rental units or apartments in the Town of Warsaw. An informal survey of apartments in the Town shows that there are at least 139 apartment units in the Town.

| <u>Location</u> | <u>Owner</u> | <u># of Units</u> |
|--------------------|------------------|-------------------|
| Wallace Street | Dolan | 12 |
| Bluebird Lane | College Green I | 32 (elderly) |
| Wallace Street | College Green II | 16 |
| Wallace Street | Lee | 2 |
| Wallace Street | Hoffmeister | 2 |
| Richmond Rd.; East | McKinley | 3 |
| Main Street | Mallard Court | 4 |
| Walnut Street | Lankford’s | 8 |
| Warsaw Manor | Jones Lane | 56 |
| Richmond Rd; East | Not Known | <u>2</u> |
| | Total | 137 |

The apartments in the Town of Warsaw now account for approximately 29.27% of the total number of housing units in the Town. Moreover, when studying the overall number of rented units (42%); it can be deduced that a number of single-family detached units in the Town are also being rented. This increase in the number or rental units could be indicative of the lack of affordable single-family housing opportunities for the citizens of the Town. Alternatively, this change could be related to the attractiveness of the Town to elderly retirees who live alone; yet do not want to own their own home. This theory could be supported by the fact that out of the 212 non-family households in the Town in the year 2000, 203 were householders who lived alone.

The change in the type of occupancy concerning the Town’s housing stock, has been mirrored by a change in the type of households in the Town. In 1990, the Town of Warsaw had 231 (66%) family households and 119 (34%) non-family households. Of the 119 non-family

households, 118 were householders who lived alone. In 2000, the Town of Warsaw had 233 (52.36%) family households and 212 (47.64%) non-family households. Of the 212 non-family households, 203 were householders who lived alone.

In 2000, 894 (65.02%) people out of 1,375 people in the Town of Warsaw lived in a household. The remaining 481 (34.98%) people lived in a group quarters (269 in correctional facilities, 194 in nursing homes, and 18 in other types of non-institutional group quarters). By contrast 778 (80.96%) people out of 961 people in the Town of Warsaw lived in a household in 1990; while only 183 (19.04%) people in the Town lived in a type of group quarters.

The one concern that should be noted by the trends of the last 10 years is the flat rate of growth in the number of family households in the Town. In 1990 there were 231 family households in the Town of Warsaw; in 2000 there were only 233 family households. As the ratio of family households and owner occupied houses decreases; it is possible that the Town might lose some of the stable, small Town character that has defined it for much of its history.

TOWN OF WARSAW: Housing Units

| | 1980 | | 1990 | | 2000 | |
|----------------------------------|----------------------|-------------|------------|-------------|------------|-------------|
| | No. | Pct. | No. | Pct. | No. | Pct. |
| <i>Housing Occupancy</i> | | | | | | |
| Total housing units | 336 | 100.0 | 370 | 100.0 | 468 | 100.0 |
| Occupied housing units | 311 | 92.6 | 350 | 94.6 | 445 | 95.1 |
| Vacant housing units | 25 | 7.4 | 20 | 5.4 | 23 | 4.9 |
| - For seasonal use | 0 | 0.0 | 5 | 1.4 | 3 | 0.6 |
| <i>Units in Structure</i> | | | | | | |
| 1 unit, detached | * | * | 286 | 77.3 | * | * |
| 1 unit, attached | * | * | 1 | 0.3 | * | * |
| 2 to 4 units | * | * | 47 | 12.7 | * | * |
| 5 to 9 units | * | * | 18 | 4.9 | * | * |
| 10 or more units | * | * | 11 | 3.0 | * | * |
| Mobile home, other | * | * | 7 | 1.9 | * | * |
| Homeowner vacancy rate | (X) | * | (X) | 0.4 | (X) | 2.6 |
| Rental vacancy rate | (X) | 3.8 | (X) | 2.9 | (X) | 3.1 |
| <i>Housing Tenure</i> | | | | | | |
| Occupied housing units | 311 | 100.0 | 350 | 100.0 | 445 | 100.0 |
| - Owner-occupied | 235 | 75.6 | 248 | 70.9 | 258 | 58.0 |
| - Renter-occupied | <u>76</u> | <u>24.4</u> | <u>102</u> | <u>29.1</u> | <u>187</u> | <u>42.0</u> |
| * - Figures not available | (X) - Not applicable | | | | | |

Source: U.S. Census Bureau: Census 2000, 1990 Census of Population and Housing, Summary Tape File 1, 1980 Census of Population and Housing Summary Characteristics for Governmental Units and Standard Metropolitan Statistical Areas

E. Infrastructure and Community Services

Community Facilities

Warsaw provides certain services and facilities for use by the public, including water and sewer systems, police protection, refuse collection, recycling, recreation, and street lighting. Other facilities and services, such as schools, public health services, and social services are provided by Richmond County. The Northern Neck Regional Jail is located in Warsaw and is a multi-jurisdictional facility. Fire services are provided by volunteers. Rescue Squad services are provided by the Richmond County Rescue Squad and Lifeline Ambulance. Some recreational opportunities are provided by civic organizations. Other services and facilities are provided by the Rappahannock Community College. The following is a discussion of the various types of services and facilities that are available in the Town..

Schools

There are three schools operated by Richmond County that are located in the Warsaw area. Richmond County Elementary School and Rappahannock High School are currently located within the Town. The Richmond County Intermediate School (grades six through eight) is located southeast of the Town on Route 3 in Richmond County. The north campus of the Rappahannock Community College is also located within the Town. The community college is a two-year institution that provides associate degrees, technical and special training, and adult education. Four-year degrees are available at the Rappahannock Community College through the Old Dominion University Teletechnet program. In addition, the Northern Neck Technical Center is located in the southeastern part of Town, providing job and technical training to high school students throughout the Northern Neck.

Medical Facilities

Warsaw does not have its own hospital but is served by Riverside Rappahannock Hospital in Tappahannock, approximately nine miles from Warsaw; and by Rappahannock General Hospital in Kilmarnock, which is located approximately 30 miles from Warsaw. Both hospitals offer comprehensive services and have complete staffs of doctors and nurses.

Warsaw itself has several practicing physicians, dentists, and an orthodontist. These include CMG Pediatrics on Main Street, Dr. Horace Jackson of Warsaw Medical Center on Main Street, Riverside Physicians (Pediatrician, General Practice, and Pulmonary Specialist) located on Richmond Road, Dr. James R. Prince and Dr. Floyd L. Griffith (Optometrists) of Northern Neck Eye Center on Main Street, Dr. Roy E. Pugh (Dentist) on Richmond Road, Dr. John G. English (Dentist) on Main Street, and Dr. Edward F. Ross (Orthodontist) on Richmond Road.

Warsaw is also home to Warsaw Village Retirement Center, an assisted living/elderly housing center with 56 one and two person units; Warsaw Health Care Center, a 180-bed nursing home facility; and Riverside Health Systems “The Orchard”, which provides skilled nursing, assisted living facilities, and care for patients with Alzheimer’s’ disease. Lastly, the Richmond County Health Department is located in Warsaw and has a staff consisting of a public health director, a sanitarian, and a nurse. Furthermore, clinical and other public health services are dispensed on a county-wide basis.

Law Enforcement and Protection

Warsaw funds three police positions within its Law Enforcement Division. The Town’s police department is located in the Town's Municipal building, and is dispatched through the Richmond County Sheriff’s Office. Additional, supplementary, police protection is provided through the Richmond County Sheriff’s Department. The Virginia State Police operate a station approximately one mile outside of Town. The Richmond County's Sheriff’s office and the Northern Neck Regional Jail facilities are located within the Town.

Fire Protection and Emergency Medical Services

Warsaw is served by the Richmond County Volunteer Fire Department and is staffed by approximately 30 volunteer firemen. A firehouse is located in Warsaw and was initially constructed in 1947, with later additions in 1957 and 1970. This location houses two pumper trucks and two tank trucks.

The Richmond County Rescue Squad, Inc. has been rendering emergency medical services to the Town and the citizens of Richmond County since 1960. The Rescue Squad is comprised of 20 career and volunteer members and serves approximately 7,300 citizens in the winter months and approximately 12,000 during the summer season. The Richmond County Rescue Squad's coverage is approximately 203 square miles. The Richmond County Rescue Squad operates three ambulances, one crash truck and one zone car. It primarily serves Riverside Tappahannock Hospital and Rappahannock General Hospital in Kilmarnock. Coverage of the Richmond County Rescue Squad is complemented by the private services of Lifeline Ambulance, Inc.

Recreation

The Town does not currently have any recreation facilities of its own, other than the types of recreational activities that are associated with the schools in the Town. The Town relies on the County to help meet some of its recreational needs. Civic organizations and churches sponsor softball and baseball leagues, including the Richmond County Little League. A private recreation center with a swimming pool and tennis courts is located only one and one-half miles from Warsaw. The community college also provides some recreational facilities that can be used by the public, including tennis courts and walking trails. There is strong citizen interest in small parks, tot play equipment, and picnic facilities. This need has been recognized by the Richmond

County Board of Supervisors through their recent purchase of land within the Town for a Sports Park and other recreational facilities.

Street Lighting

Street lighting in the Town of Warsaw is provided through a contractual arrangement with Dominion Virginia Power and Northern Neck Electric Cooperative, Inc. The size and positioning of street lights are determined by Council and are based on the need and type of development at particular locations. At present there are approximately 198 street lights in Warsaw.

Water Supply and Water Quality

The Town owns and operates a public water supply and distribution system. Water for this system is obtained from four Town-owned wells, which tap the deeper artesian aquifers. The oldest well is located at the southern end of Sunset Lane, is lined to be six inches in diameter, and is 650 feet deep (with a static level of 119 feet). The well is rated for a capacity of 100 gallons per minute. The second well, located adjacent to the Municipal Building, was originally an eight-inch diameter well, but in 1986 was lined and now is six inches in diameter. This well is drilled to a depth of 682 feet, has a rated capacity of 210 gallons per minute. Well # 3 has a pumping rate of 500 gallons per minute. Well # 4 was put in operation in 2002 with a pumping rate of 545 gallons per minute. These wells provide the Town with a Virginia Department of Health permit capacity of 550,000 gallons per day. The present Town water consumption averages about 191,000 gallons per day. Based on the current water capacity, the Town's system can support considerable growth.

Water storage is provided in two elevated tanks. The first storage tank is located adjacent to the Town's second well, was completed in 1973, and has a capacity of 200,000 gallons. The second tank was completed in the year 2000 and has a storage capacity of 500,000 gallons. The total storage capacity of 700,000 gallons provides for adequate fire protection and exceeds the domestic storage requirements of the Virginia Department of Health. The water distribution system consists of a network of pipelines varying from two to twelve inches in diameter and serves the entire populated area of the Town. The downtown commercial area is served primarily with eight-inch and six inch mains, while the outlying residential areas are served mostly with four inch mains. Mains with diameters of eight inches and six inches also run from the central business area along Route 360 to the western part of the Town. Mains with diameters of twelve and ten inches serve the area of the Rt. 3 Bypass. Water lines range in age from those installed in the late 1940s to the present.

Water quality for the Town from these aquifers is good, although some wells in the County produce water having sodium bicarbonate and silica in quantities sufficient to make it undesirable for boiler use. (Richmond County proposed Comprehensive Plan, 1993) Following a State Department of Health mandate, the Town began chlorinating its water in 1991.

The water system presently serves approximately 535 connections that serve a total of 641 billed accounts; including residential units, commercial units, and governmental operations.

Of the 641 billed accounts; 463 are residential billings and 178 are commercial billings. Overall the Town's water system is permitted to withdrawal 550,000 gallons per day. The current total daily usage in gallons is estimated to be 191,000 gallons per day.

The Town's Subdivision Ordinance requires developers to construct and connect water lines to the Town system and then turn the subdivision system over to the Town for operation and maintenance. Varying charges are levied for connecting new residential units or businesses to the water system.

Sewerage

Warsaw established its sewer system in 1972. The sewer system was designed with gravity lines and force mains extended into the area that was annexed in 1975. The sewage system consists of a series of newer ten-inch mains and older eight-inch mains located throughout the Town in easements and rights-of-way. The sewage system currently serves approximately 99% of the existing structures in the Town. Sewage is collected in a series of nine pumping stations, all pumping eastward toward the main new upgraded pump station number two located on Wallace Street. Sewage from this pump station is pumped along Routes 3 and 360 to the sewage treatment plant, located approximately three miles south of town. Town and the County have just completed the Belleville project off of the Rt. 3 Bypass and the new pump station number nine was a part of this project. The sewage treatment facility is designed and permitted to treat and discharge 300,000 gallons per day. Currently the treatment plant treats approximately 190,000 gallons per day. Secondary treatment is provided at the plant, which incorporates an activated sludge process and aerating lagoons. The plant includes three lagoons, three holding ponds, final settling tanks, sludge holding tanks, sludge drying beds, and chlorination tanks. Service fees are paid by residents and businesses using the system, and new users are required to pay connection fees.

Refuse Collection and Disposal

Refuse pick-up for residences and businesses is provided by the Town. Currently, the Town's trash is under Richmond County's contract with Northumberland County. The refuse is disposed of at a refuse site operated by Waste Management Corporation in Gloucester County. Additionally, the Town provides a recycling bin located on the Town Municipal building property.

The Town has realized the need for enhanced refuse collection in Richmond County concerning large items that can not be disposed of on the Town's Trucks. These items include large metal items, old appliances, furniture, and yard debris.

Transportation and Streets

Background and Existing Conditions

A well-planned and managed transportation system is essential to the overall welfare and character of the Town. The major thoroughfares that pass through Warsaw serve as economic lifelines, connecting the Town to the region and the rest of the state. Moreover, given the visibility of uses along the corridors, the roadways dramatically impact the character of the Town, creating lasting impressions for visitors and residents. Like many small towns, Warsaw's transportation network plays a dual role, accommodating local needs while carrying significant volumes of through traffic. This raises specific challenges because of the conflicting needs of local and through traffic.

The Town's transportation system is anchored by the intersection of Route 360 and Main Street (Business Route 3), which forms the center of the Town core. On the west side of Town, Route 360 connects Richmond County and the Northern Neck to the Town of Tappahannock on the Middle Peninsula. On the east side of Town, Route 360 connects with the Route 3 Bypass. From this intersection, Route 360 east connects to the eastern portion of the Northern Neck, Route 3 north leads into Westmoreland County, and Route 3 south connects to Kilmarnock. Around these two major roads has developed a system of collectors and local roads that define the fabric of the Town. The Route 3 Bypass is a recent addition to the Town's transportation network. Prior to its construction, all traffic on Route 3 was required to travel on Main Street.

Route 3 in the center of Town is also Main Street, a two-lane roadway that displays typical small town land uses such as offices and shops. Route 360 in the Town core displays similar uses and also provides access to residences and a community college. As Route 360 leaves the Town core, land uses become more highway oriented including gas stations, fast food, and shopping centers.

While Route 360 is a four-lane facility, the eastbound approach to Main Street is the primary capacity constraint. Here, the inside travel lane is marked as an exclusive left-turn lane, limiting through traffic to one lane. This severely restricts the capacity of eastbound Route 360. By contrast, the westbound approach has two travel lanes.

The intersection of Route 360 with Route 3 Bypass has two through lanes on all four legs, with exclusive left-turn lanes on each approach and right-turn lanes on the southbound, eastbound, and westbound approaches.

Although several local roads near the Town center begin to form a modified grid, the majority of local roads are disconnected cul-de-sacs. This means that virtually all vehicle trips – including short local trips – must access one of the two main roads. Given the high volumes of through traffic, this naturally creates conflict as local travelers make frequent turns at slow speeds while through traffic attempts to navigate the Town as quickly as possible.

The Virginia Department of Transportation, in coordination with the State Police, records crash data information for all Virginia state roadways into a computerized database. A review of crashes was conducted for the last three complete years, 1999 through 2001 for the following roadways within town limits: Route 360, Route 3, and Route 3 Business. The table shown below identifies that during this period, a total of 152 crashes were identified. The overwhelming majority of those crashes (84 percent) occurred on Route 360. In addition, 1999 experienced 95 crashes on all three roads, compared with 24 total crashes in 2000 and 33 total crashes in 2001. Three fatalities were reported in 1999, two occurring on Route 360 and on Route 3.

| Roadway | Reported Crashes By Year | | | |
|------------------|--------------------------|------|------|-------|
| | 1999 | 2000 | 2001 | Total |
| Route 360 | 78 | 21 | 28 | 127 |
| Route 3 | 5 | 2 | 0 | 7 |
| Route 3 Business | 12 | 1 | 5 | 18 |
| Total | 95 | 24 | 33 | 152 |

It appears that both Route 360 and Business Route 3 are experiencing crash rates in excess of the statewide average for similar facilities. Our analysis did not include a review of individual crash data, so it is difficult to draw definitive conclusions, however, it would appear that there is a safety concern on these two roadways. Further study is needed.

Pedestrian activity in Town is focused on the community college and the Town core, but pedestrian demand also exists at other locations. Incomplete sidewalks limit access to certain areas. Also, significant through traffic creates safety and access issues, especially on Route 360. Due to this increased need for pedestrian safety, a sidewalk extension/improvement project is currently underway from the area near the Warsaw Health Care Center to the Warsaw Village Shopping Center.

Northern Neck Rideshare provides transit service to the area. This organization provides computerized ride matching services, as well as a guaranteed ride home provision. The organization's services are free of charge.

In terms of transportation project currently in the VDOT planning system, the Virginia Transportation Development Plan includes two capital projects in the vicinity of Warsaw:

1. Main Street Beautification Project – construction of off-street parking, sidewalks, landscaping and pedestrian/bicycle trails. Construction date is slated for Year 2002/2003.
2. Route 3 road way widening from two to four lanes – Warsaw to Lyells. Construction date 2005.

Richmond County Comprehensive Plan

Richmond County's adopted Comprehensive Land Use shows a fundamental commitment to preserving the rural character and quality of life in the County, and a strong emphasis on protecting prime agricultural operations as well as County environmental resources. The County's Plan aims to direct development into "growth centers." Warsaw is designated as a growth center. The County Plan states that "...the annexed areas of the Town of Warsaw provide potential high density growth since infrastructure needs can be supplied in an efficient manner." The County Plan also establishes Conservation Areas "...for the protection of areas of significant natural resource value that may be degraded by improper development...where only passive activities should be considered as appropriate for the designated Conservation Areas." The Plan further recognizes prime agricultural lands based on favorable soil types and designates these agricultural lands on its Future Land Use Plan.

The County Plan also established Gateway Corridor Protection Areas to protect the scenic corridors leading into the County by "providing protection from insensitive development that would disrupt the land use patterns currently enjoyed."

The recommendations in this Plan have been developed to be compatible with Richmond County's Comprehensive Plan. It is the intention of this Plan to facilitate concurrence with the Town and County's annexation agreement and the County's future recommendations.

F. EXISTING LAND USE AND DEVELOPMENT TRENDS

The land use element of any comprehensive plan describes not only the pattern of existing uses, but the potential for future development. Current land use patterns are a product of economic forces, environmental factors, transportation modes, social forces, and residential preference both past and present (Stephens, 1992). Future development is influenced by these same forces, but it is shaped by land use and development guidelines set forth in a community's plans and ordinances which embody community goals and vision.

Overview

The Town of Warsaw, located in the largely rural Northern Neck peninsula, grew around the intersection of U. S. Route 360 and State Route 3. The downtown consists of a few blocks of one and two story buildings centered around the Richmond County Courthouse complex abutting Route 3 north. Several churches and small residential neighborhoods are adjacent to this, all within walking distance of downtown. Growth in the Town has spread west along Route 360; strip commercial development and large shopping centers dominate the entry into the community. To the southeast on Route 360, rural land is slowly being converted to highway commercial. Rural land uses are also in transition to the northeast on Route 3, where the Town's main industries are located.

Warsaw has grown while other Northern Neck communities have diminished. This growth has been primarily based on the water and sewer availability, as well as Warsaw's central location. The commercial strip boom has resulted in a gradual decline of the downtown vicinity and has substantially altered Warsaw's small town character. Residents perceive this small town character as one of the community's fundamental assets and express a desire to retain it as much as possible. The orientation and character of development during the past three decades, however, have been governed by highway access. This has resulted in fragmentation of the built environment, as well as, land use and transportation conflicts. Warsaw is in an unusual position with respect to annexation of its surrounding lands. The "friendly" annexation agreement with Richmond County, developed in the mid-1980s, allowed the Town to annex a specific area of Richmond County, in exchange for the Town's commitment to never seek independent City status (a summary of the Warsaw/Richmond County Annexation Agreement, adopted in 1986, is included as Appendix C).

The annexation agreement allowed the Town to annex simply by adopting a local annexation ordinance. The agreement required the Town to establish measures to protect the annexed lands by zoning and other land use procedures. It also reserved to the County the right to adopt Town ordinances regulating the land use within the annexed area for lands that had not yet been annexed by the Town, to assure continuity in the use designations and land use regulations. The planning and development implications of this annexation agreement benefited both the Town and County. The Town had the ability to obtain high growth potential areas and subsequent revenues, thus capturing what would have been economic leakage outside the Town boundaries. The County benefited by retaining taxes on all of those properties, that an independent city would have captured if it obtained incorporation. Even more important with respect to long-term planning is the cooperative relationship between the Town and the County with respect to growth and service delivery, and the ability to control land use in the annexed areas.

A survey of existing land use in Warsaw and the annexed area was performed in November 1992 by the Richmond County Planning Commission and still holds largely true today. This identification was essentially a "windshield survey" of the Town, noting categories of land use for each parcel of land in the community. Such evaluations of current land use also reveal development trends and help identify land use opportunities and conflicts, sensitive environmental areas and water quality threats. The survey also provided an opportunity to examine how various land uses in the community impact larger issues, such as water quality protection in the Chesapeake Bay watershed.

Residential

Residential land use is land developed for dwellings and ancillary structures. Residential land use in Warsaw essentially reflect the socio-economic trends prevalent when the houses were constructed. For example, it was typical at the turn of this century for the residences of the wealthier citizens to be prominent two-story structures on large parcels located on the main route into Town. Workers' housing consisted of concentrated neighborhoods of small wood frame structures on narrow, deep lots with hardwoods, fruit trees, and gardening space. Most post-World War II neighborhoods consist of suburban subdivisions with single-family detached

dwellings. All residences in the Town are connected to the municipal water and sewer that was established in 1949.

Single-family: Older, pre-World War II single-family residential neighborhoods surround downtown commercial core; most of these homes are in good repair. These neighborhoods are surrounded by post-World War II subdivisions of mostly brick structures on quarter acre to acre lots with mature tree cover. In several of these subdivisions homeowners have purchased two platted lots and built their home on both or used the vacant lot as a large side yard. Several large landmark residences are located on U.S. Route 360 west of the downtown. Some of the Town's single-family subdivisions are oriented around the secondary street system that connects to the arterial highways. Dwellings are comprised mostly of one story brick and/or frame houses on lots averaging from three-quarters to an acre in size. A majority of the newer subdivisions, offering a similar housing stock, are arranged on branching cul-de-sac streets with only a single access street to the arterial or secondary street. These subdivisions are comprised of one and two story brick and frame houses on lots ranging upward from one-quarter acre. Most of the single-family residences in rural, outlying areas of the Town appear to be occupied. A few are still associated with agricultural uses and others are in transition (either building use changes or land use changes). Older single-family residential structures close to the Town center and facing the highways are in transition to commercial and office/professional uses. Residences scattered out further along the highways appear to be likely prospects for conversion or demolition to make way for strip commercial development, as the value of the land eclipses the value of the housing stock.

Multi-family: Only two main areas of multi-family use were noted. One small duplex area is located in the southeast section of Town. However, multi-family residential projects have been built fairly recently on Wallace Street adjacent to the Community College. Within this area is a 32-unit apartment complex designed specifically for elderly residents capable of independent living. It appears that there is growing demand for this housing type in Warsaw, and it is likely to become a strong development trend in the community. The most recent residential construction in Town has been a tri-plex on Richmond Road in the east end of town. In addition, a congregate living structure has been constructed behind the existing Health Care Center on Jones Lane, just off Route 360 west.

Commercial

Characteristic commercial uses include a central business district or downtown, highway commercial, shopping centers, and various office and service uses. Warsaw's commercial core is comprised of one and two story structures in various ages and styles, oriented along Route 3 and the intersection with Route 360. This downtown houses smaller businesses, offices, public and semi-public uses and Town and County offices. Some building vacancies exist, and building and infrastructure improvements are needed. The Warsaw downtown and adjacent Warsaw Valley Shopping Center are both prime areas for revitalization and redevelopment.

Parking in the downtown is somewhat problematic; there are parking shortages in the vicinity of the County Courthouse complex that are associated with the nearby businesses. Along Main Street (Route 3 north of the Courthouse) on-street parking is disorganized and off-

street parking poorly identified. Vehicular and pedestrian circulation, access, and safety are issues affecting the long-term viability of the Town's downtown core. Like many towns, the continuity of Warsaw's downtown area is broken by numerous empty lots that could be used for public parks, picnic areas, parking, or a combination of these types of development.

The Town's commercial development has expanded west along Route 360, in a series of small strip commercial centers. Current trends include the conversion of agricultural lands at the western edge of Town for larger shopping centers anchored by grocery stores and other retail, office, and service businesses. The recent development of banks, fast food franchises, and warehouse/distribution businesses in this western area reinforces the transformation of the Town's surrounding rural landscape into strip commercial development.

New commercial development is also occurring, although more slowly, in both the northern and southeastern parts of Town. However, (with the Route 3 Bypass completed in 2001 by the Virginia Department of Transportation (VDOT) and the Richmond County/Town of Warsaw Belleville Water/Sewer Project completed in 2002,) the County's proposed future industrial park, the availability of water and sewer, and the large agricultural holdings available for long-term development, this area of Town will be under considerable development pressure soon.

Industrial

Industrial land uses include manufacturing, mining, processing, packaging, storage, repair and/or treatment of products, food and natural resources. In Warsaw, the major industrial areas are located in the north where the former Levi-Straus manufacturing plant, a propane distribution business, and the proposed Richmond County Industrial Park are located. The new County industrial development land is located opposite the former Levi-Straus plant on the northwest end of Town. Lumberyards and a wood treatment plant dominate the area north of the Town. The Southern States plant, smaller light industrial, warehousing, and distribution operations are located in the southeast sections of Town. Both the Northern Neck Electrical Cooperative and Verizon have regional offices and equipment storage yards in the Town.

Transportation, distribution, and warehousing operations were also evaluated in the land use survey in order to identify specific land use patterns with large impervious surfaces (to assess potential large storm water volume sources) and high volume traffic or congestion-generating operations. The Virginia Department of Transportation regional depot with a vehicle yard and fueling facilities is located just north of the downtown on the east side of Route 3. A propane distributor is located on Route 3 north; and a fuel oil distributor is at the eastern 360-Route 3 split in the southeast section of Warsaw. Other smaller distribution and warehousing operations are scattered throughout the Town.

Agricultural

Agricultural land uses typically include farming and the production of livestock, and can include forestry operations. Large areas surrounding the Town are still in active agricultural use, with portions of these larger parcels in the Town. Small farming and gardening operations are scattered throughout Warsaw. Currently, several large agricultural land holdings are under study for eventual development. Belle Ville, the historic agricultural holding split by the new Route 3 Bypass is planned for phased long-range development. Richmond County owns a parcel here that is planned for industrial development, and other uses are planned as shown on the conceptual Development Plan commissioned by the Belle Ville property owners. Other large holdings in the southeast and west sections of Warsaw are likely candidates for future development. Warsaw's 1981 Comprehensive Plan classifies vacant and agricultural lands into one category and forestland into a second. This grouping includes raw and marginally developed land in a general agricultural category. Currently, most of the agricultural operations in the Town are smaller-scaled. In the annexed areas, agricultural operations appear to be in transition, with a portion of Belle Ville undergoing industrial park development and a residential subdivision being extended into the Jones property. Given the County Plan's designation of Warsaw as a growth center and future utility availability, most of these areas are viable for higher land use intensities, unless they exhibit special agricultural or natural resource significance.

Forestland

Forestland in Warsaw generally includes wooded areas associated with the ravines and steep slopes and with areas not readily accessible by paved roads or development. Forestry operations are not a significant land use in the Town, although they are abundant throughout Richmond County and the Northern Neck.

Public and Semi-Public

Public land uses are those uses owned or operated by a public or quasi-public agency. These include schools, parks, libraries, and municipal facilities. Semi-public uses, such as institutions and community facilities, are those privately owned non-business uses that are open to the public. These include churches, cemeteries, nursing homes and meeting halls.

Governmental: The Town owns two relatively new buildings just south of the center of Town: a municipal building and a warehouse. Richmond County has a group of buildings located around the original Courthouse and Jail. These are a complex of historic structures and an Administration Building. This governmental complex includes the County offices, the Sheriff's Office, and the Richmond County Museum. Other governmental functions have rented office space throughout the Town. They are located primarily across from the college on Route 360 and on the west side of Route 3.

Institutional: These uses are often mixed with commercial uses, since they require access and large parking areas. The main institutional uses in Warsaw include three health care facilities that are located along Richmond Road, the Rappahannock Community College's Warsaw Campus, a mental health facility located on Main Street, and 2 child care facilities.

Future Annexation Areas

The Town's 1999 Annexation fulfilled the Town's growth needs for the foreseeable future. No future annexations are planned.

Summary: Land Use and Major Development Issues

The Town of Warsaw still reveals its colonial origin with its County Courthouse complex and winding pattern of small streets in the downtown. The Town's growth since World War II, especially along the western approach highway, has substantially obscured the Town's rural origins, although the wooded areas and agricultural uses in and surrounding the Town still contribute significantly to its character. While the downtown area, nearby churches, historic homes and park-like college campus evoke the natural beauty of the rural Northern Neck, the large divided highways and the growing commercial strip centers are signs of generic, franchised economic development that contribute to a form and aesthetic that is at odds with village and rural character. Similarly, rapid residential growth and commercial development along the highways may not emphasize a sensitivity to scale, design and materials, access, landscaping and signage that are consistent with reinforcing the uniqueness of the Town and reflecting the high quality of life in the community. The history and character of Warsaw is an important factor in the Town's planning process. The Town's friendly annexation agreement with Richmond County has important implications for present land use: the Town can now set the stage for; and guide land use in these areas and control the timing of development through its Comprehensive plan, zoning ordinance, and the provision of utilities. The ability to plan land uses and utilities prior to annexation provides the Town with an ideal opportunity to consider the location, mixture, and balance of land uses from both Town-wide and regional perspectives. In fact, the Town can require development plans or general commitments on future development prior to annexation.

Within the ten-year scope of this Plan, the development of the annexed lands comprising the Belle Ville Tract will have the greatest impact on the Town's growth and economic development, related future land use, and water quality protection. This approximately 850 acre property, adjacent to the east boundary of Warsaw (Hamilton Boulevard), includes a large antebellum residence, several other low-intensity land uses, limited agriculture and fallow lands, an unused racetrack and ancillary structures, and undeveloped ravines to the east.

Richmond County also owns 56 acres of this property, which it plans for the development of an Industrial Park. In turn, the Town will provide utility service to the County's property. Additionally, the Belle Ville property owners donated an approximately 180 acre portion of the property to VDOT for right-of-way for the recently constructed Route 3 Bypass.

The Town's land use pattern shows a downtown core of commercial and civic buildings. The community recognizes that revitalization is needed to counter the perceived decline there and to demonstrate the Town's importance in the regional economy. Issues needing further study include infill and reinvestment opportunities, physical and infrastructural improvements, and economic diversification.

Educational institutions make significant impressions on Warsaw's land use patterns. The largest institution is the Rappahannock Community College, located just west of the downtown. Situated on 219 acres, it is an attractive suburban park-like campus that provides permanent green open space areas for the Town. The campus frontage on Route 360 is enhanced by the historic Chinn House. The Northern Neck Technical Center is located on Route 3, and the Richmond County Elementary School is directly behind that. The Richmond County High School is at the eastern edge of Town on Route 360 east.

Commercial activity in the Town has grown along Route 360 in a highway strip configuration culminating with the large shopping centers at the western end of Town. Challenges include providing an effective framework for future growth, discouraging the development of uses that would be better located in the downtown, and improving traffic circulation and the appearance of the area. Open space should be an integral feature of development and natural resources should be protected.

Care should be taken to prevent nearby agricultural uses from being subject to speculative development pressure. Warsaw is fortunate to be endowed with a number of basic strengths that can be protected and enhanced. The Rappahannock Community College campus adjacent to the downtown provides permanent open space and potential recreation resources for the community. It complements the grand houses nearby on Route 360 and emphasizes the Town's history and its rural roots. The concentrated downtown should lend itself to mixed uses with a stronger pedestrian orientation. Ties to nearby residential areas and the Town's historic character should be strengthened. Strong demand for rental dwellings (basically duplex and multi-family) and the success of the health care facility and congregate home serve as strong indicators for development trends in the Town. However, the lack of affordable single-family housing is perceived as a problem that needs to be addressed. Additionally, with the median age of Warsaw residents increasing as more retirement housing and nursing homes are built, the Town and County should look for opportunities to provide more parks, open space with passive and active recreation areas, and greenways, as well as alternative transportation routes and modes throughout the community. These will be important to the special elderly group in the community as well as other residents, and for the Town's future economic development. Amenities such as these are viewed as elements of a desirable quality of life in any community.

SECTION THREE – NATURAL RESOURCES

ENVIRONMENTAL RESOURCES INVENTORY

Warsaw and all of Richmond County is entirely within the Coastal Plain physiographic province of Virginia. Unconsolidated formations of sand, gravel, fossils, shells, and clay underlay Richmond County. In particular, Warsaw is located within the St. Mary's formation, which is characterized by upland gravel and sand and unconsolidated fossiliferous clay deposits. (SCS Soil Survey, 1982). The relatively flat, sandy coastal plain is well suited for agriculture, where well drained. Some parts of the Town are still forested, mostly around ravines and drainage basins. Sand and gravel mining operations occurred in Warsaw and its vicinity in the past but are not active now. In a sense, the region's most valuable natural resources are within the Chesapeake Bay and along its shorelines. The viability of these resources is fundamentally dependent on the water quality of the Bay and its tributaries.

A. Chesapeake Bay Preservation Areas

Chesapeake Bay Preservation Areas were discussed at length in the introduction of this plan. Specific Chesapeake Bay Preservation Areas can be seen on the “CBPA Areas Map – Town of Warsaw”

B. Drainage Patterns and Drainage Courses

The Town of Warsaw is located on a broad ridge just inland from the western floodplain of the Rappahannock River. At an elevation of approximately 140 feet above sea level, the northern side of the Town drains into Clark's Run and the Mt. Airy Mill Pond. To the south, the Town drains into Jug's Creek. The east side of Town drains to Totuskey Creek. These ridge lines and the drainage basins associated with the Town and surrounding areas are seen on the “Water bodies Map – Town of Warsaw”. These topographical features serve as naturally delineated sub-areas, useful for planning purposes, particularly planning for utility services and storm water management.

The inadequate management of storm water runoff results in flooding, erosion and sedimentation, and pollutants entering streams and rivers. If allowed to continue, such impacts can seriously impact water quality. With this in mind, the Warsaw Town Council has established a policy to submit all of the Town's proposed site plans to Richmond County's staff for review. The Town assists the County with administration and enforcement, but the chief responsibility falls with Richmond County.

C. Topography and Steep Slopes

The flat ridge tops of the Coastal Plain are noted for their deep, sandy soils. These areas are frequently dissected by steep ravines associated with streams. In Warsaw, most of the Town is built upon two intersecting ridges; the old highways followed this high ground. The land adjacent to these highways is relatively flat, and most of this land has been developed or is in agricultural use. Towards the edges of Town, streams have cut through the unconsolidated soils and, formed ravines. Land associated with escarpments and ravines is generally too steep for

development. Within Warsaw, these slopes can range from 15 to 25 percent and even greater in some specific locations (“Slope Map – Town of Warsaw”). Development on steep slopes may present special problems. While a modest slope aids drainage, steeper slopes may be easily eroded. This is not only because of the steeper topography, but because the soils found there (exposed deeper beds of unconsolidated soils) are characteristically more easily eroded. Steep slope areas are best left undisturbed for water quality protection. Minimizing land disturbance and maintaining existing vegetation on other slopes reduces the potential for erosion.

Slopes ranging from 15 to 25 percent begin to restrict development potential and slopes greater than 25 percent pose significant development constraints. Slopes greater than 25 percent are prone to accelerated erosion and difficult to stabilize once disturbed. Furthermore, development on steep slopes incurs additional grading, construction, and infrastructure costs. Further, erosion resulting from development on these steep slopes causes significant water quality problems in the long term, requiring the use of expensive retaining walls that must be periodically repaired or replaced. If such sites are approved for development, land disturbance should be restricted to include the minimum needed for construction of the building footprint.

Open space and access should be designed to minimize the potential for vegetation disturbance, and limits should be placed on the amount of impervious surface area and resulting stormwater runoff. Careful site design that minimizes land disturbance, maintains existing vegetation, and uses appropriate stabilization measures and stormwater management BMPs will help protect water quality. Within Warsaw, these steeper areas are found around the drainage ravines of Clark's Run, north of the Food Lion Shopping Center, and east, west, and south of Clarkesville Church. Other steep areas include the Jugs Creek tributary south of the Warsaw Valley Shopping Center and east of Wallace Street. On the west side of Town, near the Rappahannock River escarpment, a steep ravine cuts into the plateau behind the Times Square Shopping Center.

D. Soils

Soils should be considered in determining land use and development patterns, since soil characteristics affect the capacity of land to support structures, roads, foundations, and septic systems. Knowledge of a locality's soil characteristics identifies areas where development should be encouraged or restricted. Other features, such as topography, hydrology, and vegetation interact with soil characteristics, determining an area's suitability for development.

Certain types of land use and development should be limited or prohibited where soil conditions pose clear physical constraints. By restricting development, a locality can reduce environmental impacts and public and private costs. For example, high shrink/swell soils can cause building foundations to fail, chimneys to separate, roads and driveways to crack. By allowing inappropriate development in such areas, these projects are likely to have higher maintenance and repair costs and accelerated depreciation. In other cases, such as areas with poorly draining soils or a high water table, septic systems will not function properly. Consequently, development in such areas should be strictly limited or sewer must be provided.

The ability for soil and other physical characteristics to effectively support development is termed the carrying capacity of the land. Basing proposed uses on the land's carrying capacity is more cost-effective, on both the public and private sides of development because it reduces utility requirements and minimizes environmental impacts. Again, mitigation of adverse environmental impacts may be more costly. Basing future land uses on the land's ability to naturally sustain a certain level of development without negative impacts is sound land use policy and it also protects water quality and sensitive environmental areas.

Soil Classifications and Characteristics Town of Warsaw, VA

| Soil Map Symbol | Soil Description | Soil Class | Soil Permeability | Depth to Watertable | Erodibility | Percent Slope | Shrink-Swell Potential | Septic Suitability |
|-----------------|--|------------|-------------------|---------------------|-------------|---------------|------------------------|--------------------|
| 1 | Atlee silt loam | llw | Moderately Slow | 1.5 - 2.5' | High | 0 - 6% | Low | Poor |
| 2 | Bibb and Levy soils | Vllw | Slow | 0.5 - 1.5' | Low | 0 - 6% | Low | Poor |
| 5B | Emporia loam, 2 to 6% slopes | lle | Moderately Slow | 3.0 - 4.5' | Moderate | 2 - 6% | Moderate | Poor |
| 6B | Kempsville sandy loam, 2 to 6% slopes | lle | Moderately Rapid | > 6' | Moderate | 2 - 6% | Low | Moderate |
| 7 | Kempsville loam | l | Moderately Rapid | > 6' | Moderate | 0 - 6% | Low | Moderate |
| 12 | Pits, sand and gravel | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 14B | Rumford loamy sand, 0 to 6% slopes | lls | Moderately Rapid | > 6' | Moderate | 0 - 6% | Low | Poor |
| 15E | Rumfords soils, 15 to 50% slopes | Vlle | Moderately Rapid | > 6' | High | 15 - 50% | Low | Poor |
| 16D | Rumford and Tetotum soils, 6 to 15% slopes | IVe | Moderately Rapid | 1.5 - 2.5' | Moderate | 6 - 15% | Low | Poor |
| 17A | Savannah fine sandy loam, 0 to 2% slopes | llw | Moderately Slow | 1.5 - 3.0' | Moderate | 0 - 2% | Low | Poor |
| 17B | Savannah fine sandy loam, 2 to 6% slopes | lle | Moderately Slow | 1.5 - 3.0' | Moderate | 2 - 6% | Low | Poor |
| 19A | Suffolk sandy loam, 0 to 2% slopes | l | Moderately Rapid | > 6' | Low | 0 - 2% | Low | Good |
| 19B | Suffolk sandy loam, 2 to 6% slopes | lle | Moderately Rapid | > 6' | Low | 2 - 6% | Low | Good |
| 20A | Tetotum fine sandy loam, 0 to 2% slopes | llw | Moderately Rapid | 1.5 - 2.5' | Moderate | 0 - 2% | Low | Poor |
| 21 | Tomotley fine sandy loam | IVw | Moderate | 0 - 1.0' | Low | 0 - 6% | Low | Poor |

Shrink-Swell Soils

Shrink-swell soils are those that can greatly change in volume when their moisture levels fluctuate throughout the year. The shrink-swell potential of the soil is a measurement of how much volume change can be expected in a soil with an increase or decrease in moisture levels. This measurement is important because continued expansion of shrink-swell soil can result in heaving, which places additional pressure on foundations. Contraction of these soils can lead to void areas that do not provide uniform, adequate support to the footing of the foundation.

The shrink-swell potential of the Town of Warsaw's soils was mapped using Geographic Information System (Computer Mapping) software and digital soils layers derived from the Soil Survey of Richmond County Virginia. Soil types in the Town were studied as to their shrink-swell potential up to depths of 60". Sixty inches was chosen to account for any change in grade along the length of any planned or future structures. If any soil type was classified as having high shrink-swell potential anywhere in this 60" range, it was grouped in the "high" category. The extent of shrink-swell soils in the Town of Warsaw can be seen on the "Shrink-Swell Potential Map".

As can be seen on the Shrink-Swell Soil map, the large majority of the Town (approx. 85%) has “low” shrink-swell potential and no areas that would be considered “high” for shrink-swell potential. The remaining 15% of the Town would be considered “moderate” concerning shrink-swell potential.

Soil classes in the Town of Warsaw that have “moderate” shrink-swell potential include the following:

| <u>Soil Class</u> | <u>Shrink-Swell Potential</u> |
|------------------------------|-------------------------------|
| Emporia Loam, 2 to 6% slopes | Moderate |

Depth to Water Table

Depth to the seasonal high water table varies greatly throughout the Town of Warsaw, as well as Richmond County as a whole. In some areas of Warsaw the seasonal high water level is less than 36 inches from the ground surface. The depth to the water table is important because soils where the water table is higher are generally not suitable for the use of septic systems.

Soils classes in the Town of Warsaw that have a depth to the seasonal high water table less than or equal to 36” include the following:

| <u>Soil Class</u> | <u>Depth to Water Table</u> |
|--|-----------------------------|
| Atlee Silt Loam | 1.5 – 2.5’ |
| Bibb and Levy Soils | 0.5 - 1.5’ |
| Rumford and Tetotum Soils, 6 –15% Slopes | 1.5 to 2.5’ |
| Savannah Fine Sandy Loam, 0 – 2% Slopes | 1.5 – 3.0’ |
| Savannah Fine Sandy Loam, 2 – 6% Slopes | 1.5 – 3.0’ |
| Tetotum Fine Sandy Loam, 0 – 2% Slopes | 1.5 – 2.5’ |
| Tomotley Fine Sandy Loam | 0 – 1.0’ |

Areas in the Town of Warsaw with high water tables can be viewed in the "Depth to Water Table Map".

Highly Erodible Soils

Highly erodible soils are those that once disturbed, can be difficult to stabilize. Furthermore, run-off produced from disturbance of these soils can lead to increased sedimentation of drainage courses and surface water bodies. Highly erodible soils in the Town of Warsaw are mostly found on slopes 15% or greater in steepness. Highly erodible soils in Warsaw include the following soil types:

| <u>Soil Class</u> |
|---------------------------------|
| Atlee Silt Loam |
| Rumford Soils, 15 to 50% Slopes |

The slopes adjacent to natural drainage courses throughout the Town of Warsaw are where these soils are most evident. These soils can be clearly seen on the “Highly Erodible Soils” map.

Septic Suitability

Soils in the Town of Warsaw that are not suitable for septic system use include soils that have low permeability, high seasonal water tables, or too rapid permeability. Soils in Warsaw and their septic suitability are as follows:

| <u>Soil Type</u> | <u>Septic Suitability</u> |
|---|---------------------------|
| Atlee Silt Loam | Poor |
| Bibb and Levy Soils | Poor |
| Emporia Loam, 2 to 6% Slopes | Poor |
| Rumford Loamy Sand, 0 to 6% Slopes | Poor |
| Rumford Soils, 15 to 50% Slopes | Poor |
| Rumford and Tetotum solids, 6 to 15% Slopes | Poor |
| Savannah Fine Sandy Loam, 0 to 2% Slopes | Poor |
| Savannah Fine Sandy Loam, 2 to 6% Slopes | Poor |
| Tetotum Fine Sandy Loam, 0 – 2 % Slopes | Poor |
| Tomotley Fine Sandy Loam | Poor |

Approximately 35% of Warsaw’s soils are categorized as “Poor” for the use of Septic Systems. Areas that are considered “Poor” for use of Septic Systems can be viewed on the “Septic Suitability Map”.

Highly Permeable Soils

Permeability is the ability of liquids to travel through a porous material. In the case of soils, permeability determines the soil's suitability for septic drainage fields. If a soil is too permeable, septic effluent percolates through the soil too quickly for natural biological processes to break down harmful bacteria, potentially contaminating the water table and threatening public health. This is often the case with sandy and large grained soils.

If a soil has insufficient permeability, the effluent will not percolate through the soil, with contaminated wastes pooling close to or on the land surface. This often occurs when soils have high clay content or lie over impermeable strata. In this case, it is said that the land will not "perc", and use of on-site septic systems should be severely limited. The Rumford loamy sands, the Rumford soils and Tetotum soils are highly permeable and the Atlee, Savannah, and Suffolk soils are only slightly permeable. Only the Emporia and Kempsville soils, with moderate permeability, are suited to septic field use. However, since the Town requires mandatory hook-up to the public sewage disposal system, soil permeability is not a significant planning factor for properties within the Town's present boundaries. Soils with permeability equal to or greater than six inches per hour, up to a depth of 72 inches, are defined by the Chesapeake Bay Preservation Act Designation and Management Regulations as highly permeable. Slower percolation rates

(less than 6 inches per hour) are better for septic systems. The VirGIS data characterized soils in Warsaw and vicinity according to their percolation capacity, identifying areas moderately suited to slightly suited for septic tank absorption fields.

The more permeable soil areas may be better for development but they are also more environmentally sensitive given the potential for more direct contamination of the water table. If a locality has a municipal sewer system, then these areas may be suited for development in compliance with the Resource Management Area (RMA) performance criteria. Moderately permeable areas are less suited for development due to poor percolation and water drainage problems and should be examined on a site by site basis. Medium to highly impermeable soils may have drainage problems.

Within the Town's present boundaries, the issue of permeability in relation to drain fields is a moot issue, since all development is required to attach to the municipal sewer system. However, it is an important issue in the Annexed Areas, where limited development may occur prior to utility service availability. Permeability is also an important planning consideration with respect to infiltration BMPs. These concerns reinforce the need for future development to be attached to the municipal utilities.

E. Groundwater

Residents in the Town of Warsaw are 100% dependent on groundwater for their drinking water supplies. The Town of Warsaw and Richmond County's ground water resources come from an underground system of aquifers that reflect the geology of the Coastal Plain Region of Virginia. Underground, the coastal plain is made up of unconsolidated gravels, sands, silts, and clays in addition to variable amounts of shells. This mixture of deposits rest on an underground rock surface called the basement, which slopes gently eastward. The basement rocks actually come out of the earth's surface at the fall line of the rivers, which is the dividing line between the Piedmont and Coastal Plain Regions of Virginia. As a point of reference the fall line of the Rappahannock River is at Fredericksburg, the fall line of the James River is at Richmond, and the fall line of the Potomac River is at Washington, D.C. At the fall line the thickness of the coastal plain sediments is zero; however, going east from the fall line the basement rock slopes down and the coastal plain sediments become thick. By the time the downward slope stops at the coast, the coastal plain sediments are over 6,000 feet thick. **(See Groundwater Graphic)**

Contained in the Coastal Plain sediments are a system of underground aquifers. These aquifers can be pictured as underground rivers that travel through sand. These rivers also come to the surface near the fall line, then they slope downward to the east. At the fall line the aquifers are recharged, meaning this is the point where water enters them. From this point on the aquifers, except for the water table aquifer, are deep below ground. Additionally, each aquifer is separated from those above and below by clay confining beds, from which they get the name confined aquifers. These confining beds act to trap the water in between, allowing water to escape up and down only at very slow rates. The confining beds also act to add pressure to the water; therefore, when the aquifers are tapped by a well the pressure enhances the flow of the water upward.

Throughout the Coastal Plain there is also an unconfined, water table aquifer. The water table aquifer is found between the ground surface and the top of the first confining bed. This aquifer is not pressurized and is the one used by shallow wells. This aquifer is recharged at ground surface level by rainwater and below the ground surface by water bodies such as creeks and rivers. Because this aquifer is unconfined and recharges from the surface, it is very susceptible to contamination. Anything that permeates the ground surface can quickly reach the water table aquifer.

Wells in the Town of Warsaw tap one of three underground aquifers. Shallow wells in the Town utilize the Yorktown-Eastover aquifer. Deep wells, or artesian, tap the Chickahominy-Piney Point Aquifer and the deeper Brightseat-Upper Potomac Aquifer. Detail on each of these aquifers is given below.

Yorktown-Eastover (Unconfined and Water Table)

The Yorktown-Eastover Aquifer is unconfined in its western limits, but becomes confined as the aquifer slopes eastward (Pg. F7, USGS Professional Paper 1404-F). The western limit of the Yorktown-Eastover is in the eastern part of Richmond. In this part of the County, the Yorktown-Eastover acts as the water table aquifer; as well as acting as the recharge area for the confined part of the aquifer (Pg. F7, USGS Professional Paper 1404-F). The unconfined, water table recharge areas of the Yorktown-Eastover are important because these areas are where contaminants can quickly reach the aquifer through the ground surface. This is of further concern because the Yorktown-Eastover Aquifer is a primary source of drinking water for the Eastern Shore of Virginia.

The Yorktown-Eastover Aquifer is not used heavily in the Town of Warsaw as a whole (See Shallow Well Chart Below)

Dug (Shallow) Well for Source of Water Supply **Town of Warsaw, VA - 1990**

| | |
|---------------------|-----------|
| Individual Dug Well | 4 (1.08%) |
|---------------------|-----------|

Source: 1990 United States Census

Chickahominy-Piney Point Aquifer (Confined)

This confined aquifer is located approximately 325-400 feet below the ground surface in Irvington and averages 50 to 100 feet in thickness throughout its reach, with a maximum thickness of 140 feet in Lancaster County (Pg. C46, USGS Professional Paper 1404-C). The Chickahominy-Piney Point starts at outcrop areas near the major stream valleys in Stafford and King George Counties, on down through Caroline, Hanover, and Henrico Counties, just east of the fall line (Pg. C46, USGS Professional Paper 1404-C). The major recharge area for this aquifer is also found at the outcrop location. Water entering from the recharge area flows down

and eastward to reach Irvington. Lesser recharge of the aquifer also occurs in smaller amounts from vertical seepage between the confining beds of the other aquifers and along existing well conduits. This aquifer is not as prone to contamination as the water table aquifer due to its limited recharge potential in Warsaw and Richmond County. Furthermore, supply in this aquifer is not as susceptible to decreases due to local drought conditions.

Brightseat-Upper Potomac Aquifer (Confined)

This aquifer is located approximately 575-650 feet below the ground surface in Warsaw . The aquifer is actually two aquifers located very close together, and separated by a thin confining bed. The Brightseat is the smaller aquifer and is located above the Upper Potomac Aquifer. The Upper Potomac Aquifer is located further below the surface at depths of 750 feet to 820 feet. These aquifers start from "subsurface pinchouts" east of the fall line and build to almost 400 feet in thickness to the east (Pg. C42, USGS Professional Paper 1404-C). Recharge areas for these aquifers are located at the start of the "pinchouts" east of the fall line. Recharge also occurs in much smaller amounts from vertical seepage between aquifers and along existing well conduits. These aquifers are not as prone to contamination as the water table aquifer due to its limited recharge potential in Warsaw and Richmond County. Furthermore, supply of these aquifers is not susceptible to decreases due to local drought conditions.

Most deep wells in Warsaw and Richmond County tap the Brightseat Aquifer, not the Upper-Potomac. Water in the Brightseat Aquifer is of the sodium bicarbonate type in the central part of the aquifer, and becomes of the sodium chloride type when moving east. Additionally, ground water in this aquifer becomes more mineralized the further one moves east.

Public Supply Well for Source of Water Supply **Town of Warsaw, VA - 1990**

Public System of Private Company 366 (98.92%)

Source: 1990 United States Census Statistics

F. Threats to Surface Water Quality

Role of Soils in Pollution

Pollutants generally affect water quality through two different methods: run-off and leaching. Run-off refers to water that is not absorbed by the soil, but is instead carried off by natural or man-made drainage courses to a surface water body. Leaching refers to water that is absorbed by the soil and percolates into the soil layers underneath. The effect of this type of pollution is usually felt on the groundwater supply. The amount of run-off or leaching in a community is usually dependent on the present land cover. Generally the more heavily an area is developed, the more susceptible the area is to run-off due to increased amounts of impervious

land cover such as parking lots, buildings, and roads. The less intensely an area is used, the more the area is prone to leaching because of the large amount of pervious groundwater recharge areas such as large tracts of farmland and forest.

Impacts from run-off and leaching are further complicated by the types of soils present in different areas of the Town. Highly erodible soils have the potential to become a source of pollution in times of large run-off such as heavy rain storms and melting periods after ice or snow storms. This combination of a high amount of run-off and the presence of highly erodible soils can result in a higher concentration of sediments entering the Town's surface waters. Furthermore, individual occurrences of pollution through leaching or ponding can be worsened through the presence of either highly permeable soils or soils with high water tables. Highly permeable soils and soils with high water tables both act to provide connections between groundwater and surface water. Awareness of these soil properties as they relate to existing and future land uses can help in pinpointing areas currently in need of mitigation efforts, as well planning for the avoidance of further contamination of water resources through improper land use.

Soils in the Town of Warsaw that are highly erodible include the following: (See "Highly Erodible Soils Map")

Soil Class
Atlee Silt Loam
Rumford Soils, 15 to 50% Slopes

Soils in the Town of Warsaw that are highly permeable cover approximately 90% of the Town. (See "Soil Permeability Map".)

Soil Class
Kempsville sandy loam, 2 to 6% slopes
Kempsville loam
Rumford loamy sand, 0 – 6% slopes
Rumford Soils, 15 to 50% Slopes
Rumfords and Tetotum soils, 6 to 15% slopes
Suffolk sandy loam, 0 – 2% slopes
Suffolk sandy loam, 2 to 6% slopes
Tetotum fine sandy loam, 0 to 2% slopes

Septic Systems/Sewage Disposal

Approximately 97.30% of all private residences in the Town of Warsaw utilize the Town's Municipal Sewage System for sewage disposal purposes. The following chart details the actual number of septic systems in the Town of Warsaw.

Means of Sewage Disposal
Town of Warsaw, VA - 1990

| | | | |
|----------------------|----------|----------------|----------------------|
| Public/Private Sewer | 360 | (97.30%) | Housing Units |
| Septic Tank | 8 | (2.16%) | Housing Units |
| <u>Other Means</u> | <u>2</u> | <u>(0.54%)</u> | <u>Housing Units</u> |
| Total | 370 | (100.0%) | Housing Units |

Source: 1990 United States Census Statistics.

The potential for septic systems causing pollution of surface water bodies can stem from the initial improper siting of the system, or from the failing of aged or not properly maintained systems. Often septic systems have been placed in soils that can act to heighten the negative impact of the system. In soils with seasonally high water tables, the water table can rise into the septic systems' drain fields and intermix with the relatively untreated effluent. Furthermore, high water tables can cause pooling of septic effluent on the ground surface. During a rainstorm, pooled effluent can then quickly drain into nearby surface water bodies.

Highly permeable soils also can act to increase negative impacts of septic systems. These soils allow septic effluent to percolate more quickly through soils underneath the drain field, while not allowing for proper filtration. If the effluent percolates before it is properly treated then it can become a threat to the ground or surface water that it acts to recharge. The combination of high water tables and highly permeable soils is particularly a problem in densely developed areas close to the county's shoreline. The high number of septic systems in conjunction with poor soil conditions can lead to elevated levels of fecal coliform bacteria in adjacent surface water bodies, which can then result in the condemnation of the area for shellfishing.

Existing Pollution Sources

Pollution sources are categorized into two broad areas: point source pollution and nonpoint source pollution. Point source pollutants are those that can be traced to a single source, while nonpoint source pollutants are diffused sources of pollution such as storm water runoff. Nonpoint source pollutants include but are not limited to pollutants carried in storm water runoff from impervious surfaces (phosphorus, metals, toxins, particulate matter), leachate from inadequately sited, designed, or maintained septic fields, erosion and sedimentation from construction sites, agricultural runoff (sediment and nutrients), and boat and marina pollution.

Point Source Pollutants

Point source pollutants include industrial and manufacturing uses, leaking underground storage tanks (USTs), landfills, and waste disposal sites. Currently, Virginia oversees the federal requirements of the National Pollution Discharge Elimination System (NPDES) by administering the Virginia Pollution Discharge Elimination System (VPDES). Under this program, the State Water Control Board (SWCB) issues discharge permits, sets effluent standards, and regulates the amount of point source effluent allowed to enter Virginia waters.

Underground petroleum or chemical storage tanks (USTs) constitute potential threats to groundwater due to leaks or accidental spills. Leaks are often not detected until substantial contamination of the surrounding soils has already occurred. In addition, tanks that were abandoned before more stringent regulations were put in place may pose an unwanted and potentially expensive liability on the property owner or the Town.

USTs are regulated by the Environmental Protection Agency (EPA) under the authority of the federal Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976. The Hazardous and Solid Waste Amendments of 1984 strengthened and extended the provisions of RCRA. The section of RCRA addressing USTs is known as subtitle I. The enabling authority in Virginia is Article 11 of the State Water Control Law that prohibits any introduction of petroleum or other harmful products that could potentially affect state waters including groundwater. The State Water Control Board (SWCB) is charged with administering the Virginia Underground Storage Tank Program which requires registration of tanks over 5,000 gallons and provides for periodic inspection of tanks, the phased upgrade of all old tanks, strict controls on new tanks, and funding for the cleanup of leaking tanks. Mandatory replacement of older tanks by non-corrosive tanks with spill preventers and other safety features is required by 1993. The SWCB is also responsible for ensuring that tanks installed prior to 1989 are upgraded to new tank standards before December 1998.

The SWCB investigates UST leaks on a state-wide basis when reported or suspected, through the Spill Response and Remediation Pollution Program. During the last six years, this program investigated three reported leaks within Warsaw. All three cases have been satisfactorily resolved, and there are no cases currently under investigation within the Town. (Bill Duncanson, 1993)

The Town's role with respect to this program should be one of cooperation with state agencies in monitoring events associated with the underground storage of products that if leaked or spilled would pollute groundwater.

The one Virginia Pollution Elimination Discharge Permit (VPDES) holder in Warsaw is the Town of Warsaw. This permit is for the aerated lagoons at the Town's wastewater treatment facility which discharges into Totuskey Creek (outside the Town limits). The discharge from this facility is further treated with chlorinated water. Additionally, a Virginia Pollution Abatement (VPA) permit has been issued for the Virginia Department of Transportation bioremediation site near Totuskey Creek. These are the only two State issued Pollution Control Permits that are known to exist in the Town of Warsaw.

Nonpoint Source Pollutants

Nonpoint source pollutants (NPS) can come from a variety of land uses and development practices. The main NPS contributor in Warsaw is likely to be pollutants in storm water runoff from roads and highways, and runoff from the impervious surfaces associated with the parking areas and buildings of the downtown and other commercial areas. Erosion and sedimentation from inadequately controlled construction sites contributes as well. Other potential nonpoint source pollution sources include excessive pesticide and nutrient usage, failed septic systems, and abandoned wells.

In general, where storm water management controls in the Town are inadequate, a threat to water quality exists. Water quality can be protected by employing Best Management Practices (BMPs) to reduce pollutant loadings in storm water runoff. Land disturbance, especially that occurring on steeper slope areas, should be carefully regulated and monitored to minimize erosion. Preserving existing vegetation and minimizing impervious surface also help reduce storm water pollutant loadings.

Because almost all of the Town is on the municipal sewer system, septic field failures are not a water quality issue for Warsaw. Further, most of the development within the Town is in areas where the water table is deeper, which provides an additional measure of protection. According to the Health Department, there do not appear to be current problems with the water table water quality. (Van LANDINGHAM, 1993)

Shoreline and Streambank Erosion Control

Streambank erosion and the transport of sediment is a natural component of the hydrologic cycle. Peak storm water loading periods cause excessive erosion, with the heaviest sediment carried until the peak diminishes and the lighter sediment reaches the rivers. The next heavy rain will repeat the cycle, but the equilibrium of the undisturbed ecosystem is attuned to and reliant on these natural cycles of sediment deposition. In most cases streambank erosion and sedimentation is accelerated following the development of an area due to increased impervious surfaces and the resulting increase in storm water loading.

The concept of the Chesapeake Bay Preservation Act's Resource Protection Area 100-foot vegetative buffer surrounding state waters is to trap most of the sediment in the run-off and reduce the velocity of the storm water into the water courses. Currently, many localities have storm water management practices intended to control volume, velocity and sedimentation, but prior to this, the prevalent design philosophy for development was to remove storm water as quickly and directly as possible. Consequently, many older developed areas periodically deliver huge storm water loads, excessively eroding the streambanks and carrying in the surface runoff greater loads of sediment, trash and debris, and a spectrum of man-made pollutants. To address this water quality threat, Virginia's localities are being encouraged to develop comprehensive storm water management programs, which often are funded by adding a fee to the municipality's utility service bills.

The most conspicuous erosion and sedimentation pollution problem identified by the Town is a streambed erosion problem found in the Jug's Creek watershed, in an area known locally as "The Bottom". This is just south of St. John's Church, below the Warsaw Valley Shopping Center. The USGS map does not indicate even intermittent (seasonal) flow, but the map survey was probably performed prior to recent impervious development and extensive storm water management and drainage rearrangements. Although the topographic information from the USGS maps is insufficient to determine the full extent of the drainage, this creek seems to drain a substantial area upland. Considering the potential storm water loading peaks from the adjacent roads and highways, this area is subjected to substantial flows during rains.

Another drainage problem identified by the Town, occurs near Ridgeway and Sunset Lane. It appears that the area's natural drainage was disrupted by drainage re-arrangements on Route 3 north. According to impacted homeowners, this has killed many trees in their backyards. The Town should begin to work with VDOT to solve this problem. There is a definite need to comprehensively study VDOT's storm water management to remedy current and future flooding and water quality problems identified in the Town.

G. Low Impact Development (LID) Efforts

The Town of Warsaw has been a leader among rural communities in exploring the feasibility of incorporating low impact development design strategies for storm water control and water quality protection. Low Impact Development (LID) is a new comprehensive land planning and engineering design approach that sets a goal of maintaining and enhancing the pre-development storm-water runoff and water flow characteristics of an urban and/or developing watersheds. This design approach incorporates strategic planning with site specific techniques to achieve enhanced environmental protection, while allowing for development or redevelopment to occur. The Town of Warsaw believes that on-site approaches for controlling storm water runoff will result in enhanced water quality protection, less costly storm water control infrastructural improvements and a decrease in the need for large storm water retention/detention basins.

As part of the Town's exploration of this approach to storm water management and water quality protection, the Town is participating in a Planning and Demonstration Project with assistance being provided from the Friends of the Rappahannock and the Low Impact Development (LID) Center. The goal of this project is to determine how a small Virginia community in the Chesapeake Bay region can incorporate LID into its planning and development process and then demonstrate an application of the technology as part of the outreach and education process.

As part of this project, the Friends of the Rappahannock and the LID Center will assist the town in developing or modifying its existing land use and storm water ordinances to include provisions and incentives for LID. The project will include public outreach meetings and an educational brochure for property owners and developers. Furthermore, a pilot project has been planned for construction on Town property to demonstrate the effectiveness of these techniques to the community

Through this project the Town of Warsaw, the Friends of the Rappahannock, and the LID Center want to develop a feasible, model LID ordinance that other Virginia communities can evaluate and modify. Furthermore, these partners want to demonstrate the successful use of this technology through the construction of a pilot project.

For its part, the Town of Warsaw desires to use this technology to enhance storm water runoff control in the developed areas of Town; as well as provide an alternative method of storm water control and water quality protection in the Town's undeveloped areas. The Town envisions the possible use of a special overlay district or similar means to facilitate Low Impact Development practices; as well as incorporating methods of encouraging the use of LID practices and retrofits as redevelopment occurs.

Section Four - Goals and Objectives

I. WATER QUALITY PROTECTION

GOAL: Protect the groundwater and surface water resources of the Town of Warsaw and the Commonwealth from an increase in pollution due to development.

Objective: Continue consistent and adequate implementation and enforcement of the Town's Chesapeake Bay Preservation Act Program through existing cooperative agreement with Richmond County.

Objective: Educate and inform the development community and the public about water quality protection and specific program requirements of the Town's Bay Act program.

Objective: Customize Warsaw's Chesapeake Bay Preservation Area Overlay District Ordinance to reflect the Town's more urban situation and revise the Town's development ordinances as necessary to achieve integration.

GOAL: Protect the groundwater and surface water resources of the Town of Warsaw and the Commonwealth from increases in pollution due to erosion and sedimentation problems.

Objective: Identify critically eroding areas within the Town on a site-specific basis.

Objective: Improve coordination with the County in the inspection and enforcement of erosion control requirements.

Objective: Discourage development in areas with slopes greater than 15 percent and prohibit development in areas with slopes 25 percent or greater.

Objective: Encourage all agricultural land owners in the Town to implement water quality conservation plans by January 1, 2003 as developed by the Northern Neck Soil and Water Conservation District.

Objective: Work with Virginia Department of Transportation's (VDOT's) resident engineer to rectify all existing storm water management and erosion problems.

Objective: Evaluate the existing development review process and revise as necessary to ensure the control of erosion and sedimentation during site development.

GOAL: Protect the groundwater and surface water resources of the Town of Warsaw and the Commonwealth from increases in pollution through exploring the

feasibility of utilizing Low Impact Development Site (LID) Design and On-Site Storm water Management Methods in the Town of Warsaw.

Objective: Actively demonstrate the use of the LID approach through implementation of the Town's TEA-21 grant project concerning the redevelopment of the Town's Municipal Parking Lot.

Objective: Evaluate the effectiveness of utilizing the LID approach to site design and on-site storm water management in the Town of Warsaw. Evaluation should focus on the effectiveness of LID's key components; Conservation, Minimization, Strategic Timing, Integrated Management Practices, and Pollution Prevention in achieving enhanced site design and on-site storm water management in the Town of Warsaw.

Objective: If feasible, incorporate LID approaches to site design and on-site storm water management into appropriate Town ordinances.

GOAL: Improve the Town's ability to manage storm water runoff.

Objective: Enlist the assistance of the planning district and the Chesapeake Bay Local Assistance Department in the review of storm water management plans for development projects.

Objective: Develop a storm water management plan for the Town to address problems such as flooding, erosion and inadequate storm water management facilities.

Objective: Promote use of shared and regional storm water retention basins for existing and future development where LID approaches to on-site storm water management are not practical or feasible.

GOAL: Protect the quality and quantity of the Town's supply of potable water

Objective: Investigate the feasibility of establishing a Groundwater Management District for the Northern Neck and Middle Peninsula Regions.

Objective: Strongly support Federal and State efforts to conduct background studies to identify groundwater recharge areas to assess the vulnerability of the area to groundwater contamination. Devise appropriate land use controls for those areas.

Objective: Ensure continued compliance with State Regulations concerning Municipal Water Systems and Operations.

GOAL: Maintain the quality of waters to allow all reasonable public uses by pursuing reductions in water pollution.

Objective: Cooperate with the State and County in identifying and correcting existing sources of point and non-point pollution in the Town such as illegal landfills, underground storage tanks, abandoned wells, failing septic systems, inadequate treatment of organic effluent, and industrial discharges.

Objective: Encourage the use of Best Management Practices and storm-water improvements in redevelopment.

Objective: Educate Town citizenry on ways to minimize impacts on water quality from everyday activities like yard and garden care, driving, vehicular maintenance, etc.

II. LAND USE AND DEVELOPMENT

GOAL: Achieve a pattern of land use that balances water quality and environmental protection with social and economic development goals.

Objective: Prohibit development in environmentally sensitive areas so that important environmental resources within the Town are protected.

Objective: Develop a conservation district with appropriate regulations in the Zoning Ordinance to apply to environmentally sensitive areas within the Town.

Objective: Require the preparation and careful review of an environmental site assessment to ensure the accurate delineation of environmental resources prior to design of a site.

Objective: Ensure that required buffer areas are protected during the construction process by carefully flagging and inspecting these areas before any land disturbance occurs.

Objective: Encourage private citizens to protect environmentally sensitive lands they own through conservation and open space easements or deed restrictions.

Objective: Revise the Town's development ordinances to encourage clustering, Planned Unit Developments (PUDs), and "neo-traditional" approaches to new development.

GOAL: Provide for the long-term use and enjoyment of scenic and environmentally sensitive areas by preserving these areas for conservation, open space, parks and green ways.

Objective: Identify opportunities for open space and recreation by the development of a park and greenway plan for the Town and vicinity.

Objective: Stimulate interest and involvement of civic organizations and private citizens in donating and developing such public resources for the Town.

Objective: Revise the Town's development ordinances to encourage permanent open space easements or donations, biking and hiking trails.

Objective: Revise development ordinances to ensure that higher density residential projects include adequate provision and maintenance of open space and provide for alternative access ways.

GOAL: Encourage the revitalization of the downtown area of Warsaw in a manner that is sensitive to its small town character while achieving water quality improvement.

Objective: Enhance existing and attract new offices and facilities in the downtown area.

Objective: Develop a downtown revitalization plan which includes design guidelines that address access and shared parking, landscaping including shade trees, and pedestrian amenities.

Objective: Promote the reuse of underutilized buildings and sites by developing a program to make special property tax reductions, facade loans and other incentives for rehabilitating structures available.

Objective: Retain existing and encourage development of new residential uses within and adjacent to downtown with an emphasis on access and pedestrian orientation.

Objective: Investigate the appropriateness of a downtown historic district and consider amending the Zoning Ordinance to create an historic overlay district to protect and enhance the downtown's historic resources and sense of place.

Objective: Identify and designate corridor protection districts leading into the historic downtown area so that corridor access and aesthetics, building setbacks and landscaping reinforce the character of the Town.

Objective: Identify appropriate downtown sites for pocket parks and include their development in a future Capital Improvements Program.

III. TRANSPORTATION

(Presented as Goals, Objectives and Actions)

The following overriding goal, supported by specific objectives and discrete actions, provides the basic purpose for the Transportation Plan. It will also act as a measure of success over time.

GOAL: **Develop a multi-modal transportation system that meets current and future needs, promotes sustainable development and redevelopment, and protects environmental resources, village character, and visual quality.**

Objective: Develop and maintain a roadway system that encourages the safe and efficient flow of vehicular traffic, both now and into the future.

Action: Develop and implement short-term and mid-term improvements to avoid widening of Route 360. These could include traffic calming measures, signalization, and speed control, among other possibilities.

Action: Work with VDOT to propose a long-term solution to increasing traffic on Route 360, based on likely future traffic volumes. This could include a potential bypass alignment or additions and enhancements to the short-term and mid-term measures described above, based on traffic volumes and potential funding streams.

Action: Assess future levels of service (LOS) at both intersections of Routes 3 and 360, to help identify potential deficiencies. Establish target LOS at both intersections to help identify potential improvements.

Action: Develop and implement measures to manage future development and access on Routes 3 and 360. Work with Richmond County to ensure the maximum degree of consistency in access management.

Action: Develop and implement policies to improve existing access deficiencies during redevelopment proposals. Work with VDOT to consider access retrofit projects as part of any improvements to Routes 3 and 360.

Action: Identify and seek VDOT funding for enhanced local road connections to provide safe and efficient alternatives for local vehicle, pedestrian, and bicycle trips.

Objective: Develop and maintain a multi-modal transportation system that encourages the safe and efficient flow of pedestrian, bicycle, bus, rideshare, and other options, both now and into the future.

Action: Identify priority areas (based on usage demand and safety) for short-term enhancements to pedestrian access, crosswalks, and signalization. Propose specific improvements for these areas and pursue implementation funding.

Action: Develop a Town-wide bicycle and pedestrian plan with a prioritized, phased implementation plan that identifies target dates and potential funding sources.

Action: Assess existing service and future demand for bus transport and rideshare arrangements. Develop a plan to facilitate expansion of these services, based on likely future need.

Objective: Identify and pursue alternative sources of funding for transportation improvements.

IV. Other Goals and Objectives

GOAL: Encourage affordable housing opportunities within the Town of Warsaw.

Objective: Control the location and development of housing through enforcement of the subdivision ordinance and zoning ordinance while ensuring that development is consistent with the future land use plan.

Objective: Revise Zoning Ordinance and Map to allow for a variety of housing types and densities in locations suitable for such development.

GOAL: Promote future economic development while maintaining the existing character of the area.

Objective: Continue cooperative effort with the County in developing the Commerce Park.

Objective: Cooperate with and work through the Richmond County Economic Development Council in implementing their Strategic Plan.

GOAL: Assist and support efforts to increase the quality of life for citizens of the Town of Warsaw and Richmond County.

Objective: Provide new recreational facilities in addition to those offered by Richmond County and Rappahannock Community College.

Objective: Increase the number of restaurants and nightlife establishments available to residents.

Objective: Encourage and support new retail businesses to locate in the Town, which provide for the day-to-day needs of residents.

GOAL: To increase the diversity, quantity and quality of employment opportunities.

Objective: Promote the Town and its commercially zoned areas as the central location of the Northern Neck region.

Objective: Utilize the Virginia Enterprise Zone Program to help stimulate the growth of new and existing businesses focusing on job creation and property investment.

Objective: Encourage the location of new industries related to markets currently specific to the Northern Neck region and industries related to emerging markets and new technologies, which provide higher salaried positions than currently available.

Section 5 - Future Land Use Plan

To aid in portraying the future land use plan for the Town of Warsaw, the Town has been divided into four sub-planning areas. These planning areas were each looked at individually by the Planning Commission and considered for all types of possible future uses; including Commercial, Industrial, Recreational, and Residential. Each planning area was also evaluated concerning its need for future infrastructural improvements, transportation improvements, enhancement of public services, and need for capital improvements.

Additionally, due to the Town of Warsaw's unique location at the crossroads of the two major primary routes on the Northern Neck; the future land use plan devotes a separate element to deal with transportation related issues. Each Planning Area has its own transportation issues/concerns; however, discussion of these will be addressed in the separate transportation element. Devoting an entire section to transportation related issues; further emphasizes the unique way the transportation network influences the Town of Warsaw.

Planning Area 1 – Future Land Use Plan

The Boundaries of Planning Area 1 are as shown on the “Town of Warsaw Planning Areas Map”. This Planning Area includes the eastern ¼ of the Town extending from Hamilton Boulevard to the Eastern Town Boundary; and from the Northern Town Boundary in the vicinity of the former Levi's plant to the Southern Town Boundary down near the Northern Neck Technical Center.

Included in this Planning Area are the newly annexed areas of the Belle Ville Tract, the former industrial areas near the oil distributor and Levi's, and the Commercial/Institutional Areas in the South; including the Northern Neck Technical Center, the Rappahannock High School, and the Richmond County Elementary School.

Commercial Uses

Commercial Uses in Planning Area 1 should include controlled commercial uses at the south end of Hamilton Boulevard at its intersection with Route 360; as well as at the north end of the Route 3 Bypass in the vicinity of the former Levi's plant. Types of uses that would be suitable for these areas would be limited commercial uses that support the surrounding part of Town; as well as potential future residents of the annexed areas. Potential uses could include professional offices (doctors, lawyers, accountants, architects, etc.), banks, office supply stores, cafes, delis, small markets, and specialty shops. Planned commercial uses should be supportive of those uses planned in the Belle Ville Tract. Re-use of existing commercial structures should be encouraged when feasible.

Additional Commercial Uses in Planning Area 1 should be considered in conjunction with the development of the Richmond County Industrial Park. Zoning of this parcel should be

broadened to encourage a mixture of complementary uses including; light industrial, supporting type commercial uses (business offices, office supply, copy stores, delis, etc.), and public uses.

Lastly, limited commercial uses should be considered in the vicinity of the lower Route 3/Route 360 intersection. Commercial uses in this area should probably be neighborhood commercial that utilize both pedestrian and car traffic. However, each of these uses should be encouraged to utilize shared entrances in order to limit the number of road entrances in this highly traveled area.

All Commercial uses in Planning Area 1 should be planned in ways that promote access from within the internal portions of the Belle Ville Tract. As the Belle Ville Tract is developed, it can be anticipated that pedestrian and vehicular traffic would be generated by potential residential uses of this land. Development of this tract should be encouraged in a way that provides internal links to existing commercial areas as an alternative to residents having to enter onto existing roadways. Furthermore, much emphasis should be placed on pedestrian and bikeway linkages to these commercial areas from within the Belle Ville Tract. It is envisioned that future residents of this parcel might enjoy the option of accessing nearby commercial areas without driving.

Industrial Uses

The Planning Commission believes that the industrial uses in Planning Area 1 could be expanded to include areas along the Route 3 Bypass Corridor. The Planning Commission believes that industrial uses should be limited to light industry and manufacturing which would not adversely impact Warsaw's existing small town atmosphere.

Additionally, the Planning Commission recognizes there may be a need for a zoning classification which allows for mixed use zoning, that is to say, a zoning classification between the current Manufacturing (M-1) zoning and Commercial (C-2) zoning. Allowing for each to some degree in a yet to be created mixed use classification. Consideration should be given to a broad mixed use zoning designation which may be utilized to accurately designate such an area.

Recreation

Recreational Uses in Planning Area 1 should include a variety of recreational types and should be located on the land currently designated for residential use behind the Belle Ville house. Types of uses suggested include tennis courts, basketball courts, picnic areas, playgrounds for small kids, walking trails, and bike trails. Additionally, any walking or biking trails should be planned in a manner that provides linkages to existing pedestrian facilities and bikeways in the Town. Furthermore, these trails should be coordinated with those facilities planned during the development of the Belle Ville Tract in order to encourage access by future residents of these areas; as well as to provide linkages to the previously mentioned commercial and industrial areas.

Housing/Residential

Residential Uses in Planning Area 1 should include single-family, detached dwellings in the vicinity of Hamilton Boulevard, clustered type residential housing on the Belle Ville property, and higher density residential housing in the vicinity of Scott Town Road.

Residential Uses in Planning Area 1 that fall within the Belle Ville property should include residential uses that encourage the grouping of housing and the preservation of open space. Any type of planned residential uses should look to minimize the need for infrastructural improvements within this parcel. Furthermore, these residential uses could include single-family detached houses, single-family attached houses (duplexes), single-family town houses, and possibly garden-style apartments. The recommended location for the higher density town houses and apartments is in the area bounded by the Route 3 Bypass Road to the west, Scott Town Road to the north, the proposed commercial area along Route 360 to the south, and the Town Boundary to the east. All proposed Residential Areas would be linked to nearby commercial, recreational, and industrial areas via internal walkways, paths, and limited streets.

Infrastructure

Currently, there is not adequate sewer available to large areas of this tract. Planned uses in Planning Area 1 should be done in a way that minimizes expansion of sewer/water lines at public expense; such as through strategically planned development. Furthermore, sewer lines in this area need to be upgraded for large scale commercial or industrial use.

The town is presently developing a capital improvements budget. Emphasis is being placed on water supply and delivery inasmuch as sewer is in reasonably good condition after having several improvements. The Planning Commission supports this effort and its inclusion as a part of the Future Uses Portion of the Comprehensive Plan under “Infrastructure”.

Services

The Planning Commission believes that the Town Services currently provided in this area are adequate and do not promote expanding services in any way.

Transportation

See Transportation Future Land Use Element.

Capital Improvements

The Planning Commission envisions a variety of possible Capital Improvements in Planning Area 1. First, the Planning Commission recognizes that Richmond County’s Industrial Park is located in this area and is already undergoing infrastructural development. As part of the planning for the build-out of this project, the Planning Commission proposes that the Town investigate methods of broadening the zoning of the industrial park. As stated previously, the Planning Commission believes that a mixed use zoning classification for this project would be more feasible; as well as compatible with the character of the Town.

The Planning Commission further believes that the industrial park would be a suitable location for continued park and recreational development adjacent to the Industrial Park and behind the Belle Ville House. As stated previously, the Planning Commission envisions that these areas will be linked by pedestrian facilities, trails, and/or bike paths.

The Planning Commission strongly encourages that all sidewalks which have utility poles within them, have poles relocated outside of the sidewalk at each available opportunity. This is particularly important along US 360 and along Main Street.

Environmental Factors

The Planning Commission believes that development in Planning Area 1 shall be planned in a manner that protects and preserves the Open Spaces that characterizes this area. Development of large portions of the Belle Ville tract should include clustered type residential uses that encourage the grouping of housing and the preservation of open space. Any type of planned residential uses should look to minimize the need for infrastructural improvements within this parcel.

Development in this areas should be done in a manner that utilizes Low Impact Development Designs, where feasible. The Planning Commission believes that if this areas is properly planned and designed; then LID could be used to both control stormwater run-off and enhance water quality protection. Furthermore, utilization of LID would act to protect streambanks in the watershed by decreasing the volumes and velocities of storm water in the watershed as land is developed.

Planning Area 2 – Future Land Use Plan

Commercial Uses

The Planning Commission believes that the Downtown Commercial Area in Planning Area 2 contributes greatly to the small town character of the Town of Warsaw. Therefore, the Planning Commission wants to encourage the maintenance of individual shops and the re-use of the existing Commercial Structures that define this area. As stated in the Warsaw Revitalization Plan prepared by Frazier and Associates completed in 2009, the Planning Commission first believes this area needs to be examined thoroughly, and a revitalization plan developed to guide redevelopment.

The Planning Commission envisions a variety of new uses in the downtown commercial area including new restaurants, cafes, deli(s), small retail shops and stores; as well as offices such as doctors and professional offices. The Planning Commission believes that the land uses promoted for this area should not be ones that require semi-truck traffic. Furthermore, the Planning Commission does not want to see the development of shopping centers in this area. The Planning Commission strongly believes that development in this area should be confined to re-use of existing commercial structures, or through the development of small commercial structures that are compatible with the existing buildings.

Lastly, the Planning Commission believes the Town should look to apply for grant funds that would support and encourage redevelopment of the downtown Commercial Area.

Envisioned *grant funds* would include those that enhance pedestrian facilities, improve on-street parking, provide for off-street parking, promote uniform lighting and plantings, and re-route or bury overhead utility lines.

Redevelopment, Restoration, Re-use

As stated in the Warsaw Revitalization Plan prepared by Frazier and Associates completed in 2009, the Planning Commission strongly encourages the redevelopment, restoration and re-use of existing commercial structures in the Downtown Commercial Core. The Planning Commission believes that redevelopment of this area needs to be achieved through a coordinated planning effort that examines the entire area.

The Planning Commission envisions the updating of store facades, the renovation of older buildings, the re-use of vacant structures; as well as the new, compatible development of undeveloped infill parcels.

Industrial Uses

The Planning Commission envisions no new industrial uses in this area.

Recreation

As stated in the Warsaw Revitalization Plan prepared by Frazier and Associates completed in 2009, the Planning Commission strongly promotes the establishment of park(s) and green areas in the Downtown Commercial Core. The Planning Commission believes that this could be achieved by the creation of a Town Park in a central area. The Town Park could also include areas for a Farmers Market and a playground. The Planning Commission also envisions improved/new sidewalks, uniform street lighting; as well as the establishment of green areas and/or the planting of trees for this area.

Housing/Residential

Residential uses in Planning Area 2 should be limited to areas of existing residences, similar to the types of residences that already exist in this area. The only exception would be to encourage the possible use of townhouses and apartments mixed near/above the commercial structures in the Downtown Commercial Area.

Infrastructure

The Planning Commission supports the continued effort to control storm water runoff channeled and directed by VDOT behind dwelling in the Pinehurst Subdivision.

Services

The Planning Commission considers Public Services in this area to be currently adequate.

Transportation

See Transportation Future Land Use Element.

Capital Improvements

The Planning Commission envisions capital improvements in Planning Area 2 would include the creation of off-street parking near Main Street, improvement to sidewalks and street lights, and the establishment of a Town Park and/or Farmers Market.

The Planning Commission strongly encourages the Town to pursue grant funds to assist in the funding of proposed capital improvements.

The Planning Commission strongly encourages that all sidewalks which have utility poles within them, have poles relocated outside of the sidewalk at each available opportunity. This is particularly important along US 360 and along Main Street.

Environmental Factors

The Planning Commission encourages development/redevelopment in Planning Area 2 to be carried out in a manner that utilizes Low Impact Development Designs. The Planning Commission proposes that redevelopment projects in this area should utilize LID retrofits to control or reduce storm water runoff and enhance water quality protection. The Planning Commission believes that the use of LID in Planning Area 2 could result in decreased storm water run-off and enhanced water quality protection. Furthermore, utilization of LID would act to protect streambanks in the watershed by decreasing the volumes and velocities of storm water in the watershed as existing parcels are redeveloped.

Planning Area 3 – Future Land Use Plan

Commercial Uses & Redevelopment

The Planning Commission believes that Commercial Uses in this area should be limited to small offices and low-intensity commercial uses. The Planning Commission believes that this area could be a possible area to promote the development of a Commercial/Transitional Zoning Classification that would act as a transition and/or buffer between higher intensity commercial areas and residential areas.

Redevelopment, Restoration, Re-use

Overall, the Planning Commission believes that commercial redevelopment in this area is not necessary or applicable. The only concern the Planning Commission has noted with this area is the need to address the re-use of vacant buildings in this area, primarily the former funeral home.

Industrial Uses

The Planning Commission envisions no new industrial uses in this area.

Institutional

The Planning Commission strongly supports Rappahannock Community College and the many benefits that it provides to the Town of Warsaw. The Planning Commission does not anticipate any expansion of the existing campus; just the addition of small support buildings on the existing campus grounds.

Recreation

The Planning Commission encourages the connection of recreational improvements in Planning Areas I and II to the existing recreational facilities at Rappahannock Community College. Primarily this would be achieved by connecting trails at the College to sidewalks/pedestrian facilities in the Town; thereby providing links to Commercial, Residential, and Park areas in the Town.

Housing/Residential

The Planning Commission believes that housing/residential uses in this area should be compatible with the types of residential uses already present in this area. Primarily this area is comprised of single-family detached residences; with a lesser amount of ~~R-2~~ **R-12** residential uses located closer to Route 360 and the College.

Infrastructure

The Planning Commission believes that the infrastructure (water and sewer) in this area is currently adequate.

Services

The Planning Commission considers Public Services in this area to be currently adequate.

Transportation

See Transportation Future Land Use Element.

Capital Improvements

The Planning Commission envisions the only capital improvements in Planning Area 3 to be improvements to the pedestrian facilities in this area. The Planning Commission believes that sidewalks need to be improved in this area and that crosswalks need to be established across Route 360 in the vicinity of the College. These issues are discussed more thoroughly in the Transportation Element.

The Planning Commission strongly encourages that all sidewalks which have utility poles within them, have poles relocated outside of the sidewalk at each available opportunity. This is particularly important along US 360 and along Main Street.

Environmental Factors

The Planning Commission believes that development in Planning Area 3 should be done in a manner that protects and preserves the Open Spaces and Recreational Areas that are present on/or near the Rappahannock Community College Campus.

Additionally, development and re-development in this area shall be planned in a manner that utilizes Low Impact Development Designs, where feasible. Utilization of LID methods in Planning Area 3 would act to protect streambanks in the watershed by decreasing the volumes and velocities of storm water in the watershed as land is developed and re-developed.

Planning Area 4 – Future Land Use Plan

Commercial Uses

Currently the Commercial Areas in this area are comprised of shopping centers and drive up or drive-through type businesses. The Planning Commission realizes that this is the part of Warsaw that is devoted to Commercial Strip type development. The Planning Commission believes that future, high intensity Commercial development should also be located in this area. Furthermore, the Planning Commission believes that open tracts located north of Route 360 would be suitable for business/office parks. However, any such development should be done in a manner that provides for access management and that does not act to worsen the traffic congestion in this area.

Industrial Uses

The Planning Commission believes that the industrial uses in Planning Area 4 could be expanded to include areas along Self Town Road and property located in the proximity of Time Square Shopping area, including that area adjacent to the Northern Neck Regional Jail. The Planning Commission believes that industrial uses should be limited to light industry and manufacturing which would not adversely impact Warsaw's existing small town atmosphere.

Additionally, the Planning Commission recognizes there may be a need for a zoning classification which allows for mixed use zoning, that is to say, a zoning classification between the current Manufacturing (M-1) zoning and Commercial (C-2) zoning. Allowing for each to some degree in a yet to be created mixed use classification. Consideration should be given to a broad mixed use zoning designation which may be utilized to accurately designate such an area.

Recreation

The Planning Commission believes that recreational opportunities in this Planning Area are limited.

Housing/Residential

The Planning Commission believes that another suitable area in the Town of Warsaw for higher density residential uses such as apartments and attached townhouses are the open tracts of land located north of Route 360 near the existing shopping areas. The Planning Commission believes that higher density residential in this area would be compatible with the present character of the area; and would further act to generate customers to complement the existing businesses located here. The Planning Commission encourages any proposed higher density housing to be linked by pedestrian facilities to the existing Commercial Areas. Furthermore, the Planning Commission proposes that the Town develop a new Residential Zoning Classification that would allow for this type of development.

Infrastructure

Currently, there is not adequate infrastructure to serve this entire area. Possible upgrades would have to be made to both water and sewer on the North side of Route 360. Planned uses in Planning Area 4 should be done in a manner that minimizes expansion of sewer/water lines at public expense; such as through strategically planned cluster or higher density development.

Services

The Planning Commission considers Public Services in this area to be currently adequate.

Transportation

See Transportation Future Land Use Element.

Capital Improvements

The Planning Commission envisions limited, if any, capital improvements slated for this area.

Environmental Factors

The Planning Commission believes that development in Planning Area 4 *shall be planned* in a manner that assures that storm water run-off problems are improved, if present, or are minimized concerning new development. Any type of planned residential uses should look to minimize the need for infrastructural improvements within this parcel.

Development in this areas should be done in a manner that utilizes Low Impact Development Designs, where feasible. The Planning Commission believes that if this areas is properly planned and designed; then LID could be used to both control storm water run-off and enhance water quality protection. Furthermore, utilization of LID would act to protect streambanks in the watershed by decreasing the volumes and velocities of storm water in the watershed as land is developed.

Transportation Element – Future Land Use Plan

Future Conditions

While long-term development is difficult to predict, some assessment of potential growth is necessary to assess future transportation needs. To assess future conditions, a review was conducted on historical traffic trends, as well as population forecasts for the Warsaw/Richmond County area. The future conditions analysis is complicated by limited traffic data, and the Town should work with VDOT to conduct additional traffic counts, especially at key intersections.

Based on Richmond County's growth trend of 1.6% per year, along with discussions with local planners regarding the potential for increasing growth due to Enterprise Zone activity, a 2% per year increase in traffic volume is assumed. This results in the following traffic projections:

| <u>Roadway Section</u> | <u>2001 Volume</u> | <u>2020 Volume</u> |
|---|--------------------|--------------------|
| Rt. 360 west of Main St. | 14,000 | 20,400 |
| Rt. 360 between Main and Rt. 3 Bypass | 12,000 | 17,500 |
| Rt. 360 east of Rt. 3 Bypass | 7,900 | 11,500 |
| Route 3 between Lyells and Route 3 Bus. | 8,300 | 12,100 |
| Route 3 Bypass | 2,100 | 3,100 |
| Route 3 south of Rt. 360 | 6,800 | 9,900 |
| Route 3 Business | 6,900 | 10,100 |

The implications for roadway Level of Service (LOS) cannot be determined without additional data. Generally, the capacity of a four-lane undivided highway can be in the 40,000 to 60,000 range. However, this number decreases at signals or at locations with significant turning movements. Based on analysis to-date, it appears that the primary constraint occurs at the eastbound approach of the Route 360/Main Street intersection. Capacity problems at this location are likely to occur in less than twenty years.

Another factor limiting the assessment of future transportation needs is the lack of available data necessary to measure the impact of seasonal traffic fluctuations in the Town of Warsaw. The Town of Warsaw is located along a major corridor that realizes large increases in the flow of traffic beginning in the time of late Spring and continuing through late Fall. Furthermore, the seasonal increase in traffic is linked to certain days of the week. The increase in traffic is usually realized from Thursday evenings through noon-time on Mondays, during the season. Furthermore, the peaks of this traffic occur on Friday afternoons/evenings and again on Sunday afternoons/evenings. The impacts of seasonal traffic on local road conditions can not be under-estimated and has to be further studied in order to properly assess future transportation needs in the Town.

Recommended Access Management Policies

Access Management

Managing access along Routes 360 and 3 has potential to help avoid undesirable solutions such as widening of roadways through the center of Town. Access management techniques include a broad range of roadway treatments. The following list identifies some common techniques – given the variety of roadway conditions in Warsaw, not all of these will apply throughout the Town. These techniques tend to be highway-oriented and will have broader application on Route 360 and the Route 3 Bypass than on Route 3 through the Town center. Furthermore, certain standards will have application mainly above certain posted speeds. Nevertheless, some of these provisions may have application within the Town core. Local officials should coordinate with VDOT to determine the most appropriate use of the general standards included herein. Also, the Town should adopt an access management ordinance that includes specific standards for improving existing access deficiencies and managing future access points.

Access Management Techniques

Turn Lanes

By separating turning vehicles and through traffic, turn lanes can improve highway safety and efficiency. In general, left turn lanes should be required at median crossovers, and right turn lanes should be required at all commercial entrances and side streets. In some cases the use of a paved shoulder can substitute for a right turn lane.

Driveway Spacing and Consolidation

Because driveways introduce conflict between turning and through vehicles, their spacing is a critical part of highway planning. Generally, a minimum separation of 400' should be required. This can be accomplished by means of shared access, indirect access from side streets, and driveway closure and consolidation. New residential subdivisions should include a system of internal roads, with no direct driveway access on the major thoroughfare.

Corner Clearance

This technique is related to driveway spacing, and addresses the distance from roadway intersections to the nearest driveway. Roadway intersections have “functional boundaries” within which driveways should not be located. On the primary road (such as Route 360), clearances should be 400' upstream of the intersection and 250' downstream. On the intersecting street, the clearances should be 250' upstream and 100' downstream.

Sight Distance

The Town should work with VDOT to ensure adequate sight distances for new development and redevelopment. Signage, landscaping, and setback requirements can help maintain sight distances, and the Town should adopt an ordinance addressing each of these issues.

Crossover Spacing and Consolidation

Like driveways, median crossovers require adequate spacing for efficient highway function. In general, full-access crossovers should have a minimum spacing of 0.5 miles, while directional crossovers should be spaced a minimum of 0.25 miles apart. In some cases, attaining this standard may require closure of existing crossovers, and the Town should work with VDOT to address this potential. This guideline will also require consideration during development review. The Town should manage new development to avoid the need for crossovers that violate these standards. Where development occurs at existing crossovers, access to adjacent parcels should be considered.

Median and Crossover Width

The width of a median affects the ability of vehicles to pause in the median while turning or crossing the roadway. Crossover width is the actual size of the opening in the median, and it affects the ability of large vehicles to navigate the opening safely and efficiently. At major traffic generators and cross streets, the Town should seek a minimum 50' wide median, which may require roadway widening or flaring. At locations where buses or tractor-trailers make frequent turns, crossovers should be widened to accommodate these users. Where median and crossover widening is not possible, consideration should be given to converting full access crossovers to directional crossovers, thereby prohibiting certain turning movements. These measures will require coordination with VDOT.

Signal Spacing and Timing

In order to accommodate pedestrian crossing, and as development continues, certain locations along the Town's main roads might require new traffic signals. Because the spacing of signals dramatically affects roadway function, a spacing of 0.5 miles should be maintained in developing areas, and a spacing of 0.25 miles in developed areas near the Town center. The need for timing coordination of existing signals should be investigated, and any new signals should be coordinated with existing signals.

Inter-Parcel Connection

Connecting adjacent uses by means of an access drive or reverse frontage road can eliminate short local trips on the main road. Where new commercial development occurs, the Town should require connection to adjacent commercial uses or stubbing of connector roads to adjacent vacant commercial parcels.

Local Road Connections

Like inter-parcel connections, a connected system of local roads can reduce demand on the major thoroughfare. The Transportation Plan Map (discussed later) recommends several specific connections. The Town should also require that new residential subdivisions connect to the existing road system and make provisions for future connections to land that is currently undeveloped.

Land Use Controls

Effective zoning regulations can work in tandem with roadway techniques to encourage effective access management. The Northern Neck Planning District Commission is currently developing a model overlay district to address such things as

setbacks, signage, landscaping, and lighting. The Town should use this model to adopt overlay standards for its major thoroughfares.

Existing Access Deficiencies

Addressing existing deficiencies will require careful planning, coordination, and patience. Generally, these improvements will occur over time as properties redevelop and roadway improvements are made. To enhance roadway access, the Town should work closely with VDOT to review redevelopment proposals, and to ensure that access improvements are considered as part of all highway reconstruction and maintenance projects.

While it may not be possible for retrofit projects to comply fully with recommended access standards, the Town should work with VDOT to bring non-conforming elements as close to compliance as possible. The Northern Neck Planning District Commission is currently working on a model ordinance that will set specific standards for retrofit projects. To improve existing access deficiencies, the Town should use this model to develop and adopt such standards.

Recommended Improvements/Transportation Plan Map

The Transportation Plan Map shows several specific improvements that are discussed in detail here. The recommendations are inter-related, and are all targeted toward managing through traffic while making Warsaw a more livable place. For clarity, they are broken into several categories:

Crosswalks and Pedestrian Safety

From a pedestrian standpoint, Route 360 bisects the Town, limiting access to the community college, the government center, the high school, and various commercial and residential uses. To address this situation, crosswalk enhancements are recommended at five locations, listed below, where Route 360 intersects key streets. These enhancements could take a variety of forms, such as traffic control devices (e.g. stop lights, flashing lights), marked pavement, stamped pavement, or streetscape enhancements designed to cue drivers that they have entered a pedestrian area.

- Jones Lane
- Campus Drive
- Main Street
- Route 1001
- Route 3 Bypass

To assist in planning these connections, and as a first step toward obtaining implementation funding, the Town should develop a master pedestrian and bicycle plan. Such a plan would identify specific improvements at these locations, and would develop a Town-wide program for improving access. Implementation priorities, timeframes, and cost opinions would poise the Town to obtain grant funding.

Recommendations:

- Immediate Action (2002-2003): Seek funding and develop master plan.
- Short Term (2003-2005): Seek funding to design and construct the five priority enhancements listed above.

Future Paths and Bike Routes

The Town should work with developers to provide bicycle and pedestrian facilities as new development occurs. In all cases, possible pedestrian connections to the existing sidewalk network should be encouraged. To assist in identifying and prioritizing such facilities and connections, the Town should develop a master pedestrian and bicycle plan.

Recommendation:

- Immediate Action (2002-2003): Seek funding and develop master plan.
- Short Term (2003-2005): Seek funding to design and construct priority plan elements.
- Long Term (2002-2020): Work with developers to implement plan in incremental fashion.

Sidewalk Connections

Three primary sidewalk connections are proposed to help complete the existing network and link to key uses such as shopping, the high school, and the Town center. Over time, it is likely that additional sidewalk connections will prove desirable.

- A connection within the Town center.
- A connection in the vicinity of Jones Lane, to provide access from the Town center to the shopping center.
- A connection from the Town Center to the high school. This would require crossing Route 3 at its eastern intersection with Route 360 – safety will be a major factor in the design of this crossing.

To assist in planning these connections, and as a first step toward obtaining implementation funding, the Town should develop a master pedestrian and bicycle plan.

Recommendations:

- Immediate Action (2002-2003): Seek funding and develop master plan.
- Short Term (2003-2005): Seek funding to design and construct the three priority enhancements.
- Long Term (2002-2020): Based on the master plan, seek funding and develop additional segments.

Local Road Connections

To provide alternative means for local trips, the map recommends numerous local road connections. These are intended primarily to facilitate east-west local trips, and more fully develop the Town grid.

- Connection from Selftown Road east past Jones Lane.
- Connection from Route 624 east to Wallace Street
- Connection from Wallace Street east to Woodland Heights and from there south to Route 3
- Three alternative connections from Route 3 Bypass west to Route 1001 to extend the Town fabric. Access to the Bypass should be limited to primary intersections spaced in accordance with the above access management guidelines. These three connections are alternatives – they need not all be pursued.
- Several smaller connections and realignments.

The priority of these connections will vary based on traffic demand and safety issues. The Town should work with VDOT through its transportation planning and programming process to further evaluate and prioritize these improvements.

Recommendations:

- Short Term (2002-2005): Work with VDOT to identify and construct priority connections.
- Long Term (2002-2020): Work with developers to provide connections as land develops.

Potential Bypasses and Roadway Widening

VDOT has proposed a Route 360 southern bypass, to which the Town has objected based on potential environmental impacts and water quality degradation. Should a bypass become necessary, the Town favors a northern bypass. The location of this facility, and its connections to Route 360 and Route 3, will require careful planning and coordination with VDOT. In particular, the connection of a northern bypass to Route 3, and its relationship to the Route 3 Bypass, should be examined carefully. The alignment shown on the Transportation Map is conceptual and does not indicate a specific location or alignment. VDOT has also proposed widening Route 360 to a five-lane cross section within Town (two directional travel lanes plus a center turn lane). The Town has objected to this proposal based on impacts to adjacent property and the Town's character.

Based on analysis to-date, it does not appear that traffic volumes will warrant a four-lane bypass within the twenty-year planning horizon. However, given constraints to widening roads within the Town core, it is possible that a two-lane northern bypass could be feasible. Given funding constraints, this might also be more financially feasible than a four-lane facility. The Town should work with VDOT to investigate this potential more fully. In conjunction with such a facility, it might be possible to convert the existing four-lane undivided section of Route 360 to a three-lane cross section with two travel lanes and a center turn lane. This could alleviate safety and function deficiencies caused by

turning movements, but avoid the impacts associated with a five-lane cross section. In the absence of a bypass, volumes will be too great to consider the three-lane alternative. The transition from the divided highway to the three-lane section will require careful analysis.

Recommendations:

- Short Term (2002-2005): Work with VDOT to scope, fund, and conduct a feasibility study for a northern bypass.
- Long Term (2002-2005): Continue to monitor conditions within the Town. Follow-up on the results of the bypass feasibility study.

Possible Traffic Light

The Map identifies a possible new traffic light at the intersection of Route 360 and Jones Lane. This need is based primarily pedestrian demand crossing Route 360. In conjunction with development of a master pedestrian and bicycle plan, the Town should more fully investigate the need for a stop light controlled crossing, along with timing coordination with other signals.

Recommendations:

- Immediate Action (2002-2003): Study intersection more fully, along with potential pedestrian crossing and traffic solutions.
- Short Term (2003-2005): Design and implement preferred strategy.

Intersection Improvements

To enhance the effectiveness of the Route 3 Bypass, and especially if plans for a northern bypass develop, the Town should work with VDOT to improve the intersections of Route 3 Bypass with Route 3 north and Route 360 west. A northern bypass would require alterations of the northern intersection, and the southern intersection currently suffers from a curve radius that hinders lane navigation. The Town should work with VDOT to address the idea of straightening this curve by shifting it slightly north.

Furthermore, based on the constraints associated with the eastbound approach to the intersection of Route 360 and Main Street, the Town should work with VDOT to consider a redesign of this location. Specifically, in the current configuration, the inside approach lane becomes an exclusive left turn lane, limiting the through capacity of the intersection. If the geometry could be altered to provide two through lanes along with a left turn lane, the long-term viability of this intersection would improve. Because this intersection is at the center of the Town core, impacts to adjacent properties and community character should be considered.

As an alternative, it is possible that a “jug-handle” configuration could divert left-turning traffic from the main road and direct those motorists straight north through the intersection. The existing left turn lane could then be dedicated to through traffic.

Recommendations:

- Short Term (2002-2005): Work with VDOT to study potential improvements to the intersection of Route 360 and Main Street.
- Long Term (2002-2020): In conjunction with feasibility assessment of northern bypass, analyze potential improvements to primary intersections in Town.

Local Traffic Restriction

To increase utilization of the Route 3 Bypass, and to minimize through truck traffic on Main Street, the Town should work with VDOT to consider a truck traffic restriction on Main Street. Also, if a northern bypass alternative becomes feasible, similar limitations should be considered for Route 360 in the Town Core.

Recommendations:

- Short Term (2002-2003): Approach VDOT regarding traffic restrictions on Main Street.
- Long Term (2002-2020): Consider similar restrictions on Route 360 if a bypass is developed.

One Way Street

To prevent “cut-through” movements on St. Johns Street, it is recommended that the Town study the impact of converting this road to one-way in the southeast direction.

Recommendations:

- Short Term (2002-2003): Work with VDOT to study the proposed one-way policy.

Gateway, Transition, Core

Functionally, the Town is divided into three zones – gateways through which rural highways enter the Town; transition areas where the highway remains divided and uses are predominantly highway-oriented; and the Town core with its shallow setbacks and mixed uses. From a transportation perspective, each of these areas has a different focus.

Gateway

Warsaw has four gateways: Route 360 east and west, and Route 3 north and south. As entrances into the Town, these areas provide visitors with their first impression of Warsaw. As such their appearance, traffic flow, and character are extremely important. The access management policies included herein are designed to preserve and enhance the function and character of the Town’s gateways, and the Town should apply them as appropriate. In addition, the Town should pursue signage and streetscape enhancements to denote these entrances and welcome travelers to Warsaw.

Recommendations:

- Immediate Action (2002-2003): Seek funding to develop a streetscape master plan and construct gateway enhancements. Adopt overlay zoning to protect corridors.

Transition Area

Through the transition zone, vehicle speeds begin to slow and the highways' rural character shifts to suburban/commercial. Having entered through one the Town's gateways, motorists now begin to experience the fabric of the Town. Elements such as access management, commercial signage, streetscaping, traffic calming, and pedestrian access will define this area.

Recommendations:

- Immediate Action (2002-2003): Seek funding to develop a streetscape master plan.
- Short Term (2003-2005): Seek funding to construct streetscape enhancements.
- Long Term (2002-2020): Implement signage and access guidelines, work with developers and VDOT to retrofit non-conforming sites, develop traffic calming and pedestrian measures.

Town Core

Where Route 360 becomes an undivided roadway, and along Main Street, the Town core forms a compact small town environment. To preserve and enhance this character, the Town should ensure adequate vehicular and pedestrian access, along with parking to accommodate residential, commercial, and public uses. Specifically, sidewalks and crosswalks should promote safe and efficient access for pedestrians throughout the Town core. Adequate parking should be provided, and should be placed behind buildings, which should front directly on the street. The need for public parking within the Town core should be analyzed in conjunction with a streetscape master plan.

Recommendations:

- Immediate Action (2002-2003) Seek funding to develop a streetscape master plan.
- Short Term (2003-2005): Seek funding to construct priority streetscape enhancements.
- Long Term (2002-2020): Work with developers and VDOT to retrofit non-conforming access and parking. Identify infill sites and develop public parking. Implement signage and access guidelines.