

## SECTION 1: INTRODUCTION

*On March 29, 2004, the State Transfer of Development Rights Act was signed into law (P.L. 2004, c.2), making New Jersey the first state in the country to authorize the transfer of development rights (TDR) on a statewide level. Shortly thereafter, New Jersey enacted a demonstration program, awarding six municipalities grants to develop their own TDR programs. Woolwich Township was among those municipalities.*



TDR is a growth management tool. It is not designed to limit the amount of growth that can occur locally. Instead, it gives municipalities greater control over how and where growth occurs.

One of the principal benefits of TDR is the ability to preserve large contiguous areas of farmland and open space and to do so without imposing land costs on the taxpayers. The municipality determines where it wants to direct growth and where it wants to preserve land. Developers then purchase development rights from property owners in the designated preservation areas—called “sending zones” - and transfer them into the targeted growth areas—called “receiving zones.” Therefore, preservation occurs through private market transactions.

Another important benefit of TDR is the win-win situation it creates for both the sending and receiving zone property owners. The sending zone landowners are paid for the development potential of their property. The receiving zone property owners may build not only uses equivalent to what is allowed by right according to the zoning ordinance, but also the additional development rights purchased from the sending zone.

TDR is particularly beneficial to rural communities, like Woolwich Township, that are experiencing intense development pressures. Lacking an adequate tax base, these communities may not have the resources to purchase all of the targeted farmland. At the same time, recent residential growth may have placed a strain on the municipal budget with the demand for new schools, public services, and infrastructure that it brings. Absent sufficient commercial ratables to offset these costs, residents suffer the financial burden of rising property taxes. Likewise, they lack a central place in which to shop, work, socialize and recreate because new development is almost entirely housing and it tends to “leapfrog” from one remote place to another, fragmenting the landscape. TDR enables these communities to protect their agricultural land base and farmers’ equity. It also responds to the needs of existing and future residents by creating a destination with homes, shops, businesses and public spaces—in essence, their own unique downtown.

## TDR PLAN ELEMENT

To comply with State requirements, a “development transfer plan element,” or TDR plan element must contain the following information:

- An estimate of population and economic growth in the municipality for the succeeding 10 years
- Identification and description of all prospective sending and receiving zones
- An analysis of how anticipated population growth will be accommodated within the municipality in general and within the receiving zones in particular
- An estimate of existing and proposed infrastructure of the proposed receiving zone
- The procedure and method for issuing instruments to convey development potential from the sending to receiving zone
- Planning objectives and design standards governing the review of applications for development in the receiving zone

This document is the development transfer plan element (TDR plan element) of the Woolwich Township Master Plan. It addresses all of the aforementioned requirements and provides additional background context.

Section 2 of this plan describes growth trends and land use activity in Woolwich Township and future impacts of current growth patterns. It also assesses the impacts of current zoning on remaining developable lands. This is compared to an alternative “build out analysis” utilizing TDR in Section 5.

Section 3 describes agricultural trends and discusses future viability and potential threats to agriculture in the Township. Together, these sections provide the background context for the Township’s decision to use the Transfer of Development Rights as a growth management tool.

Section 4 presents an overview of the visioning process used to generate a vision statement and planning objectives for the sending and receiving zones. The resulting vision statement and planning objectives follow this overview.

Section 5 presents population and employment projections to the years 2015 and 2025 and proposes a two-pronged strategy for accommodating projected growth. It concludes with an analysis of land use, population and employment when Woolwich Township is fully built out after employing the transfer of development rights.

Sections 6 describes the proposed sending zone. Sections VII and VIII present a profile of each of the two proposed receiving zones. Each of these three sections demonstrate that natural, built and economic conditions make them suitable zones and, in the case of the receiving zones, able to accommodate projected growth from the sending zone.

Section 9 describes the mechanics of the proposed TDR approach in Woolwich Township and presents the basic procedural and administrative components of the draft TDR ordinance.

A series of appendices provide supporting information and data, all referenced at various points within the body of the TDR plan element.

In order to enact a TDR ordinance, a municipality must prepare a TDR plan element and several supporting plan elements and reports. These include a utility services plan, capital improvement plan, and real estate market analysis. These documents have been prepared accordingly. Included in the appendices is a draft TDR ordinance.

## THE LINK BETWEEN TDR AND INITIAL PLAN ENDORSEMENT

- Land use plan
- Design standards
- Public Spaces Plan
- Circulation plan
- Stormwater management plan
- Capital improvement Plan
- Real estate market analysis of the sending and receiving zones
- Planning and Implementation Agreement, documenting future activities, participating entities and time frames for implementing local plans
- Proposed changes to the State Plan Policy Map that bring local plans and the State Plan into greater consistency
- Utility Service Plan

In order to adopt a development transfer ordinance, a community must submit its planning documents to the State Planning Commission for Initial Plan Endorsement. Initial Plan Endorsement is a determination that the master plan and supporting plan elements are consistent with the State Plan. Thus, in addition, to satisfying the legislative requirements for a development transfer ordinance, Woolwich Township is also petitioning the State Planning Commission for Initial Plan Endorsement. The Plan Endorsement petition is a separate document.

Additional master plan elements and planning studies have been prepared that complement the TDR plan element. These will be submitted for Initial Plan Endorsement, along with the TDR plan element and existing master plan and plan elements. They include the following:

### **TDR ELEMENT MANDATORY COMPONENTS**

- 10-year population and employment
- Description of sending and receiving zones
- Description of how projected municipal growth will be accommodated
- Existing and proposed infrastructure
- Method for transferring development rights

### **KEY SUBMISSIONS FOR INITIAL PLAN ENDORSEMENT**

- Master plan and all plan elements including TDR plan
- 20-year population and employment projections
- Vision statement and statement of public participation
- Statement of consistency between local land use regulations and local, county, regional, and state plans
- Proposed changes to State Plan

### **PLANNING PROCESS**

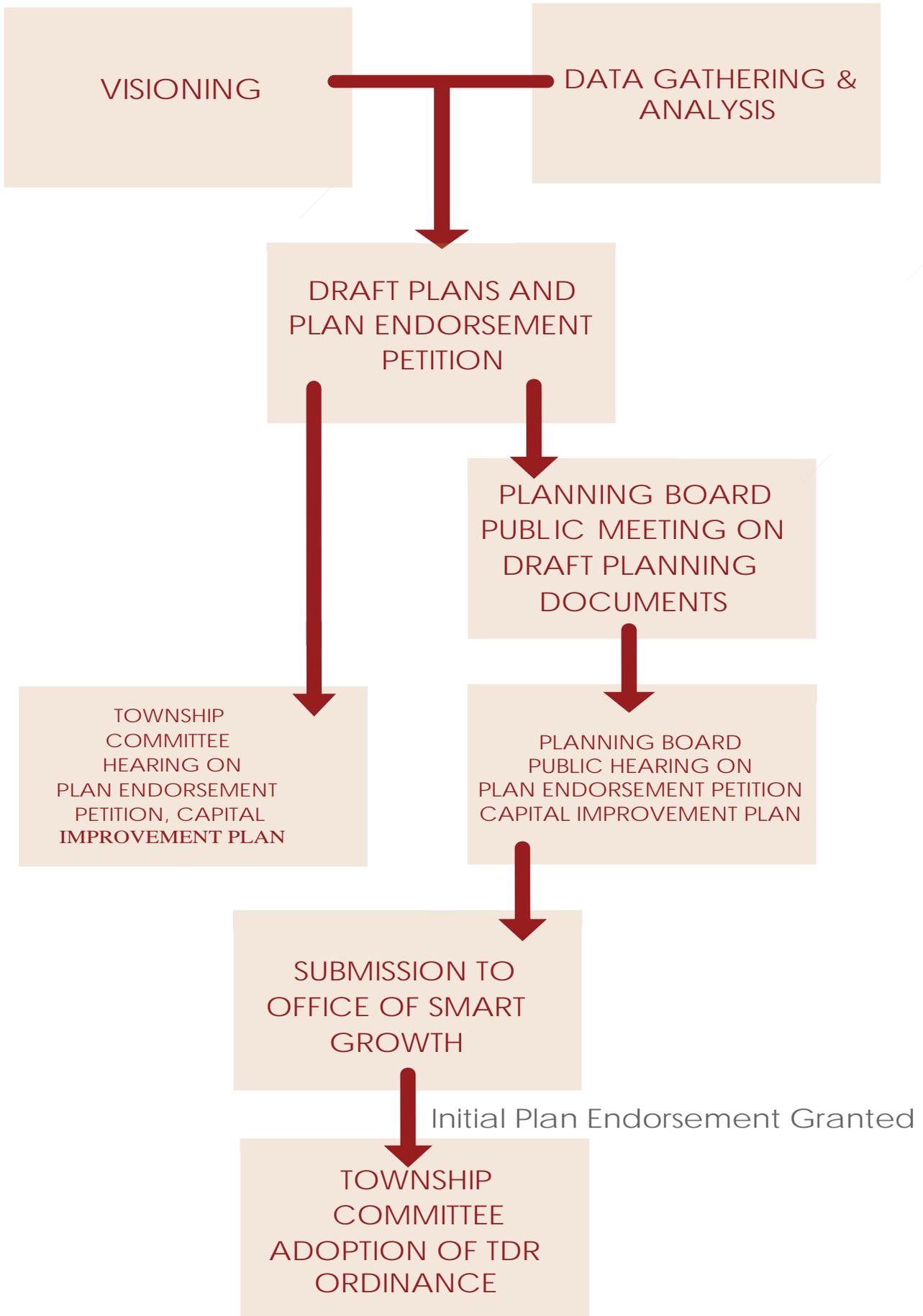
Woolwich Township's TDR plan element and supporting planning documents evolved out of a two-year comprehensive planning process beginning in June, 2005, when the governing body appointed a subcommittee to oversee the process. This ambitious effort was designed to accomplish both completion of a TDR plan element and preparation of a Initial Plan Endorsement petition.

The process was overseen by a locally appointed subcommittee. Data gathering and analysis, public meetings, citizen outreach, solicitation of input from county and state agencies and private sector interests all comprised ongoing visioning efforts. The visioning process both informed and sought feedback from key stakeholders who would influence or be impacted by the resulting TDR plan.

The draft planning documents resulting from this two-year effort were presented at a meeting of the Woolwich Township Planning Board. Revisions based on local feedback and input from state agencies were incorporated into the plans prior to the Planning Board public hearing on March 1, 2007. All but the Capital Improvement Plan were subject to the hearing, since a Capital Improvement Plan must be adopted by the governing body.

The draft Initial Plan Endorsement petition and Capital Improvement Plan were forwarded to the Township Committee prior to a hearing held on March 5, 2007. All documents were transmitted to the Office of Smart Growth following adoption at the hearings.

Woolwich Township will await state review of its documents – roughly a six-month process – with the expectation of receiving Initial Plan Endorsement. At that time, it will be able to adopt its TDR ordinance and actively begin implementation of one of New Jersey's most proactive, visionary plans.



# SECTION 2: THE PLANNING CONTEXT

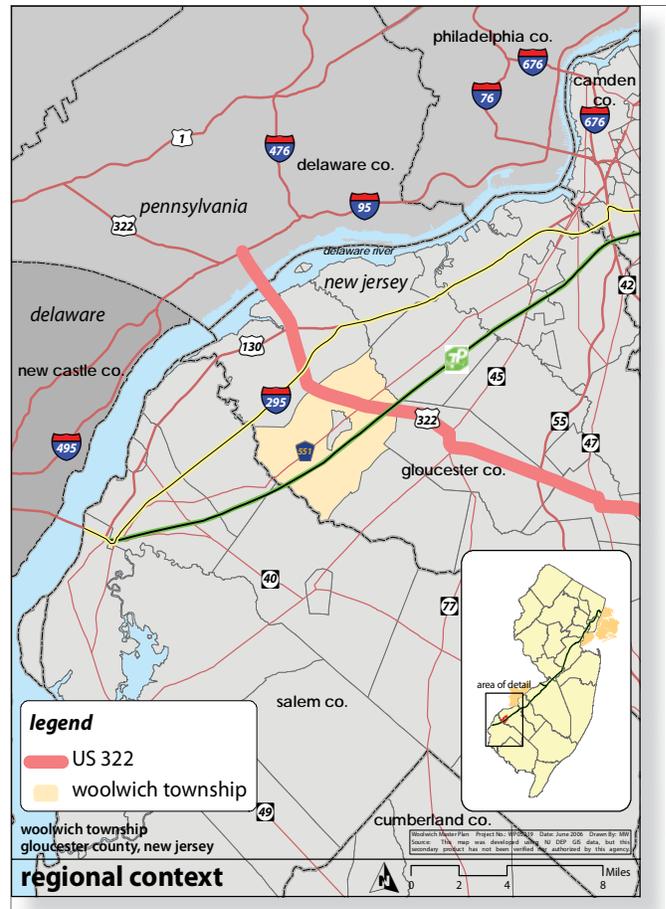
## SETTING THE STAGE FOR TDR IN WOOLWICH TOWNSHIP

Woolwich Township is a 21 square mile rural-going-sub-urban community located in northwestern Gloucester County. It shares borders with Logan Township to the north, East Greenwich to the northeast, Harrison and South Harrison Townships to the east and southeast and abuts Oldmans Township and Pilesgrove Township, both to the south in Salem County.

In 2005, over 57% of the land base is in agricultural use. The Township is traversed by three stream systems and tributaries and the forested wetlands and tidal marshes associated with them. The rural countryside, with rolling farms, fields and stream corridors, provides habitat for endangered species, including bald eagle.

Interstate 295, a north-south route connecting central New Jersey to Salem County, is located just west of the municipal border. Exit 2 of the NJ Turnpike, another major north-south highway, is located within the community. Woolwich Township is also traversed by US 322, Gloucester County's only significant east-west highway. The Commodore Barry Bridge, which provides direct access to Pennsylvania and to Interstates 95 and 476, is approximately four miles west of Woolwich Township. US 322 extends from the Commodore Barry Bridge all the way to Atlantic City. Woolwich Township is approximately 30 minutes from Center City, Philadelphia.

Given its strategic location within the Philadelphia metropolitan area and access to major highways, it is no surprise that development pressures confront this rural, agricultural community. However, achieving the highest rate of growth in the State and beyond has been a real wake up call. Woolwich Township now knows that if it is to retain control over its destiny, it must look ahead. Its citizens and leaders must equip themselves with the strategies and tools to successfully implement a vision for their future.



### POPULATION GROWTH AND CHANGING DEMOGRAPHICS

Until only recently, Woolwich Township remained a rural community with little pressure for change. Between 1930 and the mid-1980s, Woolwich Township maintained a relatively stable population below 1,200 persons. Between 1980 and 1984, its population grew by 7.0%, from 1,129 to 1,208 and from there, the pace of growth accelerated for the duration of the decade. Overall, it experienced a 29.2% increase in population during the 1980s.

Over the next 10 years, its population soared to 3,302, an increase of almost 108%. Just four years later, it reached 6,121, reflecting another 101.7% percent increase. Between 1980 and 2004, population growth rates in Woolwich far outpaced both Gloucester County and the State. Between 2000 and 2005, Woolwich Township was the fastest growing community in New Jersey and second fastest in the entire Northeast United States, including New England, New Jersey, New York and Pennsylvania, according to the U.S Census. In 2005, the Census estimated the population to be 7,563, a 25% increase in just one year.

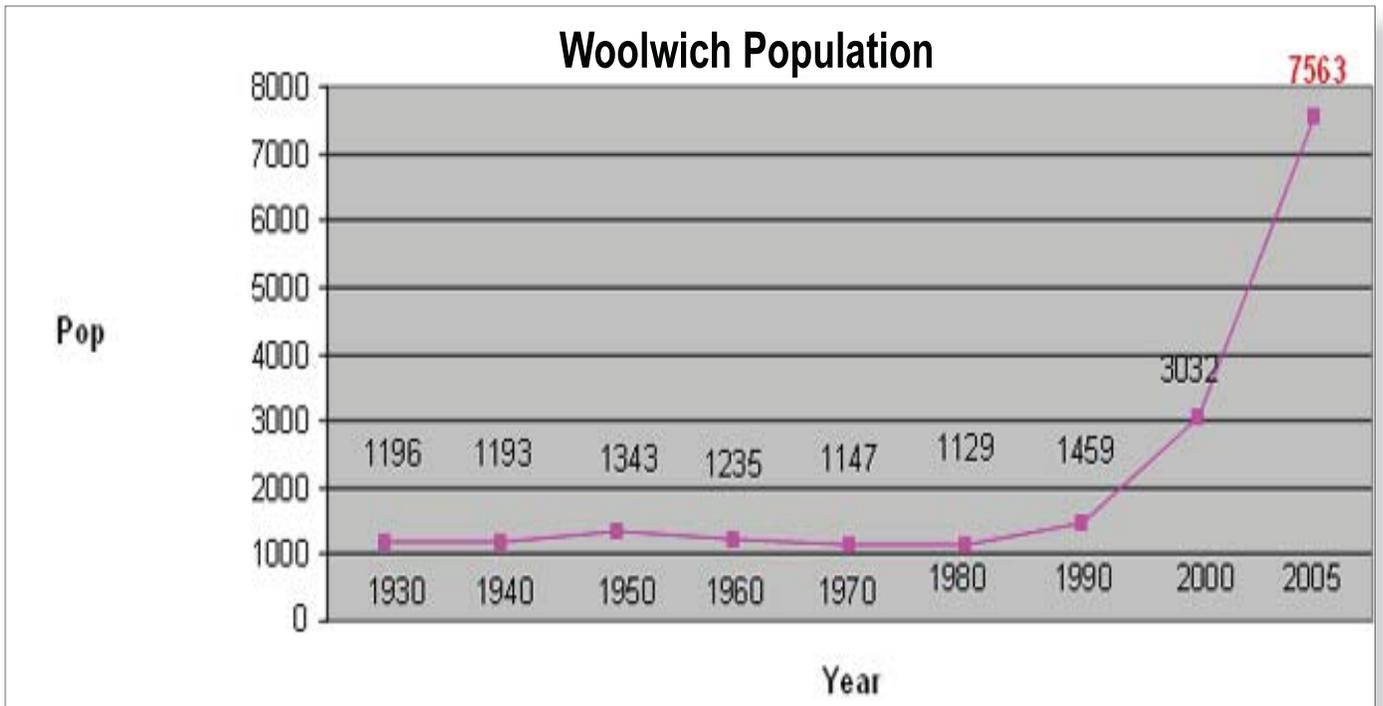


Figure 1. Woolwich Township Population: 1930 - 2005  
Sources: U.S. Census

Locale	1980	1990	% Change 1980-1990	2000	% Change 1990-2000	2005	% Change 1980 - 2005
Woolwich	1,129	1,459	29%	3,032	<b>107.81%</b>	7,563	<b>569.88%</b>
Gloucester	199,917	230,082	15.09%	254,673	10.69%	276,910	38.51%
New Jersey	7,364,823	7,730,188	4.96%	8,414,350	8.85%	8,717,925	18.18%

Figure 2. Population, 1980 – 2000: Woolwich, Gloucester County, New Jersey  
Sources: U.S. Census, NJ Department of Labor and Workforce Development, Division of Labor Market and Demographic Research

## SCHOOL CHILDREN, BABY BOOMERS AND SENIORS

Between 1990 and 2000, Woolwich Township witnessed a 121.9% increase in its school age population, compared to 14.1% and 32.1% in Gloucester County and New Jersey respectively. In 2000, this age cohort represented a larger percent of the Township's total population than it did at the county or state level. Additionally, the baby boom cohort grew by more than 90% in Woolwich between 1990 and 2000. These trends are consistent with the large influx of residents to Woolwich Township and construction of single family homes during this time. The county and state experienced a decline in the baby boom segment of the population during the same period.

Today, the oldest of the baby boom generation are 60 years old. Over the next 20 years, as more enter their later years, it is anticipated that they will increase the share of the Township's senior population.

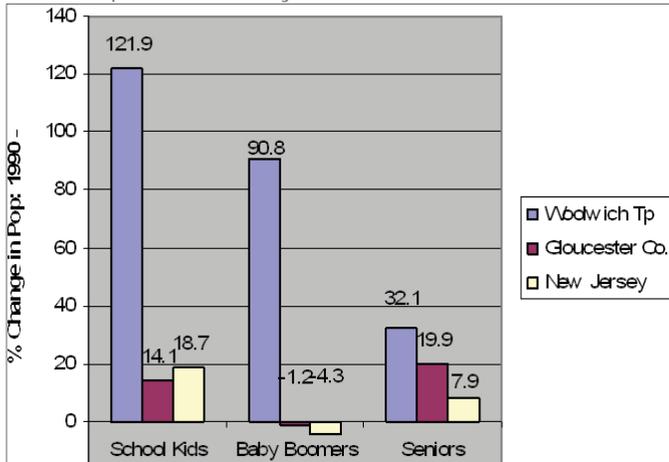


Fig. 3: % Change in Select Age Cohorts, 1990 and 2000 – Woolwich Tp, Gloucester Co., NJ  
Source: U.S. Census

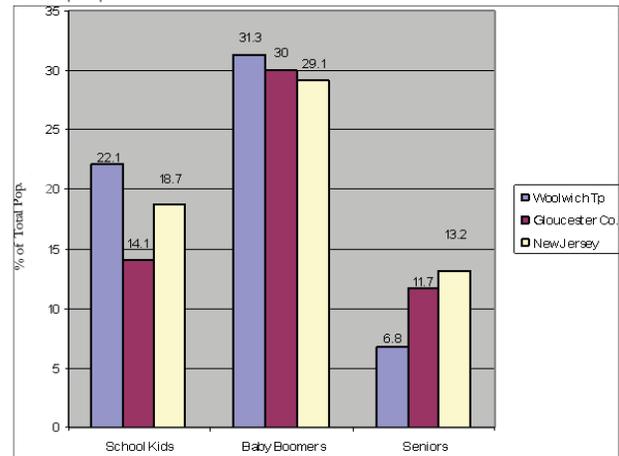


Fig. 4: % of Total Pop. by Select Age Cohort, 2000 – Woolwich Tp, Gloucester Co., NJ  
Source: U.S. Census

## HOUSEHOLD COMPOSITION

Household composition in Woolwich differs from that of Gloucester County and New Jersey. More dramatic, however, is the difference from the national experience. The United States as a whole and the Philadelphia metropolitan area in general are experiencing a dramatic shift in household composition which may well affect Woolwich in the future as residents continue to move in.

Nationally and in the Philadelphia metropolitan area, the traditional two parent household with children represents less than one quarter of all households (23.5% and 22.4% respectively), according to the 2000 Census. Couples without children, single person households, empty nesters and single parent households comprise the majority of households.

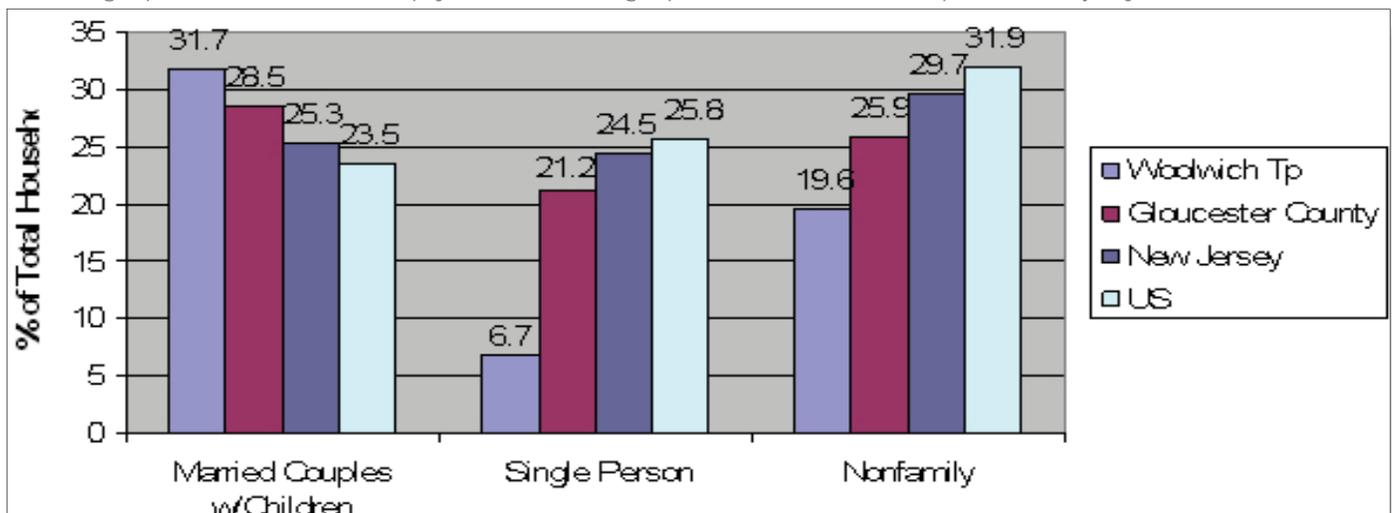


Fig. 5: Year 2000 Household Composition – Woolwich Township, Gloucester County, New Jersey, US  
Source: U.S. Census. Note: Nonfamily households include householder living alone or with nonrelatives only.

By comparison, married couples with children living in Woolwich made up nearly one-third of all households in 2000. Nationally, single person households comprised 25.8% of all households, compared to 6.7% in Woolwich. Thirty-one percent of all households were non-family households in the US compared to only 19.6% in Woolwich.

## HOUSING UNITS

Trends in housing unit construction in Woolwich Township mirrored that of population growth. During the entire 1980s, only 162 residential building permits were issued. The following decade witnessed an increase of 583, with 214 issued in 1999 alone. Between 2000 and 2005, 1,927 permits were approved. Out of 514 building permits in 2004, 229 were for multi-family units, the first of any multi-family building permits issued during this timeframe. All units issued permits in 2005 were for single-family detached units.

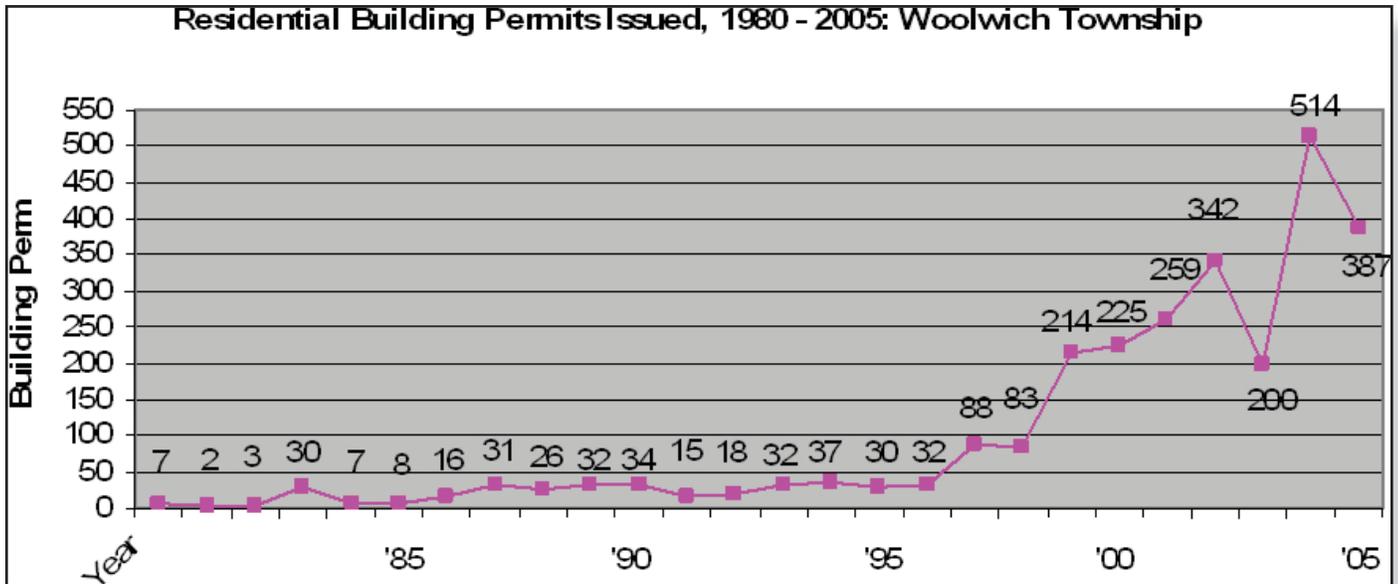


Fig. 6. Residential Building Permits Issued in Woolwich Tp: 1980 – 2005  
Source: NJ Department of Labor and Workforce Development.

## Labor Force Characteristics

The 2000 Census reported 1,477 workers living in Woolwich Township. Less than half (43%) worked in Gloucester County. Of these, the largest share worked in Swedesboro (23.3%), Woolwich (14.9%) and Logan Townships (9.6%). Eighteen percent worked in various other New Jersey counties, with the balance employed in New York, Delaware, Maryland and Bucks County, PA. Thirty-one percent of all workers were employed in Philadelphia, Montgomery, Chester or Delaware Counties in Pennsylvania.

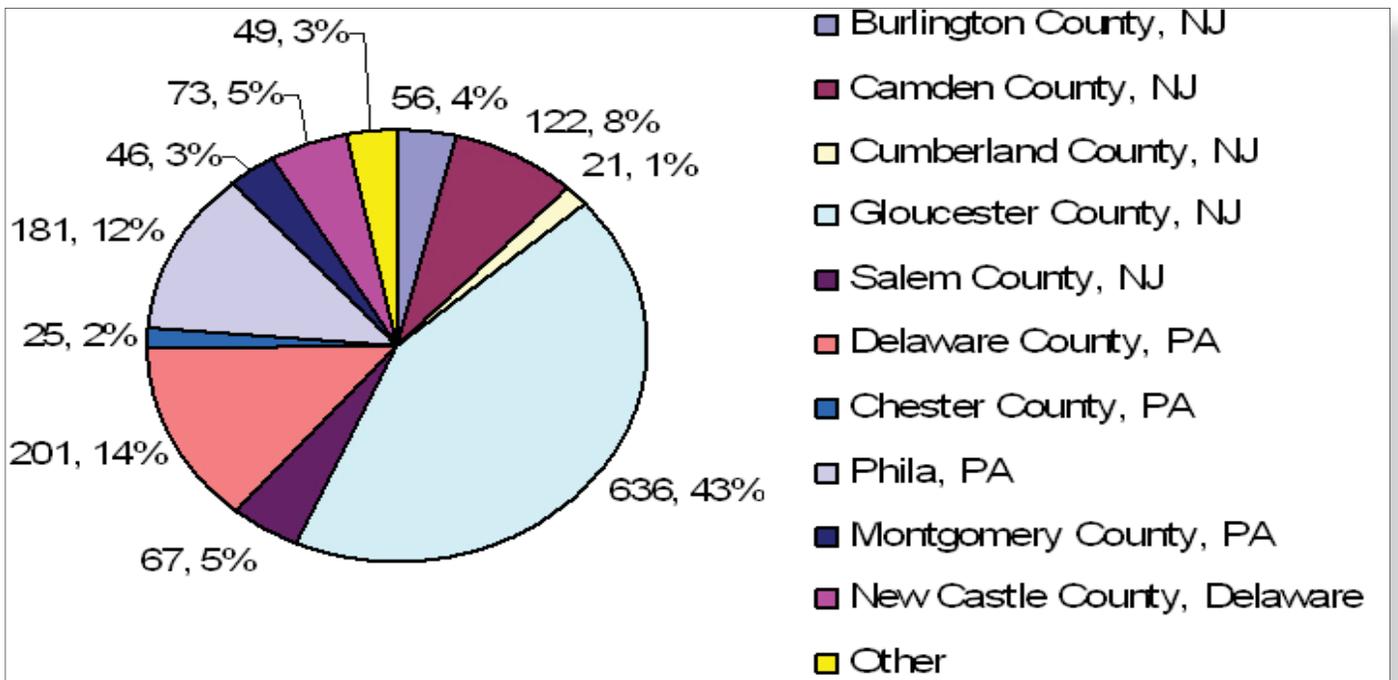


Fig. 7. Place of Employment of Woolwich Tp Workers in 2000 Source: US Census

## EXISTING LAND USE

As of June, 2006, 49% of land in Woolwich Township was still devoted to agriculture (6,586 acres). This is despite mounting development pressures. Over 3,000 acres were in woodlands. Residential land use occupied 2,660 acres. Commercial development only encompassed 197 acres, most of this sprinkled along the U.S. 322 Corridor and other scattered locations between the NJ Turnpike, US 322, Oldman's Creek Road and the Township border. Roughly 750,000 square feet of warehousing facilities are located at the far western end of US 322, adjoining more warehouses in Logan Township. This area has access to public sewers. However, absence of sewer service in most parts of the Township has constrained large scale commercial development overall.

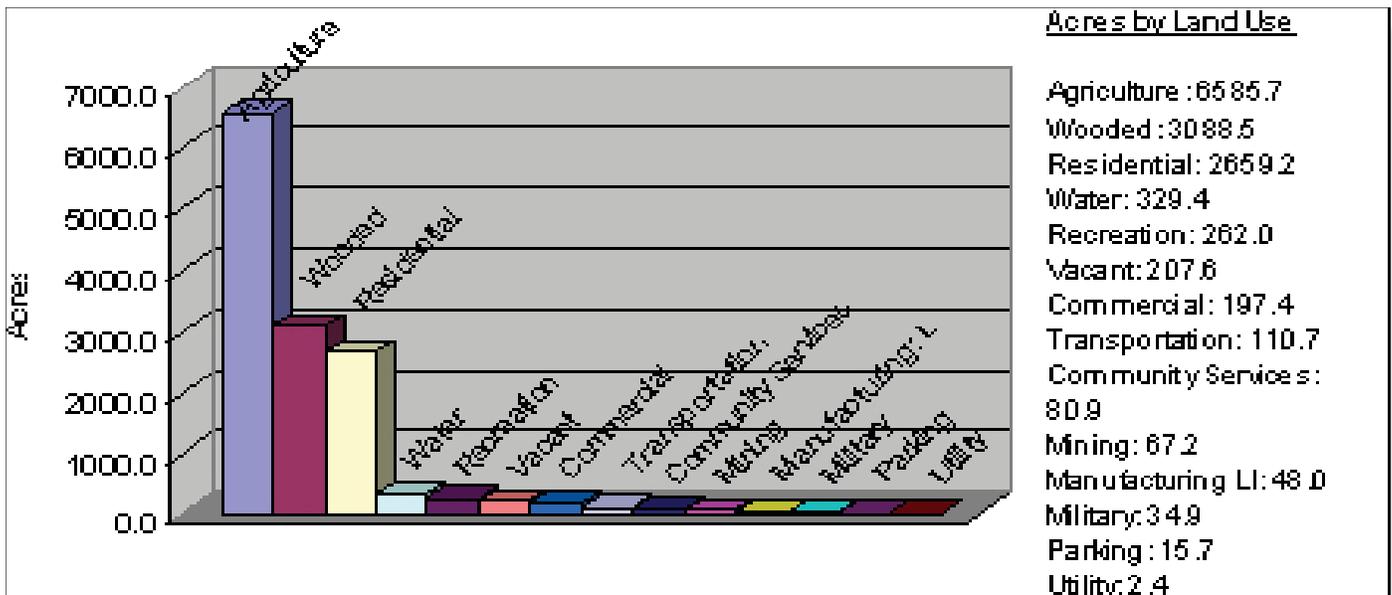
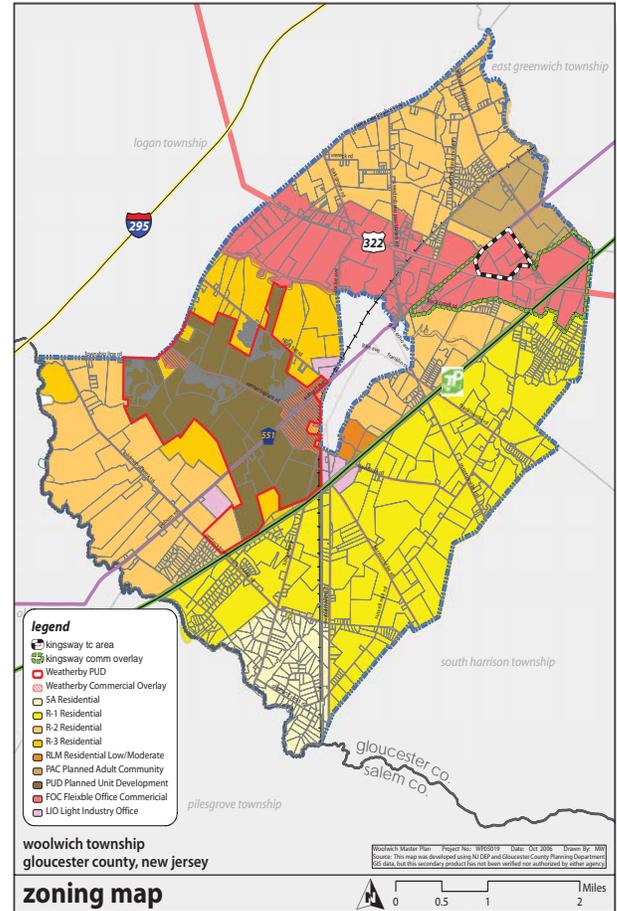
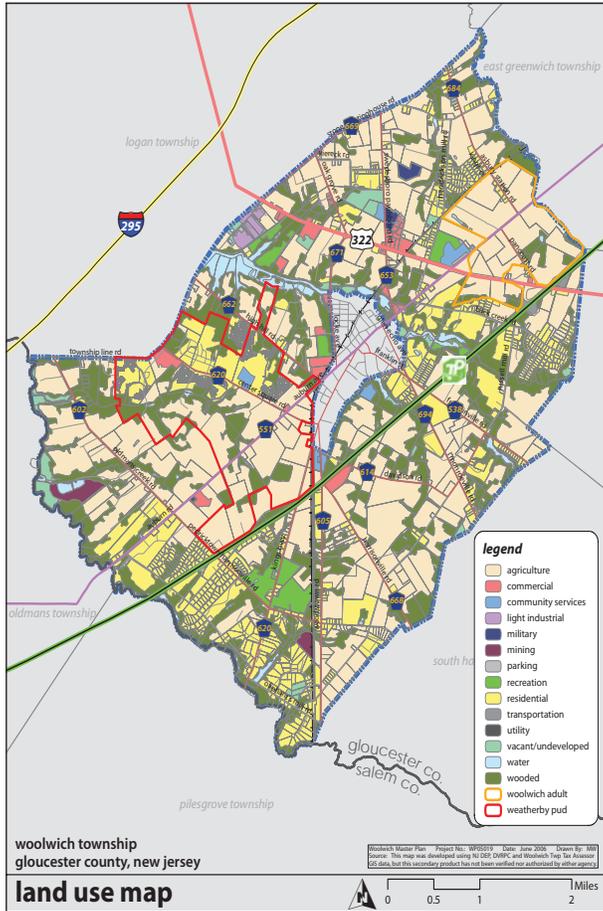


Fig. 8. Estimated land use/land cover in Woolwich Township, 2006.

Sources: DVRPC, Year 2000 Land Use, updated by melvin kernan to reflect more recent development activity and land preservation.

## EXISTING ZONING

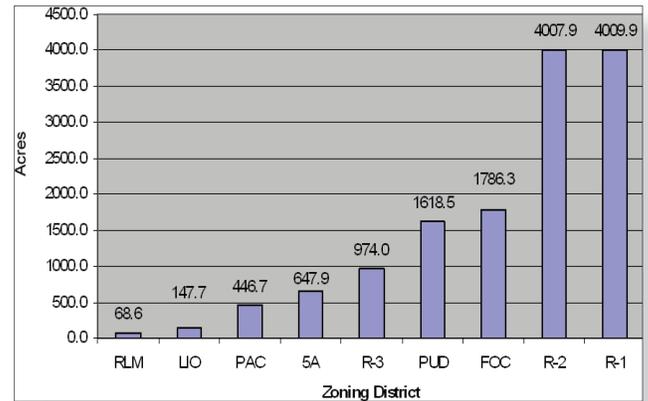
The majority of Woolwich Township is zoned for residential uses. Of Woolwich Township's total land area (13,712 acres), over 8,000 acres (60% of the total land area) falls in the R-1 and R-2 zoning districts. District regulations permit a minimum density of 2 acres and 1.5 acres respectively. The R-3 district permits a density of 20,000 square feet, providing there is sewerage capacity to serve these lots sizes; otherwise, the requirements of R-2 zoning apply. All three districts permit a form of clustering, called conservation zoning, which requires open space set asides in exchange for reduced lot sizes.

The Five Acre (5A) district is mostly built out with homes on a minimum lot size of five acres. Just under 650 acres fall into this category.

The Planned Unit Development (PUD) district is over 1,600 acres in size. This district was designated specifically for Weatherby, a planned development that received General Development Plan approval in 1998. When fully built out, it will contain up to 4,500 homes, primarily single-family detached homes (70%-80%) and will contain 101 affordable housing units. It will also accommodate up to 250,000 square feet of commercial space and civic buildings, including schools and a new municipal complex. To date, 1,390 homes have been built or are under construction and 773 have received preliminary approval. A total of 24,710 square feet of commercial space has been constructed, with preliminary approval for another 54,416 square feet. Weatherby is one of the few residentially zoned areas of the Township presently served by public sewers service.

The Residential Low/Moderate Income (RLM) district is zoned for multi-family housing to help address affordable housing needs in the Township. In order for this to happen, the district must have access to public water and sewer service. Otherwise, the regulations of the R-2 zoning district apply. It contains under 70 acres.

Nonresidential zoning districts include the Light Industrial and Office (LIO) and Flexible Office/ Commercial (FOC) districts. The LIO district occupies only 148 acres and consists of scattered sites in the Township. The FOC district includes nearly 1,800 acres and is situated along the US 322 Corridor. Due to the lack of public water and sewer service in these zoning districts, the Township has seen only limited commercial development.



1.5 or 2 acre typical home photo

Weatherby SFD homes photo

A portion of the FOC district was recently modified to accommodate the Kingsway Town Center and Commercial Overlay districts. A portion was also rezoned to a Planned Adult Community. These zoning changes resulted from a settlement agreement between Woolwich Township and Woolwich Adult, LLC. The agreement, a result of affordable housing litigation filed against the Township, calls for the construction of 925 senior housing units and 104 affordable senior units in the PAC district, and 2.8 million square feet of commercial space in the Kingsway Town Center and Commercial Overlay districts. The entire area encompasses approximately 750 acres. Again, the ability to provide for the more intensive forms of residential and commercial development permitted under these zoning changes is contingent upon the availability of public water and sewer.

## SEWER SERVICE

Currently Woolwich Township is partially served by the Logan Township Municipal Utilities Authority (LTMUA), which operates a wastewater treatment facility with a discharge to the Delaware River. The sewer service area within Woolwich Township encompasses Weatherby, several out-parcels, mostly in the R3 District, and a few commercially zoned properties.

The Kingsway Middle School and High School campus are served by the Swedesboro wastewater treatment plant via a force main dedicated exclusively to them. There is also a private wastewater treatment plant serving a Wawa store along US 322.

## WOOLWICH UNDER CURRENT ZONING-BUILDOUT ANALYSIS

While agriculture is the predominant land use today, it is helpful to have a sense of how a community will look and function at some point in the future when all developable land is built out with housing and businesses. One way to do this is to apply the current zoning regulations to developable properties. This is called a zoning build out analysis.



Woolwich in 2050 with conventional zoning

Two zoning build out analyses were completed for Woolwich Township, each based on a unique set of assumptions and land use policies. The one described below assumed that the existing zoning ordinance would prevail until all remaining developable properties were fully built out. The second analysis employed the transfer of development rights. The second analysis is presented in Section 5. Additional information on both can be found in Appendix A.

## Build Out Assumptions:

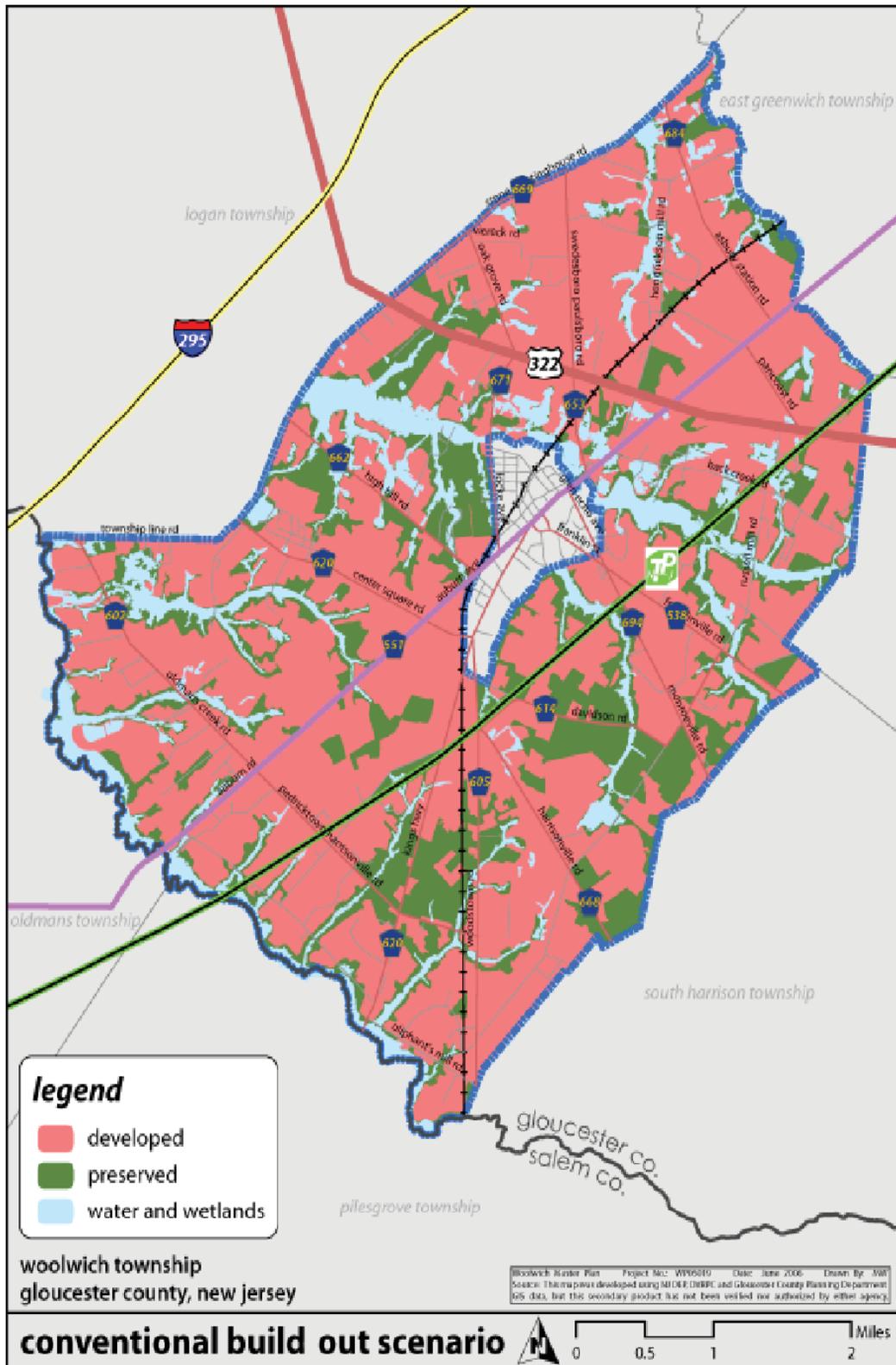
- Development applications with preliminary or final approval or General Development Plan approval will be built.
- Zoning regulations in place prior to the Woolwich Adult, LLC settlement agreement apply to the 750 acres of land held by Woolwich Adult. Until sewer service is in place, Woolwich Adult cannot develop its land as proposed in the settlement agreement.
- Sewer service is limited to Weatherby. All other parcels- both residentially and commercially zoned must rely on septic systems.
- Environmental constraints are factored into the calculation of housing units and commercial square feet that can be constructed. Soil data is evaluated to determine septic system suitability for residentially zoned lands. Wetlands are deducted from developable acre age for commercially zoned parcels.
- Undersized lots that do not conform to the minimum lot size in a given zoning district remain undeveloped.
- Redevelopment opportunities are not taken into consideration.
- Existing preserved properties remain undeveloped. Parcels pending preservation are counted toward pre served properties. No additional farmland or open space is preserved.

Based on the above set of assumptions, a total of 5,174 new homes will be built at some point in the future – most likely in the next 20 to 25 years. Of all homes, both existing and new, 81% (4,174) will be single-family homes. Multi-family units will be limited to the Weatherby development. Large, single-family units (e.g. 4 bedroom units) are expected to prevail in Woolwich Township. This type of market rate unit tends to generate more children than other types of units, according to recent research conducted by the Center for Urban Policy Research. Accordingly, over 4,200 additional school children are anticipated.

Under the zoning build out analysis, an additional 7.7 million square feet of commercial space will be constructed on all commercially-zoned properties that are either vacant or underdeveloped.

ZONING BUILD OUT ANALYSIS - EXISTING ZONING

	Estimated Existing (2005)	Additional	Total
Housing Units	2,703	5,174	7,877
School Children	1,461	4,271	5,732
Commercial (Square Feet)	Not calculated	7,696,170	
Preserved Land* (Acres)	855.0	855.0	855.0



## ANTICIPATING IMPACTS OF FUTURE GROWTH ON WOOLWICH TOWNSHIP

The zoning build out analysis shows that Woolwich Township will face significant challenges if the recent past is an indicator of future growth patterns. It also demonstrates a mismatch between master plan goals and resulting development patterns.

Expected impacts include the loss of rural character, environmental degradation, increased traffic, mismatch between housing and changing demographics, and public health threats. Another notable impact will be the threat to agricultural viability, which is discussed in the following section.



### LOSS OF RURAL CHARACTER

As land is converted to low density housing and commercial uses, Woolwich Township's scenic character will give way to more buildings, parking lots, roads, and suburban landscapes. New homes, mostly built on 1.5 to 2 acre lots, will replace farmfields and open space. Close to 8 million square feet of new commercial construction - mainly office, light industrial, and warehouse/distribution centers - will occupy commercially zoned areas, including 1,786 acres of land (2.8 square miles) on either side of US 322.



## ABSENCE OF TOWN CENTER

As more people move into Woolwich Township, they will have a greater need for places to take their children, socialize, shop and conduct business. Ideally, these places should be within easy reach to avoid long trips in the car and inconvenience and should function as a town center. Presently, Swedesboro in effect serves as Woolwich Township's town center. However, it offers limited services and activities. Woolwich Township will be unable to accommodate a town center if recent land development patterns prevail in the future.



## INCREASED TRAFFIC AND ASSOCIATED COSTS

The volume and pattern of development will contribute to mounting traffic in Woolwich Township. Most residents drive to work (87%) according to the 2000 Census. Low density zoning and development patterns that separate land uses limit the possibilities for public transportation and for travel on foot or bike.

Work trips generally account for only 32% of all trips per person according to national statistics. Shopping, recreation and other activities account for the remainder. In most circumstances, however, new residential development in Woolwich Township will continue to be too far from these activities to warrant travel by any means other than the car. The farther out development spreads, the longer the commute and the greater the reliance on cars, even for the simplest errands.

Street design will also contribute to traffic and to longer trips. Cul-de-sacs are often the preferred roadway design in new residential developments. But disconnected streets limit the number of intersections with other streets. As a result, trips end up being longer because they are more circuitous. They also deposit all of the trips onto collector or arterial roads, placing more traffic on these roads, instead of distributing it through a local street network. Collector roads are therefore wide by necessity to accommodate huge volumes by cars. One major deleterious consequence is that these wide, often congested roads become barriers to neighborhood connectivity and hostile to pedestrian circulation. We become trapped in our cars living in a fragmented landscape.

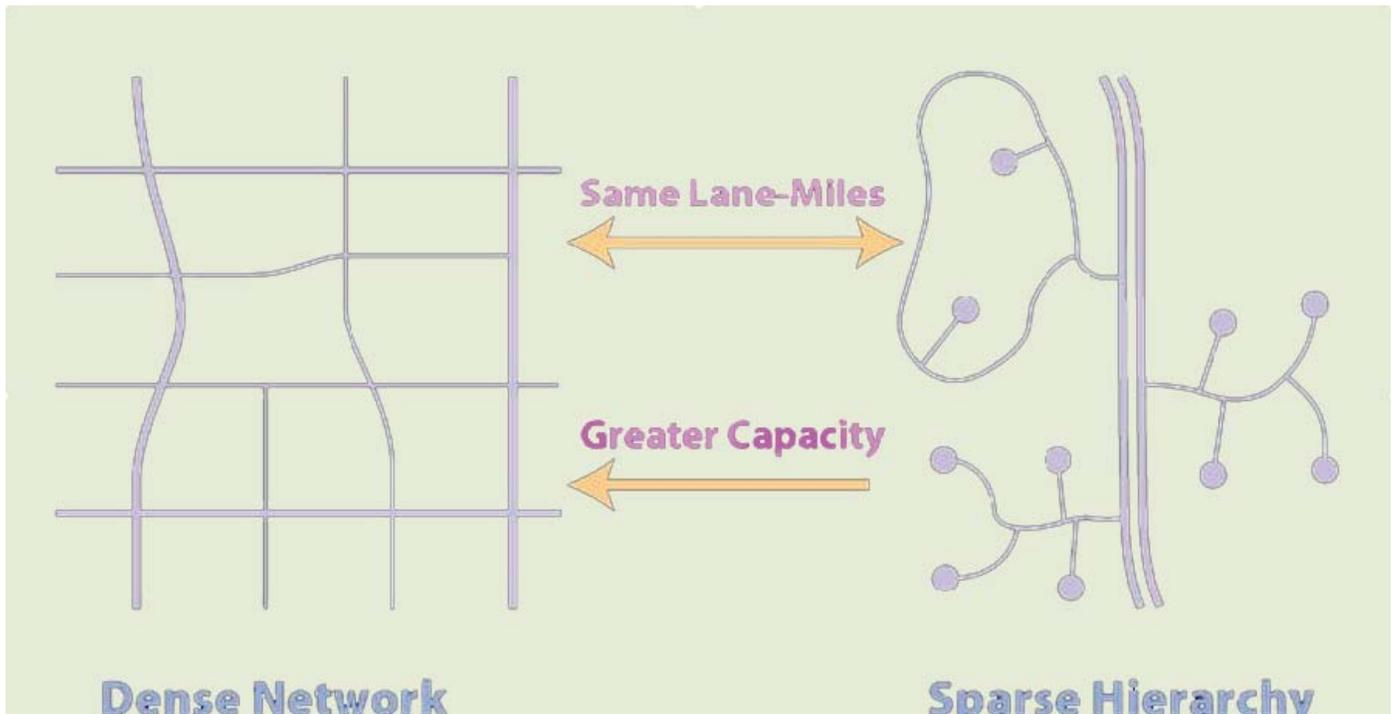


Fig.9 Travel Efficiency as a Function of Roadway Design. Image courtesy of Gladding Jackson.



Courtesy of Gladding Jackson

US 322 is one of those arterial highways whose functional capacity is particularly critical, since it is Gloucester County's only major east-west corridor. US 322 serves not only those communities through which it passes, including Woolwich Township, it also serves regional through-traffic, connecting southeastern Pennsylvania with New Jersey shore points. Again, limited public transportation, coupled with the separation of land uses and disconnected circulation system will force Woolwich Township residents to rely on the highway, compromising its carrying capacity.



In a study of 85 metropolitan areas, including Philadelphia, the Texas Transportation Institute (TTI) found that the length of the peak hour period experiencing congestion more than doubled from 32% in 1982 to 67% in 2003. During the same period, the percent of major roads considered congestion rose from 34% to 59%. (Texas Transportation Institute, 2005 Urban Mobility Report, May 2005.) Since 1996, vehicle miles traveled in the Philadelphia metropolitan area grew by 20%, while population only grew by 12%. (Data on the New York and Philadelphia metropolitan areas as reported by NJDOT at the New Jersey Smart Choices workshops, Fall 2005.) Highway expansion does not appear to solve the congestion problem either. To the contrary, more highways lead to more traffic. TTI found that a 10% increase in the size of the highway network led to a 5.3% increase in the amount of driving. (Surface Transportation Policy Project, Why Are the Roads So Congested? – Overview, 11.1.1999.) These findings give further credence to the predicted traffic increases in Woolwich Township.

Reliance on cars creates the obvious inconvenience of traffic. It degrades the quality of life for residents using or living on affected roads. But there are also real costs that will be felt by Woolwich Township residents. These costs include lost time, operating costs and wasted fuel. Clearly, reliance on cars means high fuel costs, particularly given recent surges in gasoline prices and its predicted continuation. The New Jersey Institute of Technology (NJIT) projects that by 2025, each licensed driver in Gloucester County will experience 309 hours of delay annually—the highest statewide, along with Bergen County. The annual cost of congestion per licensed driver will be \$5,991, second only to Bergen County. (NJIT, Mobility and the Costs of Congestion in New Jersey: 2001 Update, July 2000, p. 35.)



*Source: Project for Public Spaces*

*Source: Project for Public Spaces*

## DECLINING PUBLIC HEALTH

The future pattern of development in Woolwich Township will likely affect public health. The Centers for Disease Control attribute declining public health in this country to an “inactivity epidemic.” (See <http://www.state.nj.us/transportation/works/njfit/about/diagnosis.shtm>.) This in turn is related to what the CDC calls “the prevalence and rapid rise of obesity in the United States.” (See [http://www.cdcfoundation.org/frontline/archives/obesity\\_a\\_growing\\_epidemic\\_among\\_americans.aspx](http://www.cdcfoundation.org/frontline/archives/obesity_a_growing_epidemic_among_americans.aspx).) Nationally, 64.5% of adults are either overweight or obese. In New Jersey, 59.2% of adults are either overweight or obese. (Trust for America’s Health, *F as in Fat: How Obesity Policies are Failing in America*, 2005, August 2005, pp. 4, 16.) Sixteen percent of children and adolescents between the ages of six and 19 are overweight. (Centers for Disease Control, National Center for Health Statistics at [www.cdc.gov](http://www.cdc.gov).)



Percentage of Overweight Persons by State

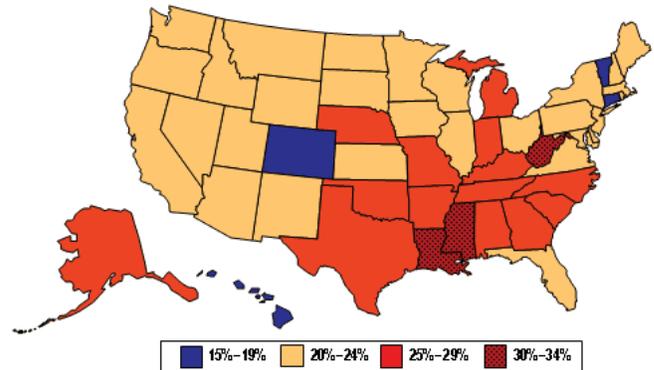


Fig.10. Obesity Trends Among U.S. Adults, BRFSS, 2005. (Percent of population having a Body Mass Index greater than or equal to 30.) Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control

Empirical evidence shows a relationship between physical activity and the built environment. The CDC acknowledges that the reason exercise is not part of the daily routine anymore is in part due to the way communities are designed. For instance, people may not walk to the store if there are no sidewalks. ([http://www.cdcfoundation.org/frontline/archives/obesity\\_a\\_growing\\_epidemic\\_among\\_americans.aspx](http://www.cdcfoundation.org/frontline/archives/obesity_a_growing_epidemic_among_americans.aspx)) Nationally, 9 out of 10 trips are taken by car, even though 25% are less than a mile long – trips that could be made on foot or bicycle. (Active Living by Design, A Project of the Robert Wood Johnson Foundation, Community Design, Transportation and Health.)

Development patterns and the design of transportation systems affect the ability, safety and desire to walk or bike from place to place. In this way, it ultimately affects public health.

## ENVIRONMENTAL DEGRADATION

As more land is converted to development, threatened and endangered species habitats will be impaired or destroyed. Increased impervious cover and soil compaction will generate stormwater runoff. Nonpoint sources of pollution (pollution that comes from diffuse sources rather than from a single discharge point) generated by lawns, streets, construction sites, and septic systems can impair surface and groundwater quality. Lands with 7 to 10 inches per year of recharge are prevalent in Woolwich Township. Lands with recharge rates of 11 to 14 inches per year have the highest recharge rates in Woolwich Township. These are found scattered throughout the community. It is all of these areas with higher recharge rates where the amount of paving and other impervious cover can have the most detrimental effect on aquifer recharge. (DVRPC, Environmental Resource Inventory for the Township of Woolwich, April 2004, p. 50.)

Another factor that impacts water quality is the way that watersheds are developed. The Environmental Protection



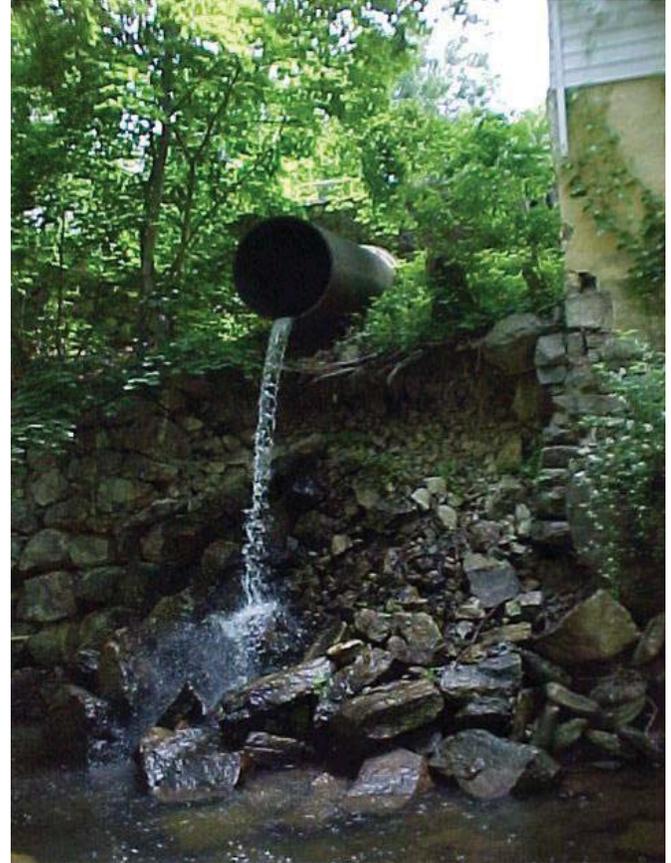
Eight units per acre density.  
Both Images Copyright Regents of the University of Minnesota. Used w/permission of Metropolitan Design Center.



One unit per acre density.

Agency (EPA) compared the impacts of different residential development densities, ranging from “low” (one house per acre) to “high” (eight houses per acre) and found that the lower density scenarios produced more stormwater runoff for a given amount of growth. The low density scenario consumed more land and created more impervious surfaces at the watershed level. It is this low density scenario that will prevail in much of Woolwich Township, consistent with its zoning ordinance.

The EPA report concludes that low density development should not be viewed as the preferred strategy for reducing stormwater runoff in all situations. Furthermore, if communities want to protect watersheds, they must preserve large, contiguous areas of open space and sensitive ecological areas, no matter how densely they develop. (Richards, Lynn, Protecting Water Resources with Higher-Density Development, 231-R-06-001, Washington DC: USEPA, January 2006, pp. 1, 32.)



### LACK OF HOUSING DIVERSITY AND ASSOCIATED COSTS

A fiscal impact assessment conducted for Weatherby projected the need for three elementary schools, half a middle school and one third of a high school by 2017. These facilities will serve Weatherby’s projected student population (2,576).

The existing zoning build out analysis assumes an additional 4,271 school children township-wide once all residentially zoned land is fully built out. At that time, 87% of all new homes are expected to be single family detached construction.

Between 1980 and 2004, 2,284 residential building permits were issued in Woolwich Township. All but 229 (issued in 2004) were for single family detached homes. The nature of a community’s zoning influences the demographics of the community. If zoning permits predominantly single family homes, Woolwich Township will continue to attract

family households almost exclusively. The growing national cohort of non-traditional family households will not become a significant component of Woolwich Township’s population. As such, they will be unable to balance out the public service demands – notably school costs – that family households bring with them.



## SECTION 3: AGRICULTURE IN WOOLWICH TOWNSHIP

Woolwich Township has advanced farmland preservation and agricultural viability in several ways over the years. Included in the Woolwich Township Master Plan - Phase I (2003) is the statement that "preservation of farmland is a goal of the Master Plan, so that the rural heritage of Woolwich Township can be retained." In 2004, the Township adopted the Open Space and Recreation Plan for Woolwich Township. Among its goals is "Support of the farmland community in order to preserve rural quality and agricultural viability in the municipality."



Woolwich Township has advanced farmland preservation and agricultural viability in several ways over the years. Included in the Woolwich Township Master Plan - Phase I (2003) is the statement that "preservation of farmland is a goal of the Master Plan, so that the rural heritage of Woolwich Township can be retained." In 2004, the Township adopted the Open Space and Recreation Plan for Woolwich Township. Among its goals is "Support of the farmland community in order to preserve rural quality and agricultural viability in the municipality."

In a demonstration of continued support for agriculture, the Township prepared the Township of Woolwich Farmland Preservation Plan (2005) so that it could participate in the State's Planning Incentive Grant program. This Plan established the following goal and objectives:

**Goal: To retain a viable agricultural industry in Woolwich Township**

**Objectives:**

- To increase land preservation resources of all types that are devoted to protecting farmland and agriculture
- To permanently preserve those farmlands that are essential to the maintenance and protection of the agricultural industry within Woolwich Township, based on soil quality and land use planning criteria
- To utilize development rights and fee-simple acquisition as the principle means of permanent preservation of farmlands
- To implement regulatory measures, policies and programs that will protect and enhance agriculture and the agricultural industry within the Township
- To educate Woolwich residents about the benefits of farming in the community

The Township entered the State's Farmland Preservation Program in 1994. In response to overwhelming voter approval, Woolwich Township adopted a resolution creating an Open Space, Recreation, and Farmland and Historic Preservation Trust Fund (1997) to help purchase and protect farmland and other important resources. As of May, 2006, the Township preserved 411 acres of farmland.

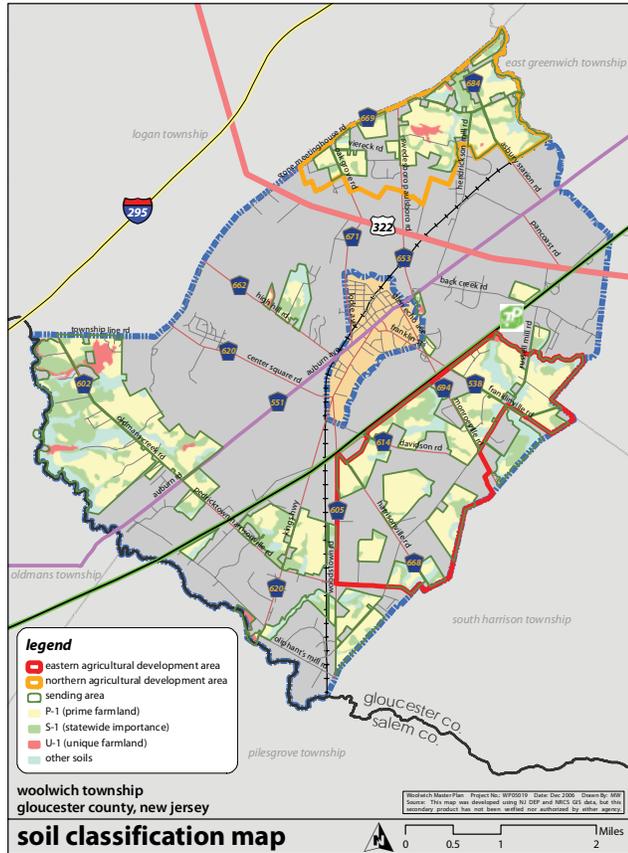
A right-to-farm ordinance was adopted in 1992. This helps protect farmers from nuisance complaints and overly restrictive regulations. In 2005, Woolwich Township strengthened the ordinance, using the State Agriculture Development Committee's model ordinance to amend its own. It also enacted an ordinance requiring buffers separating nonresidential uses from residential uses. This was done in response to a Master Plan recommendation calling for perimeter buffers in all residential districts when new homes are proposed next to existing, operating farms.

Agriculture is a long-standing tradition in Woolwich Township, dating back to the time when Native American tribes inhabited the area. Today, the Township remains a predominantly agricultural community. Yet, it is the rural appeal, combined with a strategic location that help to create some of the most intensive residential development pressures in the State and beyond.

This section assesses agriculture in Gloucester County and Woolwich Township in terms of its viability, its vulnerability and its benefits to the local economy.

### AGRICULTURAL VIABILITY

Gloucester County is one of New Jersey's leading agricultural counties. Woolwich Township, in turn, remains one of Gloucester County's premier agricultural communities.



### Gloucester County

According to the 2002 Census of Agriculture, Gloucester County had 50,753 acres of farmland. Although farmland acreage declined by 8,135 between 1997 and 2002, Gloucester still ranked seventh statewide in total farmland (50,753).

The State's farmland assessment data provides further evidence of Gloucester County's agricultural strength. New Jersey's Farmland Assessment Act of 1964 allows qualifying farmland and woodland devoted actively to an agricultural or horticultural use to be assessed according to its productivity value. New Jersey's Farmland Assessment Act FA-1 Forms for the 2005 Tax Year indicate that Gloucester County ranked fourth statewide in the percent of total taxable acreage in farmland assessment (31%) and sixth in total assessed value of farmland assessed property (\$34,392,000). It ranked seventh in total acreage devoted to agricultural or horticultural use (65,417 acres).

The New Jersey Agricultural Statistics Service reported that in 2001, Gloucester County led the state in commercial apple production and peach production, and joined Salem County as top bell pepper producers.

It ranked second statewide in barley for grain and for asparagus production. It was the third highest producer of sweet potatoes. It also ranked third, along with Burlington County, in cabbage harvested. Gloucester County had the fourth largest number of nurseries and nursery stock acreage and was the fifth largest producer of wheat for grain. (See [www.nass.usda.gov/nj/ar03toc.htm](http://www.nass.usda.gov/nj/ar03toc.htm).)

New Jersey launched its Farmland Preservation Program in 1984. Gloucester County entered the program in 1989, preserving 164 acres. As of November, 2005 a total of 9,588 acres were preserved (including 1,043 of pending farmland under contract). The State Agriculture Development Committee reported in January, 2006 that Gloucester County ranked eighth statewide in acreage of preserved farmland.

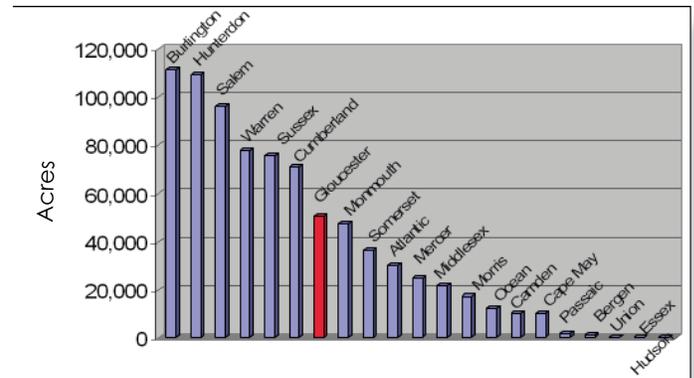


Fig.11 Acres of Land in Farms by County, 2002

Sources: USDA National Agriculture Statistics Service, 2002, New Jersey, State and County Data, Vol. 1, Part 30, Chapter 2, Table 8. Farms, Land in Farms, Value of Land and Buildings, and Land Use: 2002-2007.

### Woolwich Township

In 2005, over 57% of Woolwich Township's land base was devoted to agricultural or horticultural use according to State farmland assessment tax data. On a countywide basis, it ranked second only to S. Harrison Township in the percent of land and second to Franklin Township in terms of total acres (7,828) devoted to these uses. Likewise, it ranked second in acreage of cropland harvested. Total value of its farmland assessed property was \$5,645,300, the highest countywide.

Vegetables and grains are the principal crops in Woolwich Township. Farmland assessment data for the tax year 2004 shows that Woolwich had the more land devoted to field crops (3,917 acres) than any other municipality in Gloucester County. It ranked second countywide in acreage devoted to vegetables (2,285). Furthermore, it was the largest producer of asparagus and third largest producer of eggplant and barley for grain.

Most vegetable farmers sell to the wholesale market and do their own packing. A combination of carefully timed marketing and large operational investments make for successful operations. Some active farmers maintain subsidiary operations or businesses related to agriculture. Woolwich Township is home to one fully operational dairy farm, two Christmas tree farms and two roadside farm markets. However, the roadside farm markets do not sell local produce since local farms tend to sell to wholesale markets by choice. (DVRPC, Township of Woolwich Farmland Preservation Plan and Farmland Planning Incentive Grant Application, 2005, p. 22).

	Total Land Devoted To Agricultural/Horticulture (acres)	% of Agricultural/Horticulture To Total Acres	Value of Farmland Assessed Property	Harvested Cropland (acres)
Clayton Boro	735	14.32	\$491,700	256
Deptford Tp	1,421	12.79	\$464,700	642
E. Greenwich Tp	4,273	56.68	\$3,049,800	3,804
Elk Tp	7,074	54.75	\$4,352,800	5,240
Franklin Tp	12,720	36.72	\$5,438,700	7,315
Glassboro Boro	388	6.57	\$186,600	405
Greenwich Tp	945	15.38	\$503,500	675
Harrison Tp	5,223	41.55	\$3,399,800	4,754
Logan Tp	5,395	34.96	\$3,301,800	3,930
Mantua Tp	3,525	28.55	\$1,421,600	2,289
Monroe Tp	6,183	20.78	\$2,036,100	2,755
National Park Boro	0	0	-	0
Newfield Boro	231	20.74	\$113,600	165
Paulsboro Boro	63	4.92	\$19,000	23
Pitman Boro	47	3.13	\$10,100	18
S. Harrison Tp	6,653	65.75	\$2,851,800	4,863
Swedesboro Boro	32	6.49	\$25,500	16
Washington Tp	1,381	9.68	\$709,300	1,014
Wenonah Boro	0	0	-	0
W. Deptford Tp	1,300	12.76	\$370,300	684
Westville Boro	0	0	-	0
Woodbury City	0	0	-	0
Woodbury Hts	0	0	-	0
Woolwich Tp	7,828	57.02	\$5,645,300	6,424
Gloucester County	9,382	31.11	\$34,392,300	45,272

Fig 12: New Jersey Farmland Assessment Data, Gloucester County and Municipalities: 2004, 2005.  
 Source: New Jersey Farmland Assessment 2003 Tax Year 2004 – County Summary; Thirty-Seventh Report of Data from FA-1 Forms for 2005 Tax Year, October 2005.

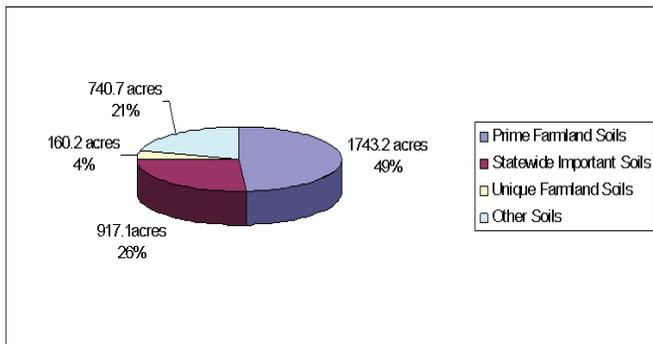


Fig.13 Classification of Woolwich Township Soils  
 Source: Natural Resources Conservation Service.

Nearly 50% of Woolwich Township’s soils are considered prime farmland soils. Prime farmland soils have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and sustain high crop yields when properly managed. Twenty-six percent of the Township’s soils are classified as soils of statewide importance. These soils are nearly prime farmland soils and economically produce high yields of crops when treated and managed according to

acceptable farming methods. Four percent are unique farmland soils, which can support specialized crops only. Farmland soils of local importance are neither prime nor statewide important soils; they are used for the production of high value food, fiber or horticultural crops. In Woolwich Township, there are no locally important farmland soils.

### AGRICULTURAL VULNERABILITY –

While Woolwich Township maintains a strong agricultural base, its farming industry is vulnerable to change as development pressures continue to mount. There are a number of indicators of this vulnerability. Limitations of the State’s Farmland Preservation Program.

The State’s farmland preservation program is a critical component of a comprehensive strategy to protect agriculture. But it is difficult to rely on public acquisition as the principal mechanism to accomplish this, given growth pressures and land values.

## Limitations of the State's Farmland Preservation Program

The State's farmland preservation program is a critical component of a comprehensive strategy to protect agriculture. But it is difficult to rely on public acquisition as the principal mechanism to accomplish this, given growth pressures and land values.

Woolwich Township has preserved over 390 acres of farmland to date. Preserved farmland in Woolwich Township represents only 6.4% of all farmland assessed properties. Between 1994 and 2002, 1,659 lots were subdivided. Another 1,511 lots gained subdivision approval between 2002 and 2003, according to the Township's Farmland Preservation Plan. It also reported that harvested cropland in the Township declined by 1,500 acres between 1980 and 2003. In May 2006, 2,737 lots were proposed on 1,542 acres of farmland that are the subject of pending or approved residential development applications.

Development rights on farmland in Woolwich Township range from \$8,000 to \$20,000 per acre according to the Gloucester County Office of Land Preservation. The average price per acre in 2005 was \$16,500. This can only be expected to rise as developable land grows increasingly scarce.



### The Need for a Critical Mass of Farmland

As Woolwich Township continues to encounter intense development pressures, the ability to preserve a critical mass of farmland will become more difficult. Development pressures create numerous potential conflicts with agricultural activities, most notably:

- Nuisance complaints from suburban homeowners about fumes and other undesirable by-products of farming activities
- Conflicts on local roads between slow-moving farm vehicles and suburban commuters
- Loss of agricultural soils to lawns and impervious cover



Farmland in Woolwich Township must be preserved in large contiguous areas for a number of reasons.

Yet the preservation of a critical mass of farmland appears to be an important component of comprehensive strategies to support agriculture. It is believed that creating a core or cluster of farms in a community may help assure a favorable environment for the continuation of farming. Conserving a critical mass of farmland can have the following benefits:

- Creating a pool of farmland affordable to farmers
- Increasing local appreciation for its agricultural heritage
- Creating confidence in the future viability of agriculture, as each individual property's conservation is reinforced by its neighbors'
- Protecting farmers from conflicts of adjacent suburban encroachment including nuisance complaints about traditional farming practices
- Enabling agricultural support businesses to survive

A recent study of the Mid-Atlantic states, including New Jersey, concluded that policies which reduce the amount of land consumed per home or per person may also be important for sustaining agriculture. This can help limit the effects of suburbanization on farming by reducing the amount of farmland acreage lost to development. (Lynch, Lori, "Is there evidence of a critical mass in the Mid-Atlantic agriculture sector between 1949 and 1997?" paper presented at the Land Use Policy Workshop of the Northeastern Agricultural and Resource Economics Association, April 2003, p. 7.)

## Limitations of Conservation Zoning

Woolwich Township permits a zoning technique in its R-1, R-2 and R-3 Zoning Districts called conservation zoning. This is a form of cluster zoning. Conservation zoning is a technique that seeks to preserve farmland and open space in exchange for reduced residential lot sizes. In the R-1 and R-2 Zoning Districts, conservation zoning permits the reduction of lot sizes from two and 1.5 acres respectively to 20,000 square feet, so long as at least 50% of the property is dedicated open space or farmland. The R-3 conservation zoning option permits 8,000 square foot lots, reduced from 20,000, with a minimum of 40% of the tract set aside as preserved open space or farmland.



Lot size averaging, a similar technique to conservation zoning. A cluster of homes (see both photos) abuts a preserved farm to the rear of the photo to the right.

In Woolwich Township, preserved lands are intended to meet a variety of design standards including the following:

**Greenway lands shall, whenever possible, be laid out in general accordance with the municipality's greenways system and farmland preservation designated maps as included in the Woolwich Township Open Space and Recreation Plan of 2004 to encourage the development of an interconnected network of open space.**

Conservation zoning is a valuable planning tool that can certainly contribute to local land preservation goals. However, it has its limitations. Because it is optional in Woolwich Township, there is no guarantee that every property will develop under the conservation zoning option. Assembling a comprehensive network of open space through piecemeal subdivisions is also difficult to accomplish. For these reasons, it is unlikely that this technique will result in the creation of large contiguous blocks of land for long term agricultural production. As noted earlier, it is also difficult to create an environment supportive of agriculture when the preserved farms are adjacent to numerous houses because this introduces more opportunities for nuisance conflicts. The potential for this exists with one and two acre zoning densities.

A similar conclusion about conservation zoning techniques was drawn several years ago in East Amwell Township, a rural community located in Hunterdon County, New Jersey. Its zoning ordinance permitted lot size averaging, with a minimum lot size of 1.5 acres, as long as the overall density did not exceed one unit per 3.3 acres. Larger lots were deed restricted from future development.

After seeing the results of two different developments created through this option, East Amwell Township concluded that the permitted density and resulting number of units conflicted with agriculture. Farmers in East Amwell and elsewhere who wanted to continue

farming acknowledged that introducing significant new residential development is detrimental to farming operations and that in spite of right-to-farm protections, farmers faced nuisance complaints, vandalism and trespassing. (Planning for Farming in the Future of East Amwell, Land Use Plan Amendment for the Amwell Valley District, adopted August 27, 1998, pp. 5,6.) Ultimately, the Township revised its ordinance, reducing permitted zoning density and increasing open space requirements. It combined this with other techniques to preserve its farmland.

Woolwich Township's conservation zoning option is an important tool to complement other land preservation efforts. But that is just the point. Alone, it is not adequate to protect and sustain agriculture in the long term.

## CONCLUSION

Farmland is tantamount to a nonrenewable resource. Practically speaking, once development occurs, agricultural resources are diminished if not completely depleted.

Preserved farms offer numerous benefits locally and regionally. These include:

- Protecting habitat
- Protecting water supplies and water quality
- Recharging ground water
- Providing local sources of food
- Supporting the local economy
- Protecting scenic and rural character
- Reducing chemical inputs on farmland by prioritizing retention of prime agricultural soils
- Maintaining local/regional heritage and history

Today, Woolwich Township is at a crossroads. While it is still rural, it is one of the fastest growing municipalities in the entire northeast. If recent development patterns continue into the future, they will threaten the community's long-term agricultural viability, natural resources, scenic landscape, and small town appeal - the very features that attract development in the first place.

While continued participation in the State's farmland preservation program and techniques like conservation zoning are essential, they will not be sufficient to preserve the Township's farmland and agricultural economy. Most likely, land will succumb to growth pressures long before development rights on remaining agricultural lands can be purchased.

If Woolwich is to succeed in both preserving its agricultural heritage and accommodating balanced growth, it needs to find a new approach. The Township leaders believe that Transfer of Development Rights offers the best solution.



## SECTION 4: VISION STATEMENT AND PLANNING OBJECTIVES

A municipal vision statement describes the community's desired future. It reflects existing master plan goals but also serves as the foundation upon which subsequent planning policies and objectives are based.

Woolwich Township used several sources to develop a vision statement as the framework for its transfer of development rights plan. It relied on the following master plan goals:

*Goal:* To preserve and enhance the quality of life in Woolwich Township in the face of rapid development.

*Objectives:*

1. Insure that new development is well designed and adheres to recognized principles of good planning and smart growth
2. Strengthen ordinances that enhance community character such as design standards, landscaping and buffer regulations, and signage control.
3. Preserve open space opportunities through public and private actions.
4. Retain the existing character of the community, to the extent practical, through open space preservation.

*Goal:* To promote orderly growth within the Township

*Objectives:*

1. Review current densities with an eye towards balancing designated growth nodes with lower density environs.
2. Develop in accordance with the State Plan and encourage the creation of communities of place.
3. Concentrate new development around established nodes or at planned locations that are well served by utilities and the road network.
4. Explore opportunities for land conservation during the process of subdividing tracts of land.
5. Encourage a sound fiscal mix of future uses.

*Goal:* To provide a safe and attractive residential environment.

*Objectives:*

1. Provide a variety of housing opportunities and dwelling types for residents at all income levels.

2. Comply with applicable laws and policies regarding affordable housing.

*Goal:* Provide conveniently located and well-designed retail and commercial opportunities to serve the residents of Woolwich and the surrounding area.

*Objectives:*

1. Provide opportunities for more intensive regional-scale retail development, which will become possible once sewer and water can be provided to the Route 322 Corridor.

*Goal:* To retain a viable agricultural industry in Woolwich Township

1. To increase land preservation resources of all types that are devoted to protecting farmland and agriculture.
2. To permanently preserve those farmlands that are essential to the maintenance and protection of the agricultural industry within Woolwich Township, based on soil quality and land use planning criteria.

In addition to using these master plan goals, Township leaders solicited input from numerous entities at the local, county and state levels and from private sector interests. The following is a description of the visioning process and stakeholders involved.

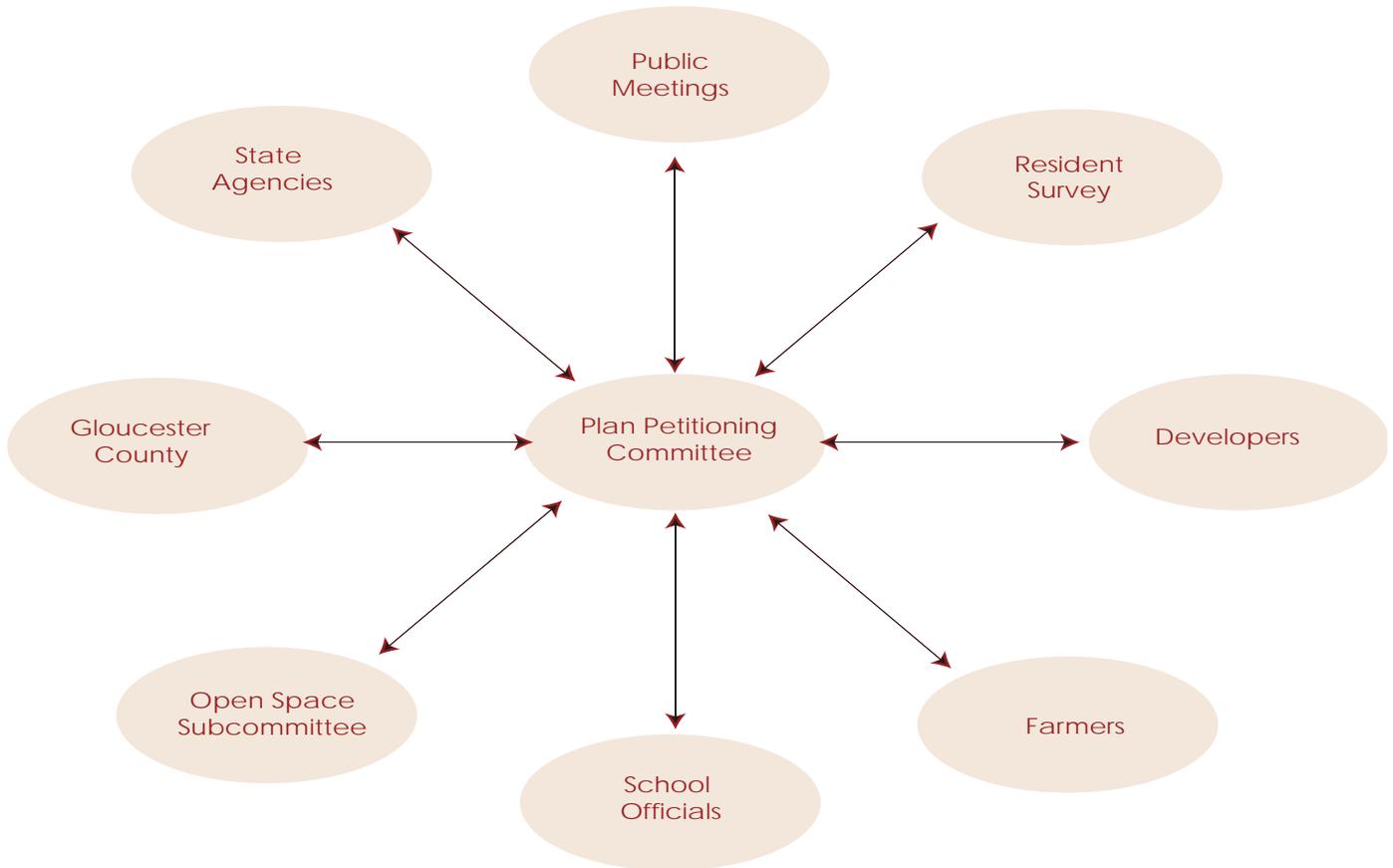
### Woolwich Township Plan Petitioning Subcommittee

The visioning process was guided by the Woolwich Township Plan Petitioning subcommittee. This subcommittee was created by a resolution of the Woolwich Township governing body in 2005. Its stated mission was to complete the necessary steps to submit for "Initial Plan Endorsement" to the State Planning Commission. Initial Plan Endorsement is the process by which local planning documents are deemed consistent with the New Jersey State Development and Redevelopment Plan. Concurrently, the Subcommittee guided the preparation of a TDR plan element and supporting plans and documentation that would be included in the petition for plan endorsement. The Subcommittee was represented by the following local entities:

### SUBCOMMITTEE COMPOSITION

- Township Committee
- Planning Board
- Zoning Board
- Economic Development Committee
- Environmental Commission
- Farmland Preservation and Open Space
- Township Clerk
- General public

# VISIONING PROCESS COMMUNITY STAKEHOLDERS



The Woolwich Township Plan Petitioning Subcommittee generally met monthly, between August, 2005 and January, 2007. It interfaced with a variety of other players either directly or through its planning consultants, during the process. The Subcommittee guided the identification of sending and receiving zones, receiving zone design, circulation and density, sewer and water issues, State Plan Policy Map changes, circulation design on Woolwich Adult property, and affordable housing opportunities in the receiving zones.

## OPEN SPACE AND PEDESTRIAN CIRCULATION SUBCOMMITTEE

In 2005, an Open Space and Pedestrian Circulation Subcommittee was created, consisting of the Mayor and representatives of the Plan Petitioning Subcommittee and Environmental Commission. This subcommittee met five times between 2005 and 2006. Through guided discussions and a walking tour of Philadelphia and Washington Town Center in Mercer County, the subcommittee expressed preferences for the design and function of public spaces in the receiving zones and bicycle and pedestrian corridors that were ultimately folded into the *Woolwich Township Public Spaces Plan*.



## TOWN MEETINGS

Two public meetings were held in 2005 to vet the idea of TDR to the general public and to answer residents' questions. Over 250 people attended each of these meetings. At the first meeting, residents were introduced to the Woolwich Township's long range planning efforts, including coordination with the State Plan and development of a TDR program. Brief remarks by local, county and state representatives were followed by powerpoint presentations. Finally, local officials and planning consultants fielded questions from the public. During the second meeting, developers representing Woolwich Adult also spoke about their proposed projects.

## RESIDENT SURVEY

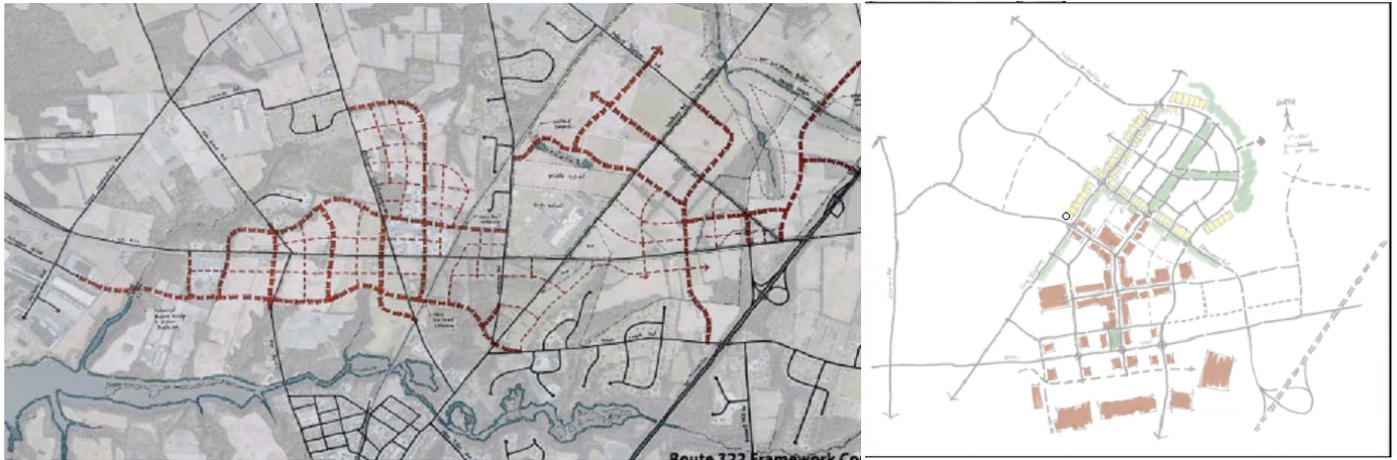
During the first of two public meetings described above, residents were asked to complete a questionnaire about the types of commercial development they would prefer to have in the Township in the future. Out of 77 questionnaires returned to the Township, 68 responded to this question. Although the questionnaire was not intended to be scientifically valid, it did provide Township leaders with a general sense about community preferences. The following preferences were reflected in the survey responses:

- Neighborhood and community-oriented retail uses – Specific suggestions included coffee shops, ice cream parlor, book stores, grocery stores, and home town restaurants. A number of respondents wanted either small town uses or commercial development designed with a “quaint” or small town feel. Some requested “high end” retail, though this is not necessarily correlated to neighborhood and community-oriented uses. Suggested personal services that could fit in well at the neighborhood level included dance and karate studios, financial institutions and medical services.
- Restaurants and entertainment – Movie theatres and family entertainment were suggested. Examples of recreation and community centers included a fitness center, kids' play center, bowling alley and a YMCA.
- Big footprint stores and malls – Some respondents requested both big footprint stores and small town uses. Most cited specific stores.
- No large scale stores or else a minimal amount – Some wanted little if any large scale stores. Others said they wanted few if any malls or strip malls. Several said they did not want any retail or commented that less retail is better.
- Wide range of additional retail uses were suggested including garden center/nursery, farmer's market, supermarket and grocery stores, home improvement centers, clothing stores, automotive parts, teacher supply store, arts and crafts suppliers, organic markets, toy stores, furniture stores, stationary stores, electronics stores.

## NEW JERSEY DEPARTMENT OF TRANSPORTATION

NJDOT spearheaded a series of four design workshops attended by State, county and local representatives and the developers representing Woolwich Adult. The purpose of these workshops was to identify a consensus-based circulation system for the US 322 Corridor that would accommodate projected traffic growth to plan for the Regional Center, including Woolwich New Town, one of two planned Receiving Zones, and Woolwich Adult. During these sessions, held between April and August of 2006, participants reviewed various alternative alignments for the highway corridor as well as conceptual plans for a grid-based network of streets.





*Figure to the left shows the conceptual circulation plan for the US 322 corridor including Woolwich New Town (receiving zone) and Woolwich Adult properties generated during the NJDOT design workshops. The figure to the right shows a detailed conceptual plan for Woolwich Adult.*

### NEW JERSEY DEPARTMENT OF COMMUNITY AFFAIRS

The Office of Smart Growth within the New Jersey Department of Community Affairs was an active participant in the visioning process. Staff participated public meetings in Woolwich Township, at which the TDR concept was explained. They also participated in the NJDOT design workshops. Additionally, they attended several Plan Petitioning subcommittee meetings. They also convened staff of other state agencies (NJDOT, Department of Agriculture, Department of Environmental Protection) at an informal Plan Endorsement meeting with Woolwich Township planning consultants mid-way through the TDR planning process. The purpose of this meeting was to provide state agency feed back on preliminary TDR plan proposals and draft State Plan Policy Map changes.

### NEW JERSEY DEPARTMENT OF AGRICULTURE

Staff of the State Agriculture Development Committee, housed in the New Jersey Department of Agriculture, met with Woolwich Township planning consultants to discuss the value and limitations of a TDR Bank in facilitating the transfer of development credits from sending to receiving zones. In addition to also attending the above-mentioned Plan Endorsement staff meeting, the Director of the SADC participated in a local meeting of landowners in the sending zone to discuss TDR generally and its proposed application in Woolwich Township.

### NEW JERSEY TRANSIT

In the process of conceptualizing the street network for Woolwich New Town, the Township's planning consultants met with staff of NJ Transit to discuss potential opportunities for enhanced transit in the future, especially bus rapid transit.

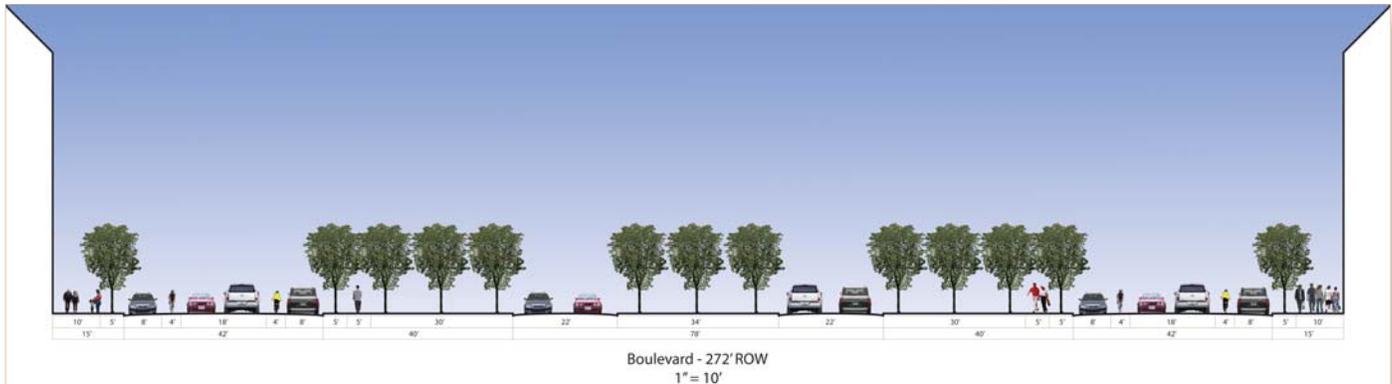
### PICTURE OF COURTENAY MERCER AT ONE OF TWO PUBLIC MEETINGS

### NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

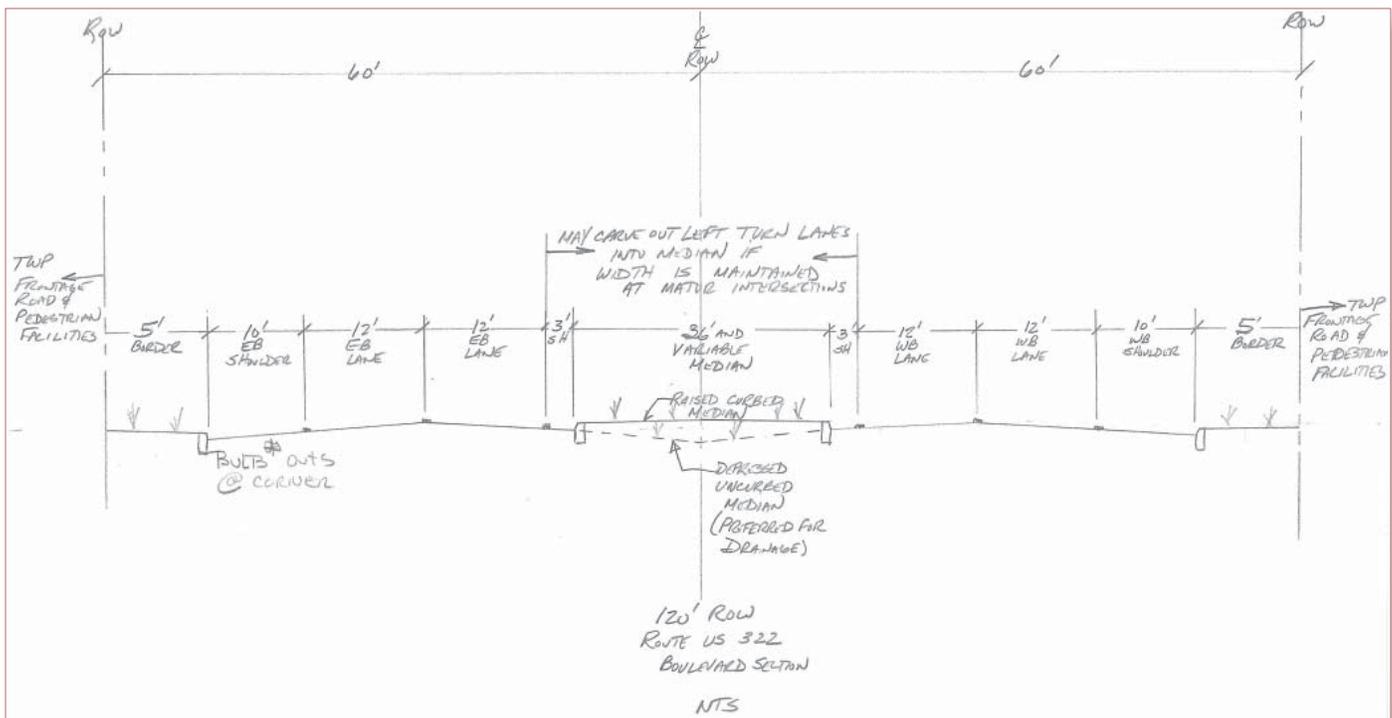
Woolwich Township planning consultants interacted with NJDEP staff on numerous occasions, both by phone and in person, to address potential growth impacts in the proposed receiving zones on environmentally sensitive areas in the Township. Through this process, the Township sought to avoid or at least minimize intrusions into wetlands, threatened/endangered species habitat and other critical natural resource areas.

## GLOUCESTER COUNTY

Woolwich Township consulted with the Gloucester County Administrator, Planning Board Director and Engineer during the circulation design process along the US 322 Corridor. County concerns regarding both County and State roads were voiced during meetings with the Township's planning consultants and during the NJDOT design workshops. The resulting circulation plan is intended to reflect the County's concerns.



Original cross section of Rt 322 for the area between Locke Avenue and Rt 551.



Gloucester County's revisions to the above cross section.

## DEVELOPERS

In 2005, a task force – called the Route 322 Task Force – was created to clarify and resolve public-private issues associated with the Woolwich Adult settlement agreement in order to implement the Township's vision for growth along the US 322 Corridor, both in Woolwich New Town and Woolwich Adult property. Task Force members included Woolwich Adult representatives as well as Township and County officials and State legislator. The Task Force met five times between 2005 and 2006. Among the issues discussed were water and sewer options, land use mix, the Plan Endorsement process and receiving zone boundary delineations.

The landowner and developers associated with Woolwich Adult were active participants in other aspects of the planning process as well. Both landowner and developers attended the NJDOT design workshops and met independently with Township planning consultants to address circulation issues and discuss economic implications of transferring development rights.



## VISION STATEMENT

In the year 2025, residents of Woolwich Township benefit from the synergy of town and country living.

A newly created Woolwich Regional Center provides a vibrant gathering place in which to live, socialize, shop, work and recreate. It offers housing that meets the full life span needs of existing and future residents, including young professionals, couples, families, singles and seniors. Diversity in housing options and prices attract an equally diverse resident population. A combination of housing diversity and balanced commercial development help mitigate rising public service and infrastructure costs, especially educational costs.



Woolwich Regional Center consists of the US 322 Corridor Receiving Zone, Woolwich Adult residential and commercial communities, and the existing middle and high school campus. The US 322 Corridor Receiving Zone consists of two non-contiguous sections. The larger of the two – Woolwich New Town – is a tightly knit collection of homes, businesses, civic institutions and public spaces. Streets are interconnected and lined with sidewalks and attractive landscaping. Walking and bicycling are safe and desirable alternatives to driving for simple errands and neighborhood trips. A connected system of public greenways, parks and plazas are enjoyed by all. They also serve as natural stormwater systems that recharge ground water, maintain water quality and manage the volume of stormwater flows that enter nearby streams.



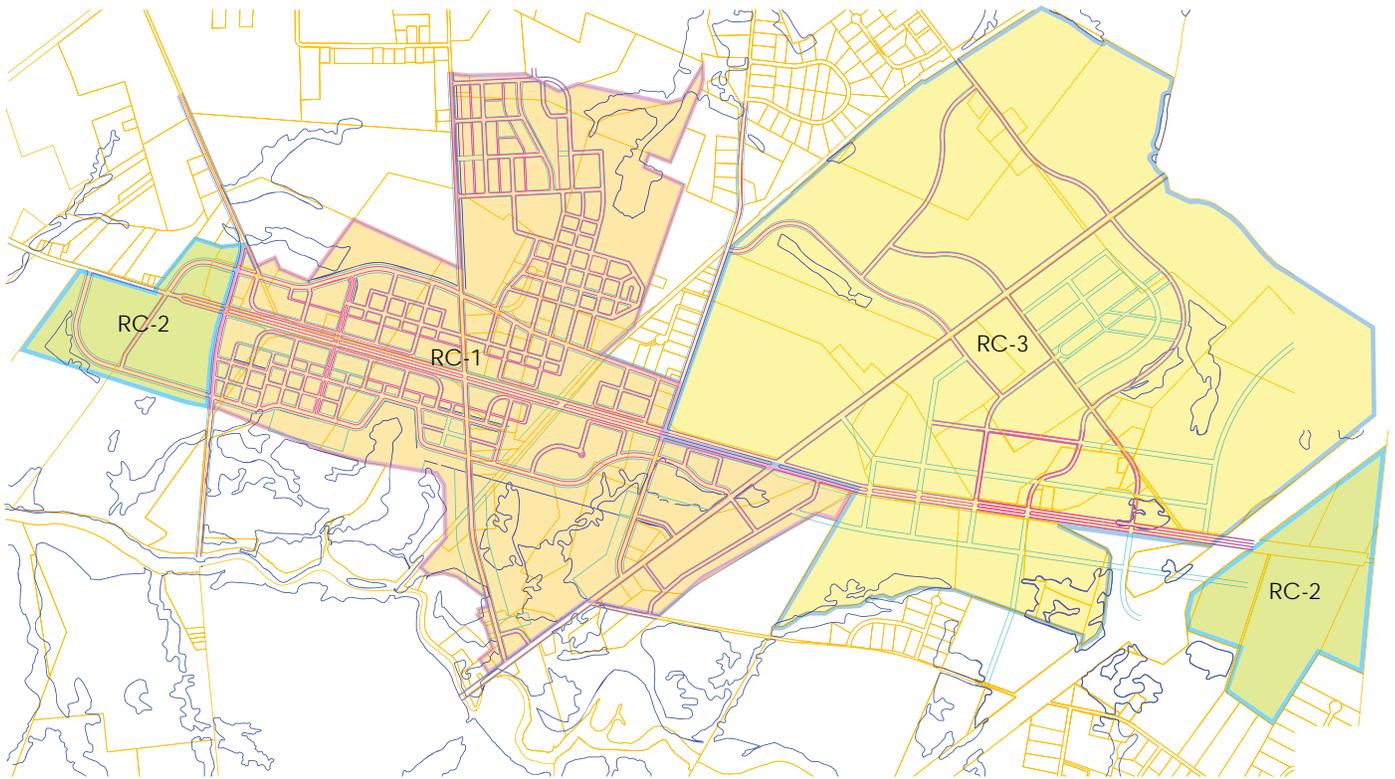
Woolwich Adult hosts active adult housing and commercial development. Regional shopping and entertainment draw not only residents of Woolwich, but also visitors from surrounding communities. Connections between housing for active adults, regional shopping and Woolwich New Town make travel within the Regional Center easier and more direct. Walking and bicycling are viable options for local trips not only because of the interconnected system of streets and paths, but also because destinations are in close proximity to each other and to housing. The densities, particularly in Woolwich New Town, make mass transit viable.

The Regional Center is the principle location of future commercial development in Woolwich Township. Therefore, in addition to local and regional businesses, it accommodates single use and multi-tenant buildings with larger format retail, along with office, flex space and institutional uses at the western edge of Woolwich New Town. Here, the purpose is to provide for uses weighted toward serving the local economy, albeit more automobile-oriented uses.

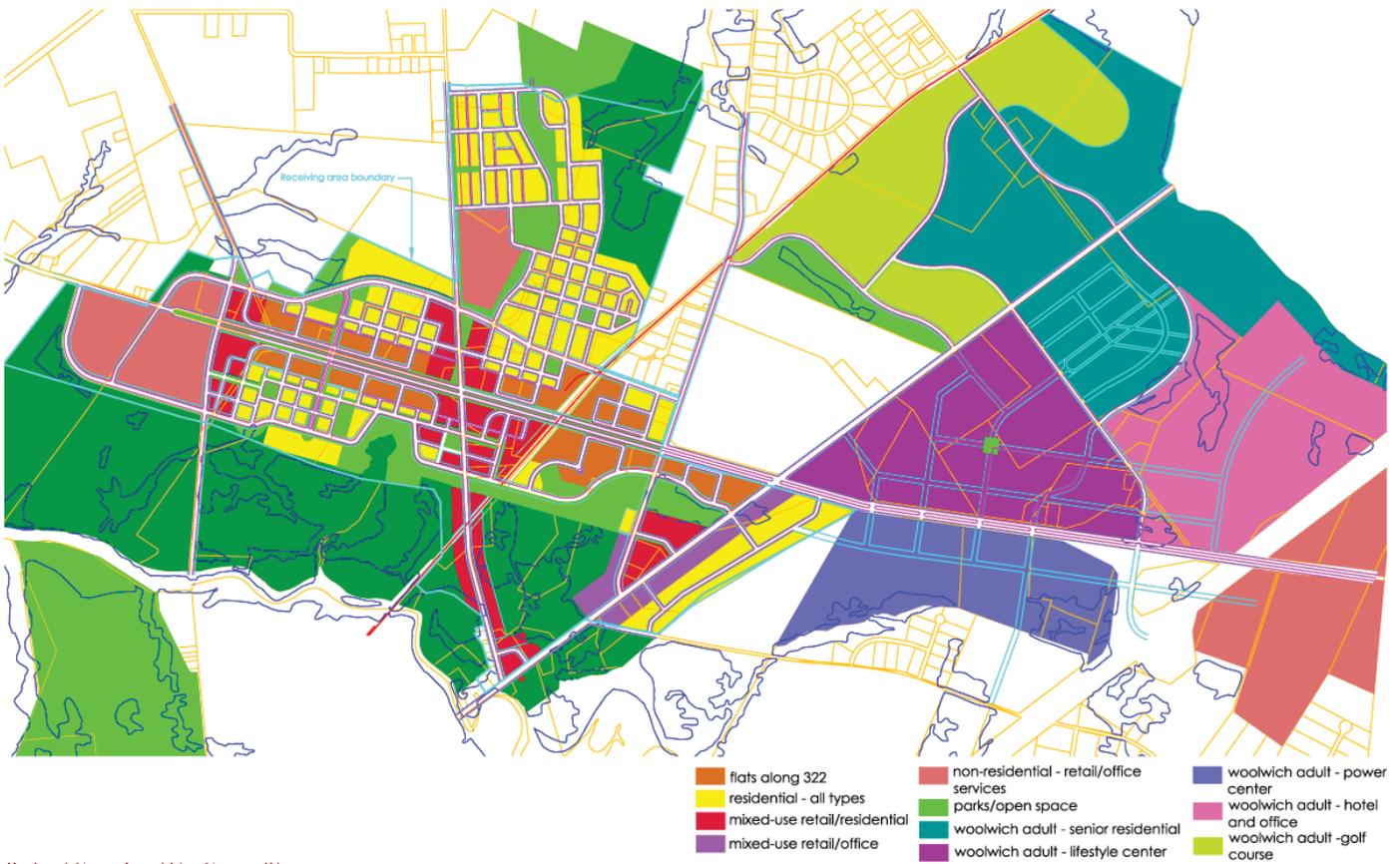
Energy conservation is a centerpiece of the Regional Center. This is achieved through water conservation, building design and orientation, and use of sustainable building materials. Furthermore, buildings are designed so that they can be adapted to new uses in the future.

Outside of Woolwich Regional Center, there are some scattered residential subdivisions, the planned community of Weatherby, and limited commercial uses. There is also a second planned community adjacent to Weatherby – Auburn Road Village - which provides mixed housing options in a compact village setting, along with local retail uses and services. This is Woolwich Township's second receiving zone.

Despite the changes that new development brings about, the Township has preserved at least 5,000 acres of land or roughly 38% of its land base. Streams are protected by creative filtering and infiltration systems that filter pollutants and help recharge groundwater. Habitat of threatened and endangered animals, including



Woolwich Regional Center designations



Regional Center Land Use Concept Plan

View of a small neighborhood square with townhouse edges: Parks and public squares are integrated into residential neighborhoods and become important places to meet and recreate.



View at intersection of Swedesboro-Paulsboro Road and Route 322: Residential dwellings sit atop and amongst retail establishments bringing convenience and jobs within walking distance of residents. Architectural variety is built into the plan to reinforce visual interest and to promote a walkable environment.

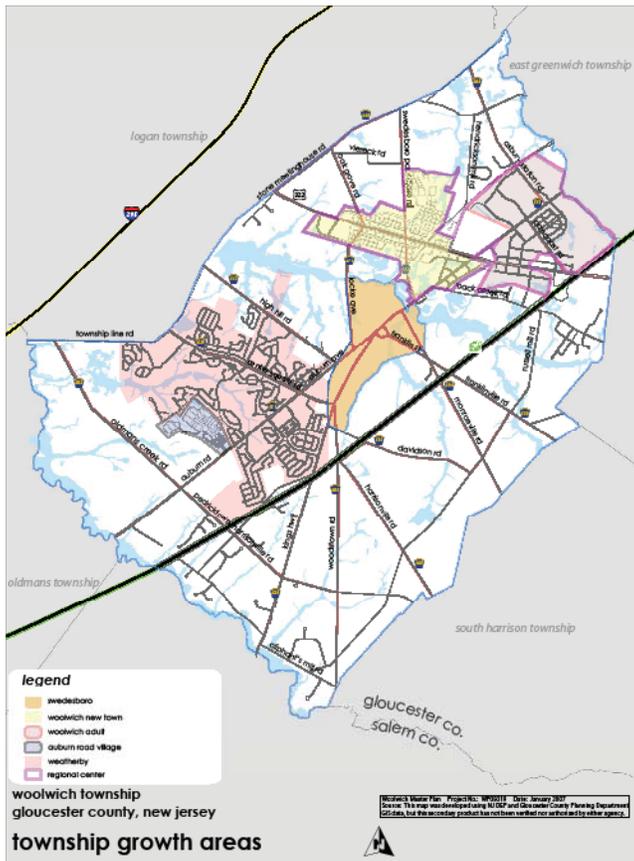
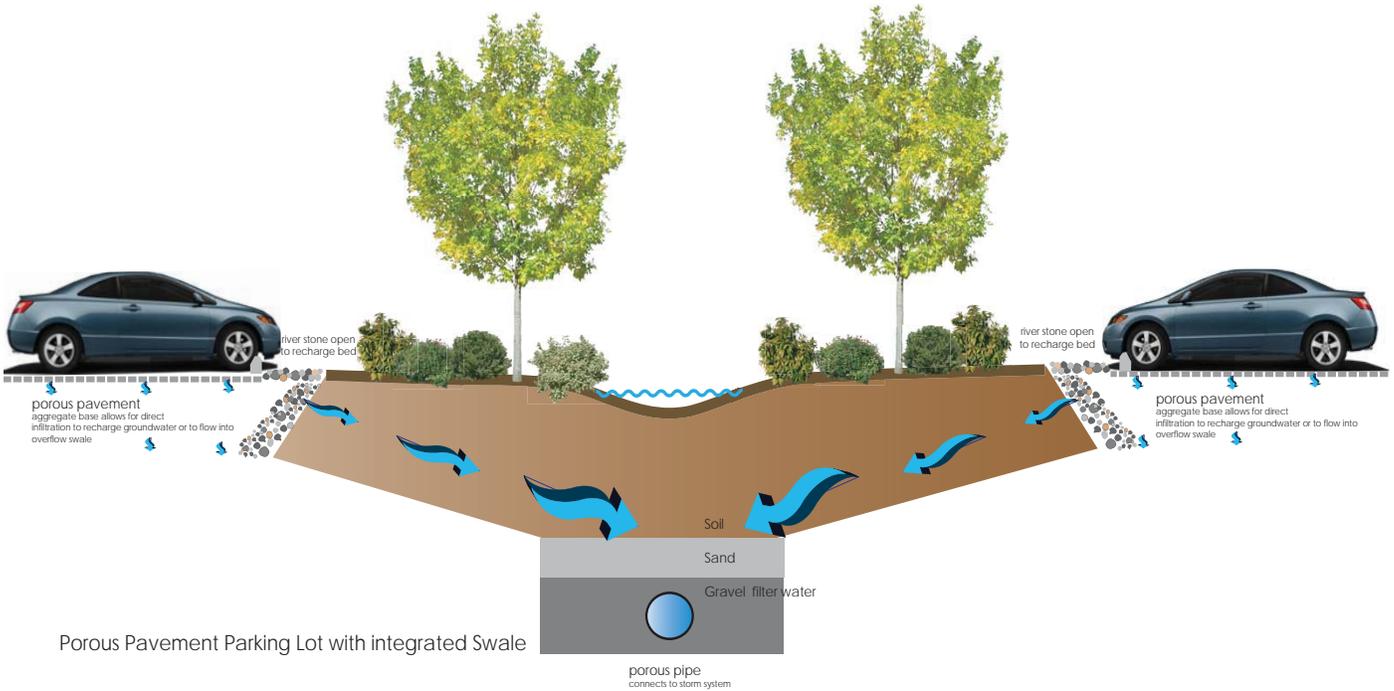


View looking along Route 322 Boulevard with residential flats defining the edge: A pedestrian-friendly boulevard functions as the spine of the regional center allowing residential uses to develop along the edges.



bald eagles, are protected and managed appropriately. Much of the land outside of the Regional Center continues to be farmed because a critical mass of farmland is preserved and maintained to support agriculture.

In the year 2025, Woolwich Township is proud of its accomplishments. It is especially proud of its status as one of New Jersey's premier sustainable communities. A sustainable land use planning approach - the town and country framework - enables Woolwich Township to maintain environmental, economic, fiscal and social health for present and future generations.



## RECEIVING ZONE PLANNING OBJECTIVES

Planning Objective: Use density, integrated and mixed uses, and public space as the fundamental building blocks of community design.

- Homes, businesses, and other destinations are in close proximity to each other, affording ready access for people living and working in the receiving zones. Mixed use means not only "horizontal" integration, where activities are side by side. It also refers to "vertical" integration, where certain uses (e.g. apartments or offices) might be above others (ground floor retail). Most commercial and/or civic destinations are within a quarter mile of each other, a distance easily traveled on foot. For those that are not within easy walking distance, car trips will be shorter because activities are concentrated.
- Mixed use in combination with density lends itself to exciting destinations with a range and critical mass of activities that create community identity and vitality.
- The integration of public and private spaces into the community fabric is critical to a successful downtown. Public spaces – parks, plazas, greenways, and streets – create the community's bone structure. They are the framework around which all uses and activities – both public and private – are organized. As such, they provide the foundation for community cohesion and unity.

Buildings, structures and development must respect this function and relate appropriately to public space to enhance, rather than disrupt this community cohesion.

- Density means less land consumption. More buildings can be situated on less land, leaving the balance for other important functions like open space, agriculture, habitat protection, parks, etc.

- Density provides more housing options. Instead of serving a limited market – traditional family households – housing types including apartments, townhouses and elevator flats cater to a broader diversity of people and households.

- Density produces a more positive fiscal impact. Single family units tend to produce more school children, driving up educational costs. Conversely, the diversification of housing units reduces impacts to the school system. According to a recent study released by Rutgers University Center for Urban Policy Research, the following trends have been observed in New Jersey, based on 2000 Census data:

- Detached housing currently produces the highest number of students compared to attached housing.
- Detached homes with 4 – 5 bedrooms have the relatively largest student generation rates
- Typical attached housing units, such as 2 – 3 bedroom townhouses and 1 – 2 bedroom multi-family units have a relatively low demo graphic impact.

(Listokin, David, Who Lives in New Jersey Housing? A Quick Guide to New Jersey Residential Demographic Multipliers, New Brunswick: CUPR, November, 2006.)

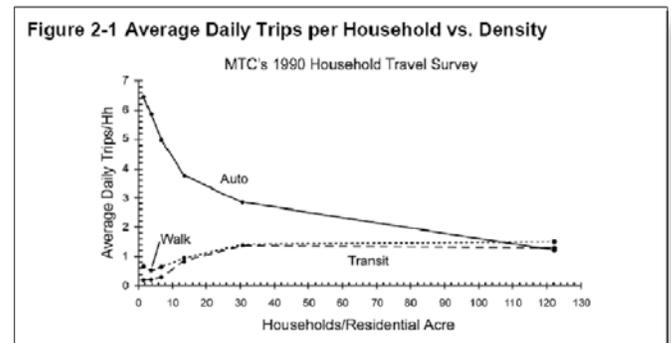
At the same time, density can increase the value of single family homes. A study done by Virginia Tech University concluded that single family homes near well-designed market rate apartments increased the value of those homes over the long run. (Arthur C. Nelson and Mitch Moody, as reported by NMHC, Sierra Club, AIA, ULI, Higher-Density Development: Myth and Fact, Washington, D.C.:ULI, 2005, p. 15.)

- Density reduces reliance on cars and increases pedestrian and bicycle travel and transit ridership. This in turn leads to dynamic street life and community interaction. The effects of density on travel behavior are well documented. Average daily car trips are far fewer for people living in condominiums and townhouses (5.6) and apartments (6.3) than they are for single-family households (10.0), according to the Institute of Traffic Engineers. (Institute of Traffic Engineers, Trip Generation, 6th Edition, vol. 1, Washington, D.C.: Author, 1997 as reported by NMHC, Sierra Club, AIA, ULI, Higher-Density Development: Myth and Fact, Washington, D.C.:ULI, 2005, p.18.)

Significant reductions in work trips occur with 50-70 employees per gross acre and 12 homes per net (residential) acre. Significant decreases in shopping trips occur at 75 employees per gross acre and 20 homes per net acre. (Frank, L.D. and G. Pivo as reported in Taylor,



Mixed use, active streets, and well-designed public spaces create a vibrant downtown.



Source: Seattle Department of Transportation, Seattle Transit Network Development Plan, Final Draft, September 2004, p. 2-7.

James, Transportation and Community Design: the Effects of Land Use, "Density and street Pattern on Travel Behaviour", Technical Bulletin No. 11, University of British Columbia, November 2001, p. 2.)

In general, people use the quickest and most convenient mode of transportation to get around. If they are going to travel on foot or bike, safety and desirable environment are considerations as well. The design of both receiving zones makes alternative modes of travel convenient, safe, enjoyable and efficient.



*Gas Light Commons*  
 1.35 cars/ household  
 100% multi-family



*Gloucester County*  
 1.81 cars/ household  
 74% single-family

- Density provides “eyes on the street.” Density, combined with attractive public spaces and streetscapes, heightens residents’ sense of neighborhood. In this setting, people tend to enjoy sitting on their porches or front “stoops,” engaging with each other. Whether consciously or not, their routine presence on the street will engender a keen awareness of unusual activities or when something “just isn’t right.” At the same time, their presence on the street conveys to others a sense that the neighborhood is active, observant and aware.

- Density provides the necessary consumer base for retailers, and thus, for communities to support attractive retail. According to one study, shops in certain markets derived 25% to 35% of retail sales from households with disposable incomes. (New Urban News, “How to Calculate Demand for Retail,” March 2004, as reported by Sierra Club, AIA, ULI, Higher-Density Development: Myth and Fact, Washington, D.C.:ULI, 2005, p. 17.)

**Planning Objective:** Create a green infrastructure network that protects and conserves species habitat, water quality and water supply and provides recreational opportunities

Typically, people think of large, contiguous open spaces as the definition of green infrastructure. But it is much more than that. Green infrastructure is defined as “a strategically planned and managed network of habitat, parks, greenways, conservation easements, and working lands with conservation value that support native species, maintain natural ecological processes, sustain air and water resources, and contribute to the health and quality of the community’s life.” (Corrigan, Mary Beth, et. al., Ten Principles for Smart Growth on the Suburban Fringe, Washington D.C.:ULI, 2004, p. 6.)

A successful approach to planning green infrastructure recognizes two fundamental principles. First, green infrastructure is not limited to the rural environment. It plays an equally important role in the built environment by providing environmental benefits, recreational opportunities, and accessible “refuge” from the urban context. Secondly, any given component of the green infrastructure system typically serves multiple public and environmental functions.

Both receiving zones - Woolwich New Town and Auburn Road Village- will incorporate a comprehensive network of greenways, paths and linkages that connect neighborhoods and public spaces within the receiving zones and connect to the surrounding context. They



*Green infrastructure, such as this rain garden, serves multiple public and environmental functions and is not limited only to rural areas.*

will play a necessary stormwater management role by filtering out pollutants, recharging ground water and controlling flooding. Sustainable design practices – including reforestation - will be adhered to so that endangered species habitat can be protected while also serving stormwater management functions.

Planning Objective: Provide diverse and affordable housing options that address full life span needs

Too often, young people who have just entered the job market find themselves unable to move back to the community in which they grew up because they can no longer afford to live there. The same situation faces many seasoned workers who are priced out of a limited market that only offers large single-family homes on sprawling lots.

Woolwich Township understands the importance of community diversity – diversity in terms of age and socio-economic status. Accordingly, the Regional Center and Auburn Road Village will provide housing options that accommodate the full life span needs. In effect, a person who is only now entering the housing market will be able to find housing to carry him or her through the senior years.

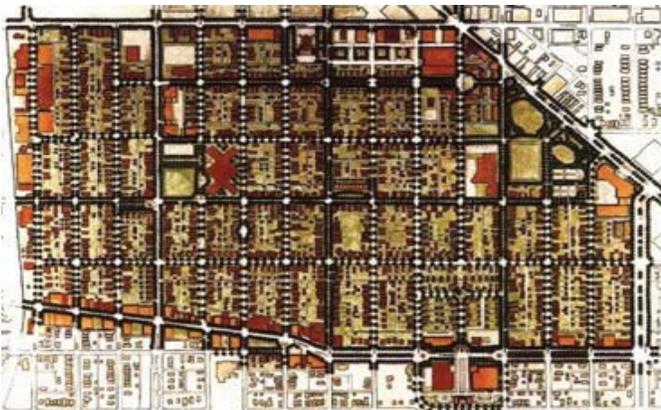


Planning Objective: Establish an integrated street network that maximizes mobility and circulation

An essential complement to the community's building blocks – density, integrated and mixed uses, and public spaces - is the interconnected street network. A planned street network does several things. It increases both predictability and flexibility in the land use planning process. It increases predictability by laying out the framework of a structured block system, within which development may occur. Within the context of this framework, development may be designed in many different ways. It can take advantage of the block structure as is, or further subdivide it into a finer grain grid system of streets and alleys.

An integrated street network facilitates shorter, efficient vehicular trips by offering more direct routes and multiple choices. By providing multiple routes, it improves access for emergency vehicles in the event a road is blocked or congested. Multiple routes spread traffic throughout the system rather than concentrating it in one place. This, together with reduced speeds, creates a safer environment for everyone.

The street network in both receiving zones will be highly connected both within the respective receiving zones but also to the surrounding transportation system. At the same time, the design of the street network will respect the need to protect the core qualities of the neighborhoods through which it passes. Narrow street widths, on-street and alley parking, broad sidewalks, plentiful street trees and landscaping, and street furniture will provide a desirable visual character that responds to the various street users, including those who live, work, walk and bicycle.



Planning Objective: Design transportation systems and land uses that expand modes of travel and reduce reliance on cars

Staging development with transportation facilities allows a full range of travel modes to become available. A community cannot successfully plan for alternative modes of transportation if they are merely an after thought in a car-dominated culture.



The transportation system must offer efficient, safe, and convenient access to pedestrians and bicyclists. It must allow uses to be tightly configured so that transit is in close proximity to work places, homes and community destinations. The street network must be supplemented by pedestrian paths and trails to enhance connectivity.

The transportation system in both receiving zones will maximize opportunities for local trips to be taken by means other than the car. In turn, this will benefit Woolwich Township residents by providing a built environment that encourages activity and improved public health.

### RECEIVING ZONE PLANNING OBJECTIVES



Planning Objective: Protect a critical mass of farmland free of development conflicts

Residential intrusion into agricultural areas introduces nuisance conflicts at a minimum and can potentially drive farming out of business. Farming is often a “dirty” business, involving chemicals, manure, heavy vehicles and machinery that are unwelcomed by newly arrived residents. While planted buffers between farms and housing developments can help mitigate undesirable odors, noise or traffic, it cannot eliminate the problem. Therefore, minimizing the introduction of homes into designated agricultural areas must be a priority for communities that want to sustain and promote agriculture.



**Planning Objective: Protect sensitive natural resources, scenic vistas and open space**

While many communities have made the laudable decision to invest in land preservation – participating in fee simple purchase or easement purchases and encouraging landowner donations – it is difficult to rely on this tool exclusively to preserve a meaningful amount of land. Over 5,000 acres of land will be preserved in Woolwich Township, primarily as a result of transferring development potential from the sending zone into the receiving zones. In addition, continued investment in the State’s farmland preservation program and other initiatives will supplement this effort, ensuring that the Township’s most productive farms, critical natural resources and scenic resources will be protected.



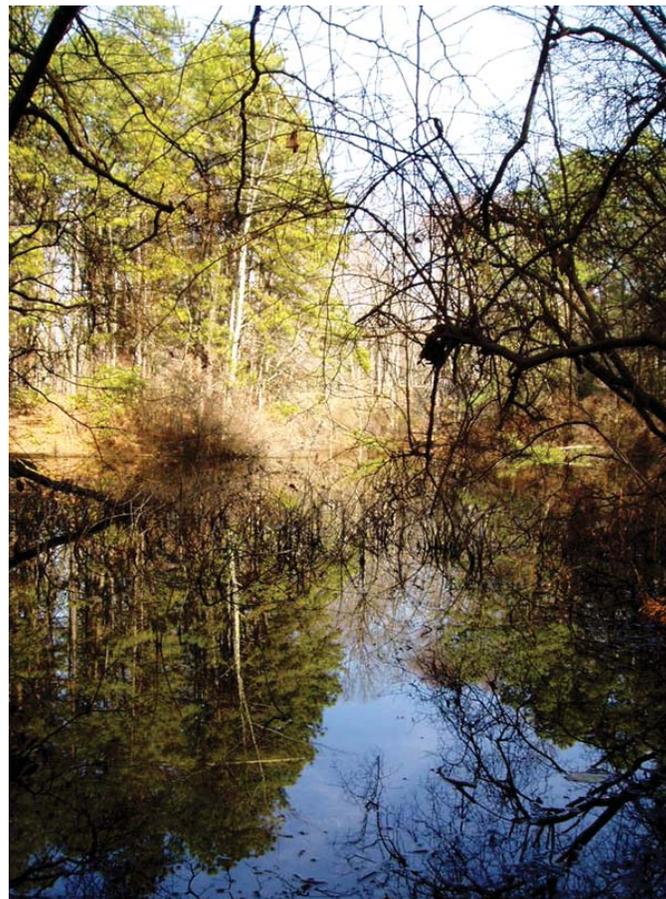
**Planning Objective: Plan for efficient use and delivery of needed infrastructure and avoid wasteful expansion into rural areas**

When infrastructure – including sewers, water and transportation systems – is extended into rural areas, it facilitates the spread of development into potentially unwanted areas. Suddenly, land that was remote and relatively inaccessible becomes highly desirable and developable.

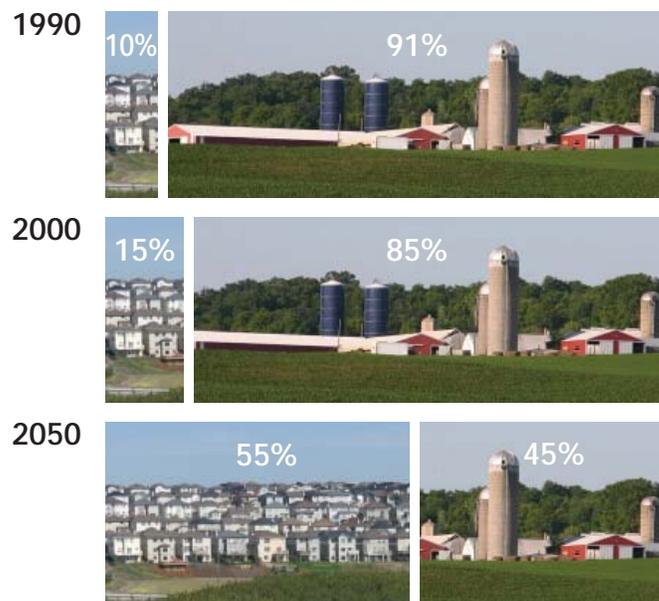
Certainly, development does not rely on “urban” infrastructure. Houses on septic systems and wells can still cause deleterious impacts to rural areas by encroaching on prime agricultural lands and sensitive natural resources and create low density sprawl. But a strategic planning approach that provides strong incentives to build in growth areas – including the provision of urban infrastructure – coupled with incentives to preserve land in rural areas – will result in a positive outcome. This is the approach being taken in Woolwich Township.

**Planning Objective: Protect farmers’ equity**

Farming is becoming increasingly difficult in New Jersey due to a combination of rising cost of living, global competition, and conflicts with suburban intrusions. Government regulations can place additional pressures on the farm community. The New Jersey State Plan contains a policy on landowner equity. It states that maintaining landowner equity should be a policy at all levels of government. One commonly used tool by municipalities to reduce development potential in agricultural areas is



to “down zone” or reduce the amount of development that can occur. The farm community has expressed concern that this unfairly affects their equity and economic viability of farming operations. The transfer of development rights is a tool that helps overcome the potential impact of down zoning. It allows farmers and other sending zone property owners to maintain equity by selling their property’s development potential, based on current zoning, to developers interested in building it in designated receiving zones.



# SECTION 5: PLANNING STRATEGY

Woolwich Township will use a two-prong strategy to accommodate future growth and achieve its Township vision. First, Woolwich Township will seek Initial Plan Endorsement of its master plan and all supporting plan elements from the State Planning Commission.

Initial Plan Endorsement is a validation that Woolwich Township's planning approach is consistent with the New Jersey State Development and Redevelopment Plan (State Plan). It is required before a community in New Jersey can adopt a transfer of development rights ordinance. A petition for Initial Plan Endorsement is being submitted to the State Planning Commission as a companion document to the Woolwich Township Transfer of Development Rights Plan.

The transfer of development rights (TDR) is the second strategy that the Township will use to accommodate projected growth and achieve its vision. Although it is discussed briefly in this section, a detailed discussion of its application in Woolwich Township is provided in Section 9.

## PROJECTED POPULATION AND EMPLOYMENT GROWTH

A TDR master plan element must include ten year population and employment projections. A petition to the State Planning Commission for Initial Plan Endorsement of a municipal master plan must include 20 year population and employment projections. This Plan addresses both requirements by including population and employment through the year 2025.

Two sets of household projections were prepared. The first was prepared as part of the Woolwich Township Transfer of Development Rights Real Estate Market Analysis. A second set of projections was prepared independently of the real estate market analysis, and converted to population projections by applying household size estimates for each housing type. Detailed figures and a description of the assumptions, formulas and data used can be found in Appendix B.

## POPULATION AND HOUSING UNITS

Population is expected to grow at an unprecedented rate between 2005 and 2015. This is a function of projected trends in housing construction.

A softening in the housing market that was experienced in 2006 is expected to continue through 2008, resulting in average annual production of less than 300 units. However, the rate of construction will accelerate beginning in 2009. Between 2006 and 2013, development applications that have already received approvals are expected to be constructed. The rate of construction will accelerate starting in 2009. Remaining development potential within Weatherby and other residential zoning districts will occur through 2028.

Beginning in 2012, sewer service is expected to be available along the US 322 Corridor. This will jump start construction of a diverse housing stock in the US 322 Corridor Receiving Zone and Woolwich Adult development. Between 2012 and 2015, housing production will rise significantly. The peak period of production during this period – 2014, and 2015 – will witness 700 housing starts per year. Housing construction in Auburn Road Village is anticipated to begin in 2012 as well, contributing to the increased volume of construction.

Between 2016 and 2025, population and housing units will continue to increase. However, it will occur at a declining rate. By 2019, a number of units will have been built out in Weatherby and elsewhere.

## EMPLOYMENT

The employment figures represent the number of jobs in Woolwich Township. The estimate for 2005 is based on employment forecasts prepared by the Delaware Valley Regional Planning Commission. Projected jobs are calculated using multipliers that convert commercial square feet into jobs, contained in the Council on Affordable Housing Third Round Substantive Rules.

Employment is expected to increase by 122.7% between 2005 and 2015. This robust increase will be fueled by the

Population, Household, And Employment Projections Woolwich Township: 2005 – 2015 – 2025					
	2005	2015	2025	% Change 2005-2015	% Change 2015-2025
Population	7,563	21,188	30,573	180.2%	44.3%
Households*	2,703	7,438 - 7,530	11,315 – 11,733	176.9%	54.0%
Employment	1,165**	2,594	4,942	122.7%	90.5%

\*Range represents slight difference in projections prepared by melvin | kernan and those prepared by Urban Partners.

\*\*2005 employment estimate is based on DVRPC forecast.

projected availability of sewerage capacity as of 2012. Thus, retail development within Woolwich Adult can begin at this time and continue over a 20 year General Development Plan time frame. By the year 2025, Woolwich Adult is projected to have built nearly 1.2 million square feet of commercial space out of a total 2.7 million anticipated upon full build out of this project. During the same time frame, up to 435,049 square feet of commercial space is projected to be built in the US 322 Corridor Receiving Zone.

The commercial component of Auburn Road is projected to begin construction in 2012. This receiving zone contains a relatively small commercial component (50,000 square feet). All but 10,000 square feet is expected to be constructed by 2015.

Projections between 2006 and 2013 take into account the growth in the Township's Round Three Housing Element and Fair Share Plan and much of the commercial growth associated with Weatherby. According to the Weatherby General Development Plan, 250,000 square feet of commercial space will be built by the year 2018.

### PLANNING STRATEGY #1: ACHIEVING CONSISTENCY WITH THE STATE PLAN POLICY MAP

The State Planning Act, adopted in 1985, declares that New Jersey "requires sound and integrated statewide planning and the coordination of statewide planning with local and regional planning in order to conserve its natural resources, revitalize its urban centers, protect the quality of its environment, and provide needed housing and adequate public services at a reasonable cost while promoting beneficial economic growth, development and renewal." (52:18A-196 a.)

The State Plan, first adopted in 1992 and updated in 2001, is a direct outgrowth of the State Planning Act. It seeks to "achieve all the State Planning Goals by coordinating public and private actions to guide future growth into compact, ecologically designed forms of development and redevelopment and to protect the Environs..." The Plan sets forth a series of statewide goals and policies. It also establishes a mapped framework for implementing these goals and policies.

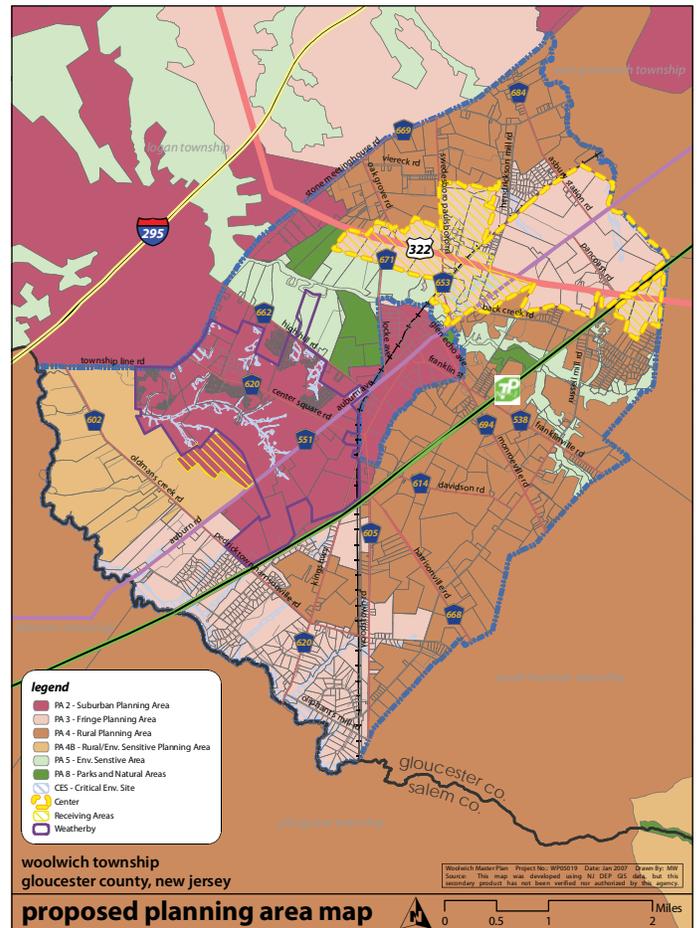
Woolwich Township has applied the mapped framework laid out in the State Plan to guide future growth and conservation in a manner consistent with both State and local expectations. This is called the State Plan Policy Map.

The State Plan Policy Map consists of Planning Areas and Centers. It also delineates Critical Environmental Sites (CES') and Historic and Cultural Sites.

Planning Areas are large contiguous regions, greater than one square mile, each of which reflects a unique set of physical features and strategic planning objectives. Centers are compact, mixed use, community-oriented places in which growth should be directed. They can be located in any Planning Area. Environs are the lands outside of Centers that should remain predominantly open and undeveloped.

Woolwich Township proposes changes to the current State Plan Policy Map that accommodates Planning Areas 2, 3, 4, 4B and 5 within the Township's borders. In addition, the proposed map changes show CES' and one proposed Center.

Below is the State Plan's description of Planning Areas, CES' and Centers, along with a description of how they relate to Woolwich Township's planning context.



#### Planning Area 2- Suburban Planning Area

Provide for much of the state's future development; promote growth in Centers and other compact forms; protect the character of existing stable communities; protect natural resources; redesign areas of sprawl; reverse the current trend toward further sprawl; and revitalize cities and towns.

The State Plan promotes growth in the more urbanized Planning Area 1 (Metropolitan Planning Area) and in

Planning Area 2 (Suburban Planning Area). PA 2 has the infrastructure in place or programmed to support much of the State's anticipated growth.

As proposed by Woolwich Township, PA 2 encompasses 3.65 square miles within the municipal borders. Within PA 2, 4,500 homes and 250,000 square feet of commercial space are planned or under construction on 2.63 square miles, in accordance with a previously approved General Development Plan for the Weatherby development. Weatherby already hosts one school, with at least two more planned at the fringes of this development.



Planning Area 2 has already witnessed growth in many parts of the State because of the availability of water and sewer. The State Plan encourages efficient, compact development and redevelopment to replace more sprawling patterns that may already be evident in PA 2.

Adjacent to Weatherby is a 125 acre site, with access to Auburn Rd. This site will accommodate 502 homes and 50,000 square feet of commercial uses. It is one of two proposed TDR receiving zones in Woolwich Township. The intent is to use Center-based design principles to create a walkable community with diverse housing options, accessible commercial uses and public space, and a connected circulation system. Using TDR, this will result in the preservation of open space and farmlands in the environs.

Approximately 160 acres of PA 2, a portion of which is already occupied by warehousing facilities, is located along the US 322 Corridor, adjacent to Woolwich Regional Center. This is part of an approved sewer service area. It will accommodate additional commercial development on remaining developable lands.

### Planning Area 3- Fringe Planning Area

Accommodate growth in Centers; protect the Environs primarily as open lands; revitalize cities and towns; protect the character of existing stable communities; protect natural resources; provide a buffer between more developed Metropolitan and Suburban Planning Areas and less developed Rural and Environmentally Sensitive Planning Areas; and confine programmed sewers and public water services to Centers.

Although the State Plan encourages growth in PA 1 and 2, it acknowledges that some growth will also occur in PA 3 through 5. In PA 3 through 5, the intent is to "accommodate" growth in Centers and protect the Environs surrounding the Centers. This intent is reinforced by the following language in the State Plan:

"Municipal, county, regional and state agencies should invest in infrastructure in ways to guide growth and prevent sprawl by: Promoting growth in Centers and other appropriate areas in the Metropolitan and Suburban Planning Areas; and Accommodating growth in Centers and protecting the Environs in Fringe, Rural and Environmentally Sensitive Planning Areas." [p. 120]

Outside of Centers, PA 3 generally lacks the major infrastructure investments of PA 2, such as water and sewer. Therefore, development is generally lower in density than in PA 2, at least outside of any Centers.

Nearly six square miles (5.89) of Woolwich Township fall into PA 3 under the Township's proposed changes to the State Plan Policy Map. Much of this region – over five square miles - is developed or zoned for densities ranging from 1.5 to five acres per home. As such, they are relatively low density developments that rely on septic systems and wells. A few preserved farms are located in PA 3 as well.

Roughly 2.7 square miles of PA 3 lie within Woolwich Township's planned Regional Center. Given the higher density and compact design of the planned Regional Center, public water and sewers must be available to serve future homes and businesses. Consistent with PA 3 policies, programmed infrastructure will be confined to the Center.

Planning Area 4 – Rural Planning Area and Planning Area 4B – Rural/Environmentally Sensitive Planning Area

Maintain the Environs as large contiguous areas of farmland and other lands; revitalize cities and towns; accommodate growth in Centers; promote a viable agricultural industry; protect the character of existing stable communities; and confine programmed sewers and public water services to Centers.

PA 4 and 4B collectively occupy 9.75 square miles of farmland along with woodlands and stream corridors. Although there are scattered development and approved subdivisions, most of this area is undeveloped.

The vast stretches of farmland below Weatherby contain environmentally sensitive headwaters to Oldman's Creek. Headwaters, where a stream begins its flow, are vulnerable to water quality degradation from surface water runoff. In turn, their condition affects downstream water quality. They are also impacted by changes in the water table since they are fed by ground water sources. Headwater areas have small base flows, which make them vulnerable to water temperature fluctuations especially when forested buffers are removed. Temperature fluctuations can affect



Together Planning Area 4 and 4B have rural and environmentally sensitive areas.

aquatic life. In addition to headwater conditions, Oldman's Creek is also host to bald eagle habitat. Given the extent of overlapping rural and environmentally sensitive features in the Oldman's Creek watershed, the portion of it that is relatively undeveloped is designated as PA 4B.

One contiguous region of PA 4 encompasses most of the area east of the NJ Turnpike, including one of two Agricultural Development Areas. Planning Area 4 also occupies the northernmost section of the Township in which the second Agricultural Development Areas is situated. Exclusive of any approved but unbuilt developments, the Township's primary goal in PA 4 and 4B is to preserve farmland and open space.

#### Planning Area 5 – Environmentally Sensitive Planning Area

Protect environmental resources through the protection of large contiguous areas of land; accommodate growth in Centers; protect the character of existing stable communities; confine programmed sewers and public water services to Centers; and revitalize cities and towns.

PA 5 encompasses 1.61 square miles. Most of this area contains wetlands and woodlands adjacent to Raccoon Creek and tributaries. PA 5 encompasses critical bald eagle habitat documented by NJDEP, along with buffers to help protect the stream corridor.



Planning Area 5 contains large expanses of critical natural resources.

#### Critical Environmental Sites (CES) and Historic and Cultural Sites (HCS)

The Critical Environmental Sites (CES) and Historic and Cultural Sites (HCS) designations are used to help organize planning for new development or redevelopment by singling out the elements of natural systems, small areas of habitat, historic sites, and other features that should continue to be expressed in the future landscape through protection and restoration.

The State Plan recognizes Critical Environmental Sites outside of environmentally sensitive planning areas. Critical Environmental Sites exhibit many of the same features as PA 5, however, they are less than one square mile in size.

Woolwich Township is traversed by numerous streams and tributaries located outside of PA 4B and 5. These waterways, along with contiguous wetlands and woodlands, are shown as Critical Environmental Sites in PA 2 and 3. They total 588.8 acres.

## Centers

Centers are the State Plan's preferred vehicle for accommodating growth. Centers are central places within Planning Areas where growth should either be attracted or contained, depending on the unique characteristics and growth opportunities of each Center and the characteristics of the surrounding Planning Area in which it is located.

Centers exhibit distinct design features that make them communities of place with an unmistakable identity and definable boundary.

Centers contain a tightly knit collection of homes, businesses and civic uses and activities, interconnected streets and paths, community spaces and gathering spots. New development is oriented to the public realm rather than being inward facing, disconnected, and isolated from the surrounding neighborhoods. The densities and mix of uses create walkable neighborhoods and often, an environment supportive of transit. Centers have an unmistakable "town" feeling that distinguishes them from suburbs.

The State Plan recognizes a hierarchy of five Centers that differ according to size and composition. They vary from Urban Centers, the largest type of Center, to hamlets. New Jersey has many existing Centers. However, the State Plan also encourages communities to plan for new Centers.



Flemington, NJ is an example of a Regional Center formally designated by the State Planning Commission.

NEW JERSEY STATE PLAN CRITERIA FOR CENTER DESIGNATION/PLANNING							
	URBAN	REGIONAL CENTER IN PA 1,2	REGIONAL CENTER IN PA 3,4,5	TOWN	VILLAGE	HAMLET	Proposed Regional Center, PA 3 at Build Out
Area (sq. mi.)		1 to 10	1 to 10	<2	<1	10 to 50 acres w/o community wastewater ; <100 acres w/community wastewater	2.65
Population	>40,000	>10,000	>5,000	1,000 – 10,000	<4,500	25-250	7,906; 6,136 in Woolwich New Town
Gross Pop. Density (sq. mi.)	>7,500	>5,000	>5,000	>5,000	>5,000	3,000	3,953; 6,075 in Woolwich New Town
Housing		4,000 to 15,000	2,000 to 15,000	500 to 4,000	100 to 2,000	10 to 100	4,246; 3,217 in Woolwich New Town
Gross Housing Density (dwellings per acre)	>4	>3	>3	>3	>3	>2	2.84; 4.98 in Woolwich New Town
Employment	>40,00	>10,000	>5,000	>500 to 10,000	50 to 1,000		10,329*; 5,549 in the US 322 Corridor Receiving Zone
Jobs: Housing Ratio	>1:1	2:1 to 5:1	2:1 to 5:1	1:1 to 4:1	.5:1 to 2:1		2.43:1

\*Does not include an estimated 135 jobs from future warehousing facilities located on the far west end of the US 322 corridor, outside of the Regional Center. Also, does not reflect existing jobs.

Woolwich Township is seeking Regional Center designation from the State Planning Commission as part of its submission for Initial Plan Endorsement. Woolwich Township does not have its own downtown at present. Thus, the creation of a new center of activity is ambitious yet essential for the community and beneficial to the larger surrounding region. When fully built out, the Regional Center will host a collection of tightly knit, compact neighborhoods and commercial areas that will be accessible through an integrated network of streets and paths.

Over 1,000 homes and 2.7 million square feet of office and retail space will occur on 750 acres of land owned by Woolwich Adult, LLC. Nonresidential development slated for Woolwich Adult property will attract primarily a regional market.

Woolwich Regional Center will also encompass the US 322 Corridor TDR Receiving Zone. This receiving zone is divided into two noncontiguous areas. The larger of the two – Woolwich New Town – is a little more than a square mile in size. It will contain several compact residential neighborhoods with a mix of housing types, ranging in size and price, including affordable housing. It will offer space for civic uses. It will also include at its core a mixed use main street, with offices, small shops and residential units above. Parks, plazas and pedestrian paths will weave through the receiving zone. An integrated network of streets, sidewalks, and bicycle paths will connect neighborhoods within Woolwich New Town and connect the New Town to the surrounding context.

Larger footprint retail space, along with offices, flex space and institutional uses are planned for the western end of Woolwich New Town. They are also planned for 96.5 acres east of the Turnpike. This is the second section of the receiving zone.

In total, Woolwich Regional Center is projected to accommodate over 4,000 new homes and more than 7,300 jobs, housing 45% of projected residential growth and 86% of projected commercial growth in the Township. It will become the civic core and economic engine of Woolwich Township in the future. Strategy #2: Transfer of Development Rights.

## STRATEGY #2: TRANSFER OF DEVELOPMENT RIGHTS

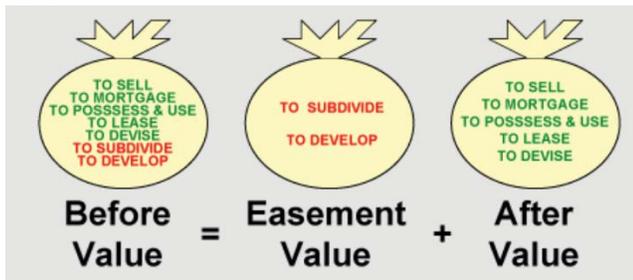
The transfer of development rights, or TDR, is a planning tool that has been used by municipalities, counties and regional entities across the country, dating back to the late 1970s. In New Jersey, a version of TDR was authorized in the New Jersey Pinelands in 1979. TDR became available to Burlington County municipalities in 1989 through the Burlington County Transfer of Development Rights Demonstration Act. In 2004, the New Jersey legislature enacted a law permitting TDR throughout the state.

TDR allows interested communities in New Jersey to plan for growth and preservation on a municipal-wide or intermunicipal basis. It relies on private sector transactions that are designed to benefit both participating property owners and the municipality.



Source King County, Washington TDR Program

Through a TDR program, a property owner in a municipally-designated preservation area (sending zone) is able to sever the development value of his/her land and sell it in the form of "rights" or "credits" to an interested buyer. The buyer of the development rights transfers the development potential to a municipally-designated growth area (receiving zone). S/he can then develop not only what is allowed by right according to permitted zoning in the receiving zone, but also the additional growth potential represented by the development rights purchased from the sending zone.



Source: NJ Office of Smart Growth

Upon selling development rights, the owner of the sending zone records a legal instrument – a deed of easement - that prohibits future development of the property. However, s/he retains the residual value of the property (the value after development rights have been sold) and can sell the property anytime in the future based on its residual value.

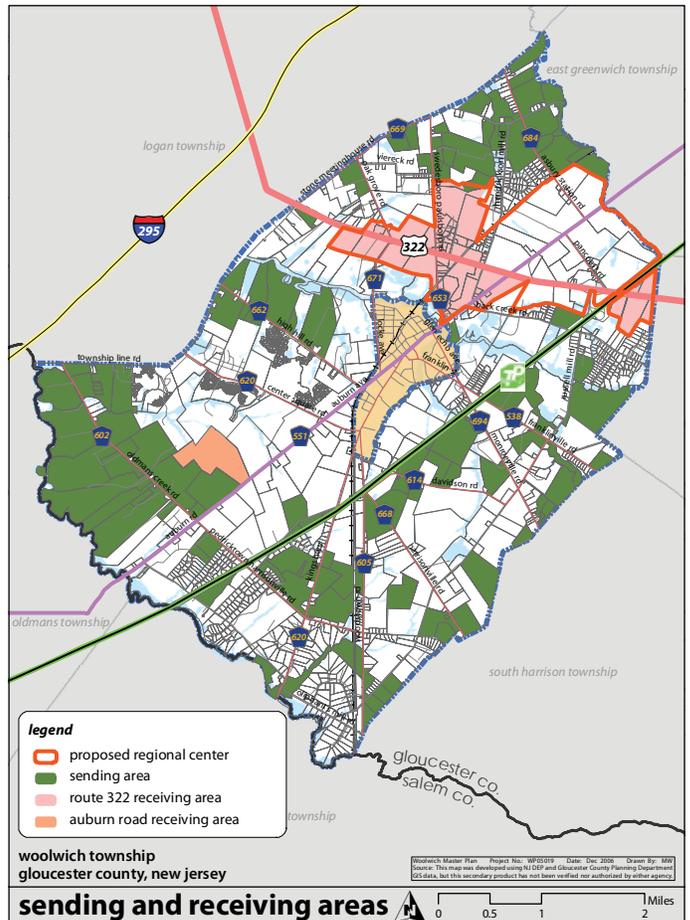
The benefits of TDR to a municipality can be enormous. Rather than allowing development to ensue across the entire landscape, it redirects growth to specific areas that the municipality has determined are most suitable for growth. Areas targeted for preservation can continue to be farmed or serve numerous other open space and natural resource functions. Furthermore, since land preservation occurs through private sector transactions, it comes at no cost to the municipality.

## TDR IN WOOLWICH TOWNSHIP

The TDR sending zone in Woolwich Township corresponds to portions of Planning Areas 3, 4, 4B, and 5. In total, it comprises 4,011 acres or 30% of the Township's land base and consists of mostly farmland, woodlands and wetlands.

There are two proposed receiving zones. The US 322 Corridor Receiving Zone – including Woolwich New Town and the commercial district east of the NJ Turnpike, totals 743 acres. This receiving zone will contain 3,217 homes, including single family units, twins, townhouses, flats and units above stores. It will also contain retail and office space, civic uses and parks and public spaces. The Auburn Road Receiving Zone – called Auburn Road Village - is 125 acres. Through the transfer of development rights, it will accommodate 502 homes, including a mix of single family homes, twins and townhouses; and 50,000 square feet of commercial space.

The two receiving zones, comprising only 6.3% of the Township's land base, will absorb 31% of projected residential growth by the year 2025 and 39% of the Township's full potential residential growth. Together with the Regional



Center, these areas collectively comprise only 13.3% of the Township's land base, yet they will support 42% of projected growth by 2025 and 50% of the maximum possible residential growth when the Township is fully built out. At the same time, 38% of the Township will be permanently preserved by implementing TDR and creating Woolwich Regional Center.

In the end, it is the three principle growth areas in Woolwich Township – Woolwich Regional Center, the two receiving zones and Weatherby – that will absorb the lion's share of future growth (69%). Most of the remaining growth will occur by virtue of pending approved development applications throughout the Township that are not participants in the transfer.

## CONCLUSION

By employing a two-prong strategy to accommodate growth, Woolwich Township will achieve both its local vision and the State Plan vision. The Regional Center, including the US 322 Corridor Receiving Zone, and Auburn Road Village, will host much of the Township's future growth. At the same time, TDR will lead to the preservation of thousands of acres of farmland and open space in the more rural and environmentally sensitive environs. Appropriate design standards employed in the Regional Center and receiving zones will enable the Township's Receiving Zone Planning Objectives to be achieved while also implementing the State Plan's vision of Center-based growth.

## ZONING BUILD OUT ANALYSIS UNDER TDR SCENARIO

As a result of pursuing Initial Plan Endorsement and transfer of development rights, Woolwich Township's demographic and physical complexion will be much different when fully built out than it would be if current zoning prevailed.

A build out scenario was presented in Section 2, suggesting the impact of continuing to apply current zoning on the Township's future when fully built out. This subsection provides an alternative build out scenario assuming the two-pronged strategy outlined above is applied.

Assumptions underlying this build out analysis are as follows:

- Development applications with preliminary or final approval or General Development Plan approval will be built.
- Zoning regulations are in place to facilitate the transfer of development rights. Sending zone properties, from which development rights are transferred remain undeveloped.
- Zoning regulations are in place to accommodate growth in the TDR receiving zones and throughout the Regional Center.
- Public sewer and water service is provided in the TDR receiving zones and Regional Center to accommodate permitted growth.
- Existing preserved properties remain undeveloped. Parcels pending preservation are counted toward preserved properties.
- Undersized lots that do not conform to the minimum lot size in a given zoning district remain undeveloped.
- Redevelopment opportunities outside of the receiving zones are not taken into consideration.

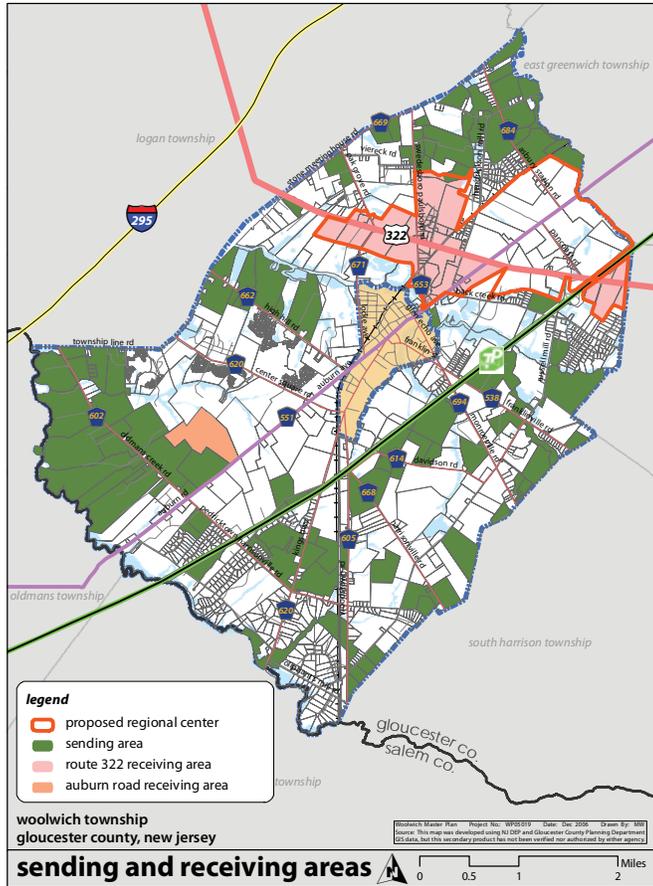
Under the TDR scenario, nearly 5,200 additional acres of land are preserved in the sending zone, compared to only 855 acres of preserved land under the initial build out scenario. Commercial build out is virtually identical. The TDR build out scenario generates significantly fewer school children than the build out scenario based on existing zoning. Although the TDR scenario generates more housing units, these housing units are predominantly twins, townhouses and flats that generate fewer children than large single family homes, according to recent research conducted by Rutgers University Center for Urban Policy Research. (Burchell, Robert, Who Lives in New Jersey? A Quick Guide to New Jersey Residential Demographic Multipliers, November, 2006.)

<b>ZONING BUILD OUT ANALYSIS UNDER TDR</b>				
	<b>Estimated Existing (2005)</b>	<b>Additional</b>	<b>Total</b>	<b>Comparison to Totals From Existing Zoning Build-Out</b>
Housing Units	2,703	9,406	12,392	+4,515
School Children	1,461	4,214	5,675	-57
Commercial (Square Feet)	Not calculated	7,313,391		-382,779 sq. ft.
Preserved Land	855	4,326.3*	5,181.3	+5,181.3 acres

\*Assumes 4,011 acres will be preserved through transfer of development rights. Also factors in 84.5 acres of park space in Woolwich New Town, 110.8 acres to be dedicated to regional stormwater management and bald eagle habitat between Raccoon Creek and the southern boundary of Woolwich New Town, and a 120.0 acre golf course in Woolwich Adult. Does not include water and wetlands outside of preserved lands.

# Section 6. Sending Zone Profile

In New Jersey, a transfer of development rights plan must include the identification and description of all prospective sending and receiving zones. Sending zones are areas designated in the master plan and zoning ordinance in which development is restricted. Development credits are assigned to sending zone parcels, with the expectation that they will be transferred to the receiving zones.



This section provides a written and mapped characterization of Woolwich Township’s sending zone. The description that follows demonstrates that the sending zone meets the legislative criteria for qualifying as such. Specifically, it is composed predominantly of land having one or more of the following attributes:

- agricultural land, woodland, floodplain, wetlands, threatened or endangered species habitat, aquifer recharge area, recreation or park land, waterfront, steeply sloped land or other lands on which development activities are restricted or precluded by local laws or ordinances or by laws or regulations adopted by federal or State agencies;
- other improved or unimproved areas that should remain at low densities due to inadequate transportation, sewerage or other infrastructure, or for such other reasons as may be necessary to implement the State Plan and local or regional plans.

## OVERVIEW OF THE SENDING ZONE

Woolwich Township’s sending zone contains 115 tax parcels, totaling 4,011 acres. All participating properties are located in one of four residentially zoned districts

including the R-1, R-2, R-3 and 5 Acre districts. Eligible properties included those that were either vacant or under-developed according to the zoning ordinance.

SENDING ZONE CHARACTERIZATION BY ZONING DISTRICT, TOTAL PARCELS AND ACREAGE		
Zoning District	Total # of Tax Parcels	Total Acres
R1 - 2 acre density	58	1,800
R2 - 1.5 acre density	47	1,949
R3 - 20,000 s.f. density	5	172.0
5 Acre - 5 acre density	5	90.0
Total	115	4,011

Source: 2006 Tax Data, Woolwich Township.

## PARCEL SELECTION PROCESS

Initially, all properties considered developable were analyzed that were over 10 acres in size and located in a residentially zoned district outside of an existing sewer service area. These properties were entirely or predominantly undeveloped agricultural land, forested areas or open space. Parcels equal to or less than 10 acres in size were subsequently added to the inventory where they abut other potential sending parcels. This allows smaller parcels the opportunity to merge with other properties and thereby participate in TDR.

The initial list of properties was vetted through the Woolwich Township Plan Petitioning Committee and then through the Office of Smart Growth. Initial feedback from the Office of Smart Growth led to further refinement of the list. A second iteration was reviewed by a subcommittee of the Plan Petitioning Committee and then the full Committee.

The final list of selection criteria were as follows:

- Parcel is undeveloped or largely undeveloped
- Parcel is located in the R-1, R-2, R-3 or 5A zoning districts outside of existing sewer service areas
- Parcel is greater than 10 acres (with a few exceptions as noted above)
- Parcel contributes to the creation of a large contiguous block of farmland or open space
- Parcel adjoins preserved land
- Parcel is not already encumbered with development restrictions or easements
- Parcel may be subject to a pending or approved development application which compromises the integrity of an Agriculture Development Area
- Parcel is not subject to pending closing through the farmland preservation program
- In the aggregate, parcels meet statutory criteria for uses in the sending zone
- Cumulatively, parcels selected create requisite number of credits needed in the receiving zones.

For a complete list of sending parcels, see Appendix C.

## AGRICULTURAL LANDS

Woolwich Township's sending zone contains over 3,000 acres of farmland assessed properties. This represents 48.9% of the Township's total farmland assessed properties and 73.9% of the total sending zone land area. Over half of the sending zone (54.5%) is underlain by prime agricultural soils. Twenty-four percent are soils of statewide importance.

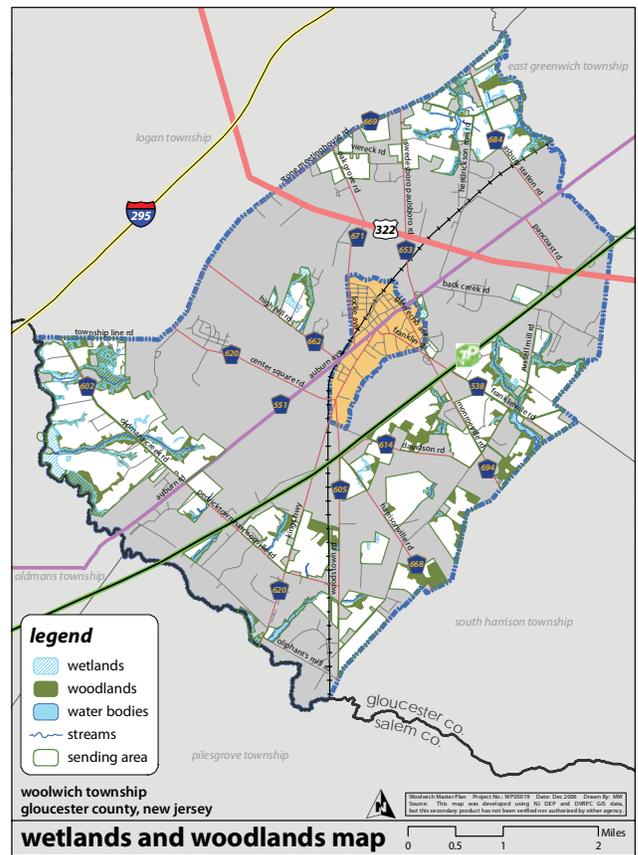
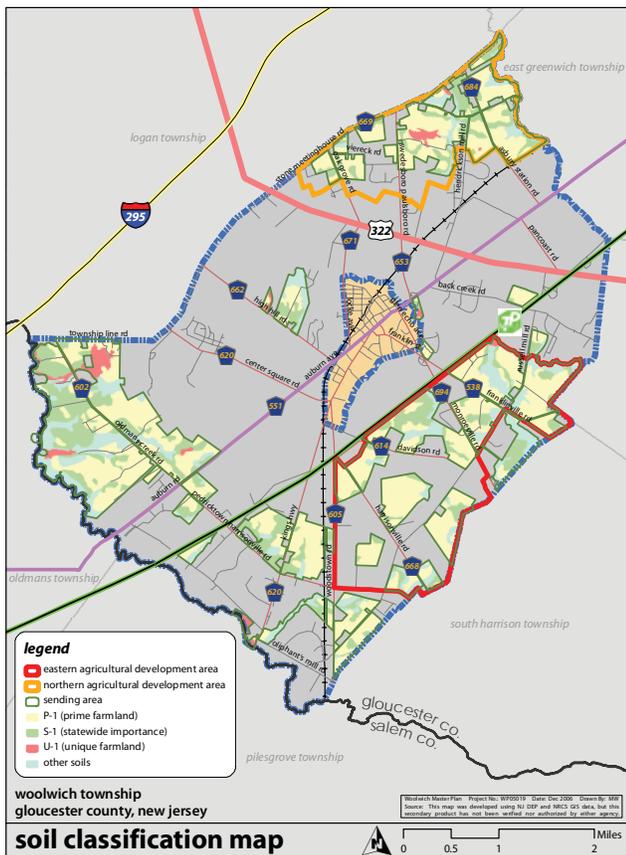
Agriculture Development Areas (ADA) are regions in which Woolwich Township focuses its farmland preservation efforts through the State's farmland preservation program. There are two ADA's in the Township. Almost 58% of the two ADA's collectively fall within the sending zone. Sending parcels will help expand the nearly 400 acres of farmland currently preserved or pending preservation in the ADA's. At the same time, it will help limit the intrusion of more development into these areas.



## WOODED AREAS AND WETLANDS

Wooded areas include areas of contiguous canopy or solid tree cover, woodlands, and natural lands. Hedgerows are not included in the delineation of wooded areas. Of the 3,088.5 acres of woodlands in Woolwich Township, 942.2 acres (30.5%) are found in the sending zone. These areas represent 23.2% of the total land area in the sending zone.

Woolwich Township contains both tidal freshwater marshes and freshwater wetlands, located along stream corridors and lake edges. Most emergent wetlands are freshwater tidal marshes along Raccoon and Oldmans Creeks. Other wetlands are either forested or shrubby wetlands along tributaries and their floodplains and in upstream locations. (DVRPC, Environmental Resource Inventory for the Township of Woolwich, April, 2004, pp. 30, 54.) Over 35% of all wetlands in the Township occur in the sending zone. They constitute 11.8% of the sending zone land area.



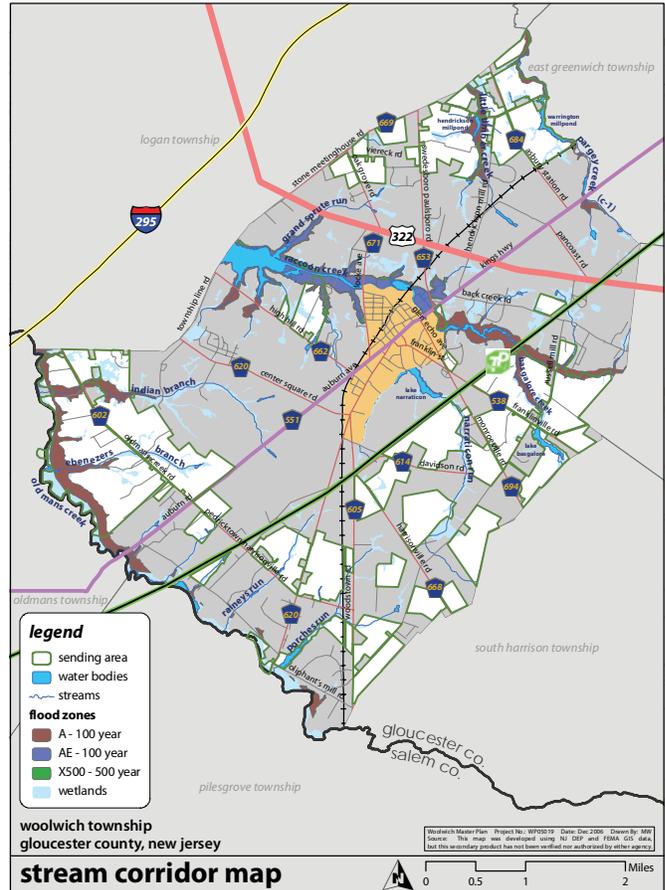
## FLOOD HAZARD AREAS



The flood hazard area includes both the floodway and the adjacent flood fringe. The floodway is the stream channel and portions of the flood hazard area adjoining the channel which carry and discharge flood waters of any natural stream. The flood fringe is the portion of the flood hazard area adjacent to the floodway, which helps carry excess water during overflow of the normal stream channel. The 100-year flood plain is the land area inundated by water from the 100-year flood (a flood that has a 1 in 100 chance of occurring in any given year). (N.J.S.A. 58:16A, "Flood Hazard Area Control Act;" DVRPC, Environmental Resource Inventory for the Township of Woolwich, April, 2004, p. 34.)

The flood hazard area was used for the purpose of mapping flood plain areas in the sending zone. Flood Hazard Area maps delineate three zones of concern. Zone A is the area that is inundated by 100-year floods for which there is no base flood elevations. Within Zone AE, Base Flood Elevations have been determined. Zone X500

## THREATENED/ENDANGERED SPECIES HABITAT



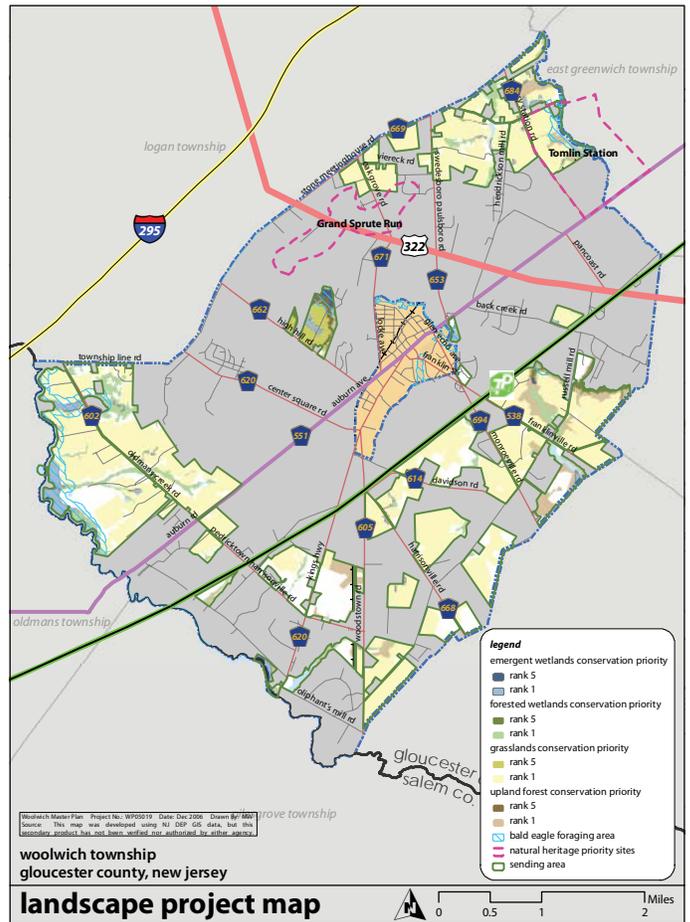
is the area inundated by 500-year flooding or an area inundated by 100-year flooding with average depths of less than one foot or with drainage areas less than one square mile, or an area protected by levees from 100-year flooding. Zones A and AE comprise 6.8% and 0.3% respectively of the sending zone. Zone X500 comprises 0.1%.

The New Jersey Department of Environmental Protection (NJDEP) maintains data on threatened and endangered species habitat as well as representative ecological communities. The Division of Fish and Wildlife administers the Endangered and Nongame Species Program (ENSP). The ENSP program has mapped critical areas for threatened and endangered wildlife based on land use information and imperiled species locations. Maps identify five habitat types and then rank each from 1 to 5 according to the status of the species. Rank 1 includes areas meeting habitat-specific suitability requirements for endangered, threatened or other wildlife species of concern, but do not intersect with any confirmed occurrences of the species. Rank 5 includes areas that contain at least one occurrence of one or more wildlife species listed as endangered or threatened on the Federal list of endangered and threatened species. For specific species, including the bald eagle, peregrine falcon and wood turtle, the State provides additional detailed mapping, including bald eagle foraging areas.

Woolwich Township is host to four of the five habitat types mapped by ENSP. These include emergent wetlands, forested wetlands, upland forests and grasslands. All are assigned either Rank 1 or Rank 5. Emergent wetlands (marshes) mapped as habitat, comprise 3.3% of the

sending zone. Forested wetlands and upland forest habitats occupy 7.4% and 8.5% of the sending zone respectively. Grasslands are the dominant habitat type, comprising 62.5% of the sending zone. Bald eagle foraging areas comprise 6.5% of the total sending zone and 22.2% of the Township's total bald eagle foraging areas. (Niles, L.J., M. Valent, P. Winkler and P. Woerner. New Jersey's Landscape Project, Version 2.0. New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Endangered and Nongame Species Program, 2004, pp. 7, 12.)

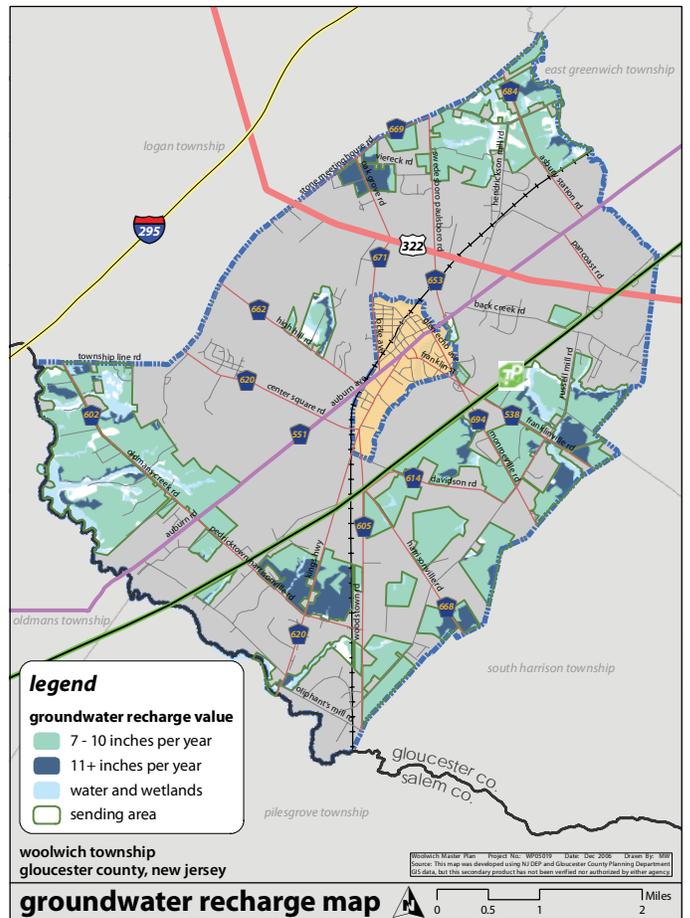
The NJDEP Office of Natural Lands Management (ONLM) in the Division of Parks and Forestry maps Natural Heritage Priority Sites. Natural Heritage Priority Sites represent some of the best and most viable occurrences of endangered and threatened species and natural communities in New Jersey. ONLM considers these as top priority for the preservation of biological diversity in New Jersey. There are two Natural Heritage Priority Sites in Woolwich Township. Grand Sprute Run is a stream cut ravine that has fairly steep wooded slopes. The ravine provides habitat for two plant species of special concern. Only 2.1 acres of this 263.1 acre site lie within the sending zone. Tomlin Station is a dry, pine/oak woodlands containing critically imperiled plant species. Of the 272.2 acres comprising Tomlin Station, 142 fall within the sending zone. A total of 146.2 acres, or 27.3% of the total area comprising these sites, fall within the Sending Zone.



## GROUNDWATER RECHARGE AREAS

Groundwater recharge is the water that seeps into the ground to the underlying water table. Groundwater recharge is important because it contributes to aquifer recharge and stream base flow and supports wetlands. The New Jersey Geological Survey (NJGS) has mapped groundwater recharge areas throughout the State, using land use/land cover data, soils and climate factors as the basis for estimating recharge.

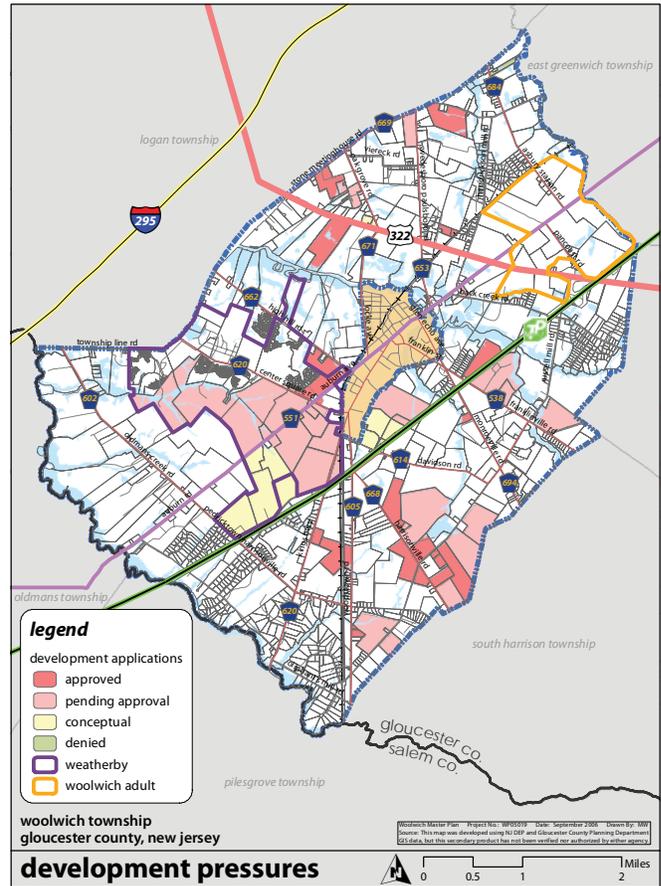
The highest rate of groundwater recharge, 11 or more inches per year, occurs on 2,181.6 acres of land in Woolwich Township. Of this, 28.1% is found in the sending zone. The next highest rate of recharge, 7 to 10 inches per year, occurs on a much larger portion of the Township (9,241.7 acres), 30.2% of which is located in the sending zone. Collectively, these regions comprise 83.6% of the Sending Zone.



**EXISTING AND PLANNED INFRASTRUCTURE**

There are no public sewers or water supply in the sending zone, nor are there plans to extend said infrastructure into this area. All existing water and sewer service areas are located outside of the sending zone. Extension of public water and sewer beyond the Township’s existing sewer service areas will be confined to locations outside of the sending zone.

Properties in the sending zone will be able to send their development potential, based on today’s zoning, to the receiving zones. Otherwise, if property owners choose to develop sending zone property, they will be subject to zoning changes that significantly reduce the amount of development that can occur there. Any development that does occur will be at densities reliant on wells and septic systems. By providing a variety of options, including participation in TDR, farmland and open space preservation, and low density development, these properties will remain undeveloped or most, developed at very low densities.



**DEVELOPMENT PRESSURES**

Between April, 2000 and August, 2006, a total of 3,827 residential units were the subject of pending or approved development applications. Of these, 847 were located in zoning districts in which sending zone parcels qualify. These amount to over 1,125 acres.

Pending and Approved Residential Development Applications: Woolwich Township, August, 2006					
		Preliminary Review	Preliminary Approval	Final Approval /Built	Total
# of Lots:	In sewer service area	0	1,452	1,528	2,980
	Outside sewer service area	59	245	543	847
Acres:	Outside sewer service area	167.6	523.5	354.8	1,045.9

Based on development applications as of August, 2006. Total acres include only those subdivisions with available data. Total acreage is therefore higher.

## SENDING ZONE ENVIRONMENTAL FEATURES

	Acres – Township	Acres – Sending Zone	Acres in Sending Zone as % of Total Acres of Environmental Feature	Environmental Features (Acres) in Sending Zone as % of Total Sending Zone Acreage
	13,712.2	4,070.3		
<b>Agriculture:</b>				
Prime Soils	7,389.9	2,217.7	30.0	54.5
Statewide Important Soils	2,880.4	976.9	33.9	24.0
Unique Soils	388.1	122.3	31.5	3.0
Locally Important Soils	0	0	0	0
Farmland Assessed Properties	6,158.0	3,008.7	48.9	73.9
Agriculture Development Areas	3,397.5	1,953.8	57.5	48.0
<b>Flood Hazard Area:</b>				
A Flood Zone	550.1	276.5	50.3	6.8
AE Flood Zone	276.3	11.3	4.1	0.3
<b>Wetlands</b>	1,362.5	481.2	35.3	11.8
<b>Threatened/Endangered Species Habitat:</b>				
Grasslands Rank 5	1,136.2	57.6	5.1	1.4
Grasslands Rank 1	6,220.9	2,507.4	40.3	61.1
Forested Wetlands Rank 5	161.1	25.2	15.6	0.6
Forested Wetlands Rank 1	725.3	277.5	38.3	6.8
Upland Forests Rank 5	350.8	29.3	8.4	0.7
Upland Forests Rank 1	880.4	315.1	35.8	7.7
Emergent Wetlands Rank 5	69.5	9.0	13.0	0.2
Emergent Wetlands Rank 1	353.6	125.3	35.4	3.5
Bald Eagle Foraging Area	1,187.0	263.7	22.2	6.5
Natural Heritage Priority Sites	535.3	144.1	26.9	3.5
<b>Woodlands</b>	3,088.5	942.2	30.5	23.2
<b>High Groundwater Recharge Areas:</b>				
11+ inches/year	2,181.6	613.4	28.1	15.1
7-10 inches/year	9,241.7	2,789.9	30.2	68.5

Note: Total acres in sending zone based on GIS data (4,070.3) differs slightly from tax data (4,011).

## SECTION 7 US 322 CORRIDOR RECEIVING ZONE

This and the following section present a detailed description of the US 322 Receiving Zone and the Auburn Road Receiving Zone respectively. It is the location, land use and unit mix, and design of these receiving zones that will yield the following benefits to Woolwich Township:

- Redirect low density sprawl into compact, mixed use communities
- Ensure efficient delivery of infrastructure, confined to discrete, limited community development boundaries
- Facilitate the preservation of some 5,000 acres of farmland, open space and environmentally sensitive areas
- Encourage the provision of a wide variety of housing types and price ranges
- Address much of Woolwich Township’s affordable housing obligation
- Address the unmet housing needs of non-traditional households – a significant and growing segment of households in the Philadelphia metropolitan area
- Stimulate greater socio-economic diversity among future residents
- Provide walking, bicycling and transit options for residents of Woolwich Township
- Create dynamic destinations for shopping, recreating, living and working
- Provide areas for active recreation, passive recreation and quiet refuge
- Create a sense of community within and between neighborhoods
- Promote energy efficiency, water conservation, and sustainable use of resources
- Reduce reliance on cars for local trips
- Increase connectivity between destinations

**Table 1. Receiving Zones – Projected Growth 2015, 2025**

		2015		2025		
	Pop.	Hsg Units	Jobs	Pop.	Hsg Units	Jobs
US 322 Corridor Receiving Zone	1,978	973	0	5,042	2,581	684
Auburn Road Receiving Zone	501	176	10	1,145	502	50

**Table 2. Maximum Development Potential, Post 2025**

	Population	Housing	Jobs
US 322 Corridor Receiving Zone	6,136	3,217	5,549
Auburn Road Receiving Zone	1,145	502	50
Sending Zone	4,298	1,283	0

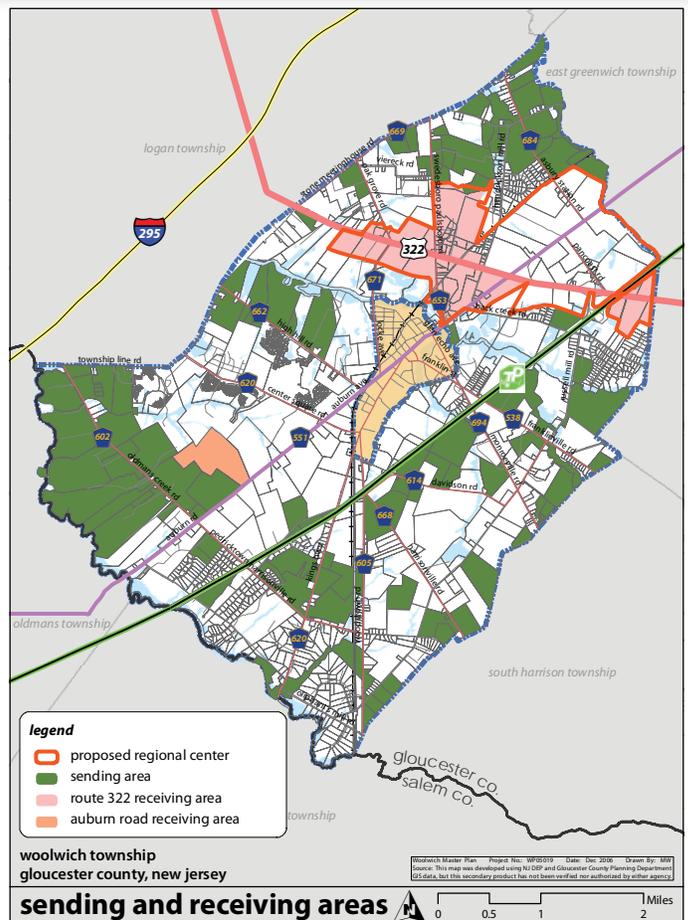
This section presents an overview of the US 322 Corridor Receiving Zone, followed by a description of opportunities and constraints that were identified in the process of designing the receiving zone. The fact that Woolwich Township was able to capitalize on opportunities and overcome constraints through proper design demonstrates that there is a realistic opportunity for development to occur in the receiving zone and that it will be able to support growth transferred from the sending zone.

**OVERVIEW**

The US 322 Corridor Receiving Zone is located within Woolwich Township’s proposed Regional Center. US 322 is the main spine that links the Receiving Zone to the rest of Woolwich Regional Center.

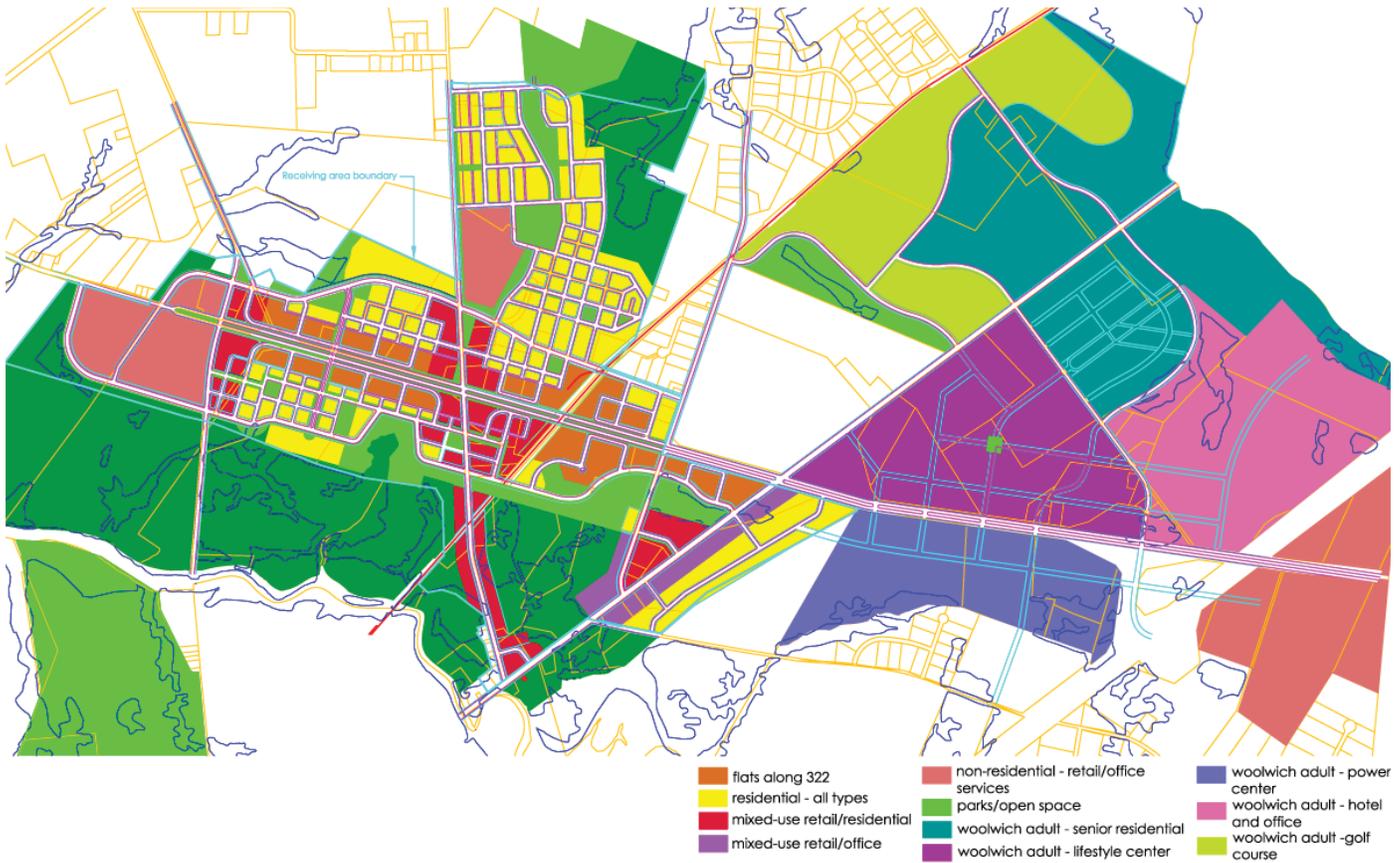
The Receiving Zone consists of two non-contiguous sections. The main section consists of 84 parcels and is just over one square mile (647 acres) in size (see Appendix D for a complete list of receiving zone parcels). This section is called Woolwich New Town. It is bounded by Garmen Road to the east and Oak Grove/ Locke Avenue (C.R. 671) to the west. At its northern reaches, Woolwich New Town abuts one of two former federally-owned Nike Missile Bases that are now owned by Woolwich Township. To its south is Raccoon Creek.

A second component of the US 322 Corridor Receiving Zone is likewise situated within the proposed Regional Center but is not adjacent to the above described area. This site consists of 10 parcels, totaling approximately 97 acres. It is sandwiched between the NJ Turnpike and the municipal border, straddling US 322. The two sections of the US 322 Corridor Receiving Zone are separated by 750 acres that are subject to a settlement agreement between Woolwich Township and Woolwich Adult, LLC. This settlement agreement calls for the construction of 925 active adult single family homes, 104 affordable age-restricted units, and up to 2.7 million square feet of



commercial space.

The US 322 Corridor Receiving Zone is designed to accommodate a mix of residential, commercial, institutional and public uses in a walkable, compact environment. Residential densities (up to 28 units per acre) and commercial development (.3 FAR) will be possible with the introduction of public sewers and water.



*Regional Center Land Use Concept Plan*

In total, 4,217 new homes can be built in Woolwich New Town. Of these, 500 are permitted by right as units above retail space along Paulsboro-Swedesboro Road, the New Town’s main street. Other permitted housing types in Woolwich New Town range from single-family units to twins, townhouses, and flats.

There will be 137 TDR credits assigned as by-right residential development capacity to those parcels in the receiving zone that choose to participate in TDR. They will be apportioned to receiving zone parcels based on one credit per 1.5 developable acres. (The Real Estate Market Analysis suggests this ratio be used. A portion of the receiving zone is zoned R2. R2 District residential density is one unit per 1.5 acres. The market analysis suggests applying the same formula to all properties in the Receiving Area, including those currently in the FOC District that are programmed for future residential use.) All additional units, aside from the 500 units in the mixed use buildings on Paulsboro-Swedesboro Road - will result from the transfer of development rights from the sending zone.

Areas permitting exclusively commercial space will be able to purchase TDR credits. These areas are situated at the far western end of Woolwich New Town and east of the NJ Turnpike. Here, larger format offices, warehousing, and flex space will be permitted. Use of TDR credits will allow for retail facilities in these locations.

Retail and office space will be able to occupy the first floor of mixed use buildings along US 322 that will accommodate residential flats above. Multi-floor, multi-tenant office buildings will be permitted on the southerly

Nike Missile Base, which is the subject of a redevelopment plan study by Woolwich Township.

The Receiving Zone commercial uses are intended to complement the commercial development associated with Woolwich Adult. Woolwich Adult will be built entirely by-right, as the property owner has elected not to participate in the transfer of development rights. Retail development in Woolwich Adult will have a regional draw and include a large format “power center” as well as a “life style center.” By contrast, most commercial uses in the receiving zone will generally be oriented to local services and products and main street-oriented “boutique” shops.

Receiving Zone Proposed Land Use	Units/Sq. Ft/Acres	Avg Residential Lot Size
Single-family homes	100	10,000 sf
Twins	1,000	5,000 sf
Townhouses and flats	1,617	2,250 sf
Residential units above retail	500	
Retail	1,288,333 sq. ft.	
Office/flex/warehousing	2,336,667 sq. ft.	
Open space and parks	84.5 acres*	

*\*Another 110 acres of green space about the US 322 Corridor Receiving Zone.*

*In addition, a 120-acre planned golf course in Woolwich Adult is located nearby.*

Further details on the land plan, unit mix and proposed design standards are found in the Woolwich Township TDR Land Plan and Zoning Regulations and Design Standards element. Details on the transfer of development rights procedures and mechanisms are found in Section 9 of this TDR plan element.

*townhomes*



*mixed use main street*



*power center*



*multi family streetscape*



*twin homes*



*lifestyle center*



*single family detached homes*



*neighborhood park*



*single use office space*



*fountain / pedestrian area in retail area*



*image of what Rt 322 might look like with mixed uses*

## CAPITALIZING ON OPPORTUNITIES

The siting and design of the US 322 Corridor Receiving Zone was influenced by several factors. Among them were six that presented ideal conditions to create a receiving zone along the corridor. They include:

- Access to the local and regional transportation network
- Land availability
- Proximity to other population centers and destinations
- Availability of public sewers
- Availability of public water supply
- Market demand

### Available Local And Regional Transportation Network

The receiving zone is proximate to an existing transportation system which, while sparse, provides the optimum foundation for an integrated, multi-modal system in the future. Three major highways provide connections to regional employment and other destinations. US 322, one of three east-west arterial highways in southern New Jersey and the only major east-west highway in Gloucester County, connects the receiving zone to Wilmington, Delaware and Philadelphia, Pennsylvania via the Commodore Barry Bridge, and to Atlantic City via the Black Horse Pike. I-295 in adjacent Logan Township and the New Jersey Turnpike each runs north-south. Exit 2 of the Turnpike is located adjacent to the eastern section of the receiving zone.

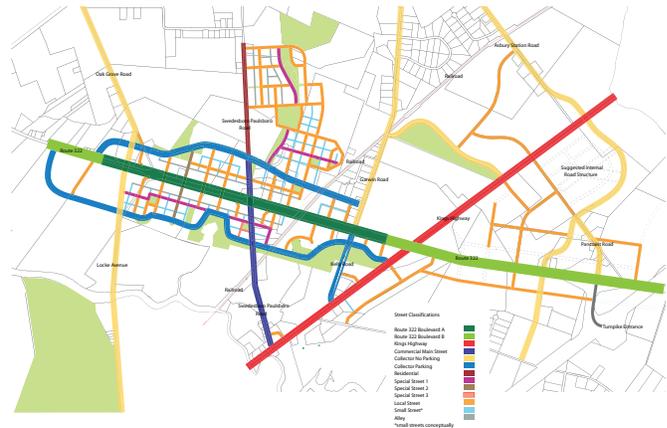
A network of county roads traverses or passes nearby the receiving zone, providing critical connections to nearby Swedesboro as well as other adjacent municipalities.

Transit service is limited but nonetheless available within the general vicinity of the receiving zone. NJ Transit operates three bus lines accessible to Woolwich New Town residents, including #401, which operates between Philadelphia and Salem. Other New Jersey Transit bus routes in the area include the 402, running from Philadelphia to Pennsville via US 130 in Logan Township, and the 410, serving the Philadelphia to Bridgeton area. The 410 travels Route 45 in Harrison Township. NJ Transit also provides bus service on Route 47 in Glassboro.

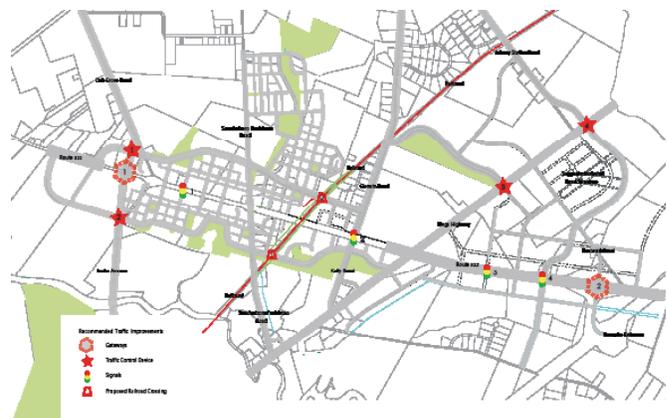
A single track freight railroad- Salem Secondary - is located parallel to and approximately 2,000 feet west of Kings Highway (County Route 551), crossing through Woolwich New Town in a northeast-southwest direction. Conrail Shared Asset Operations provides the freight rail service on this line.

As proposed, the receiving zone will be served by State and county roads, along with a highly interconnected system of neighborhood and collector streets. This network will allow pass-through traffic to utilize US 322, while taking some of the local trips off of the highway

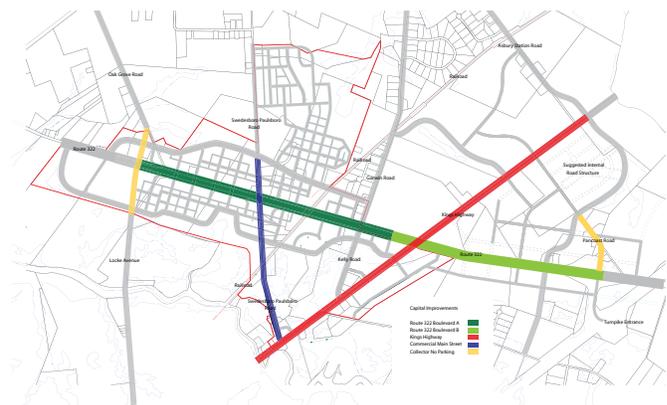
and onto parallel streets. Swedesboro-Paulsboro Road, a County road running north-south through Woolwich New Town, will function as a main street. Its connection to Swedesboro is critical, reinforcing and strengthening the downtown environments of both places.



Street Classifications



Traffic Improvements



Capital Improvements

The land use plan and roadway network within Woolwich New Town will be designed to encourage walking, bicycling and accommodate future opportunities for bus rapid transit, while at the same time, reducing reliance on cars for local trips. The majority of homes are located within ½ mile of the commercial main street, making walking trips reasonable.

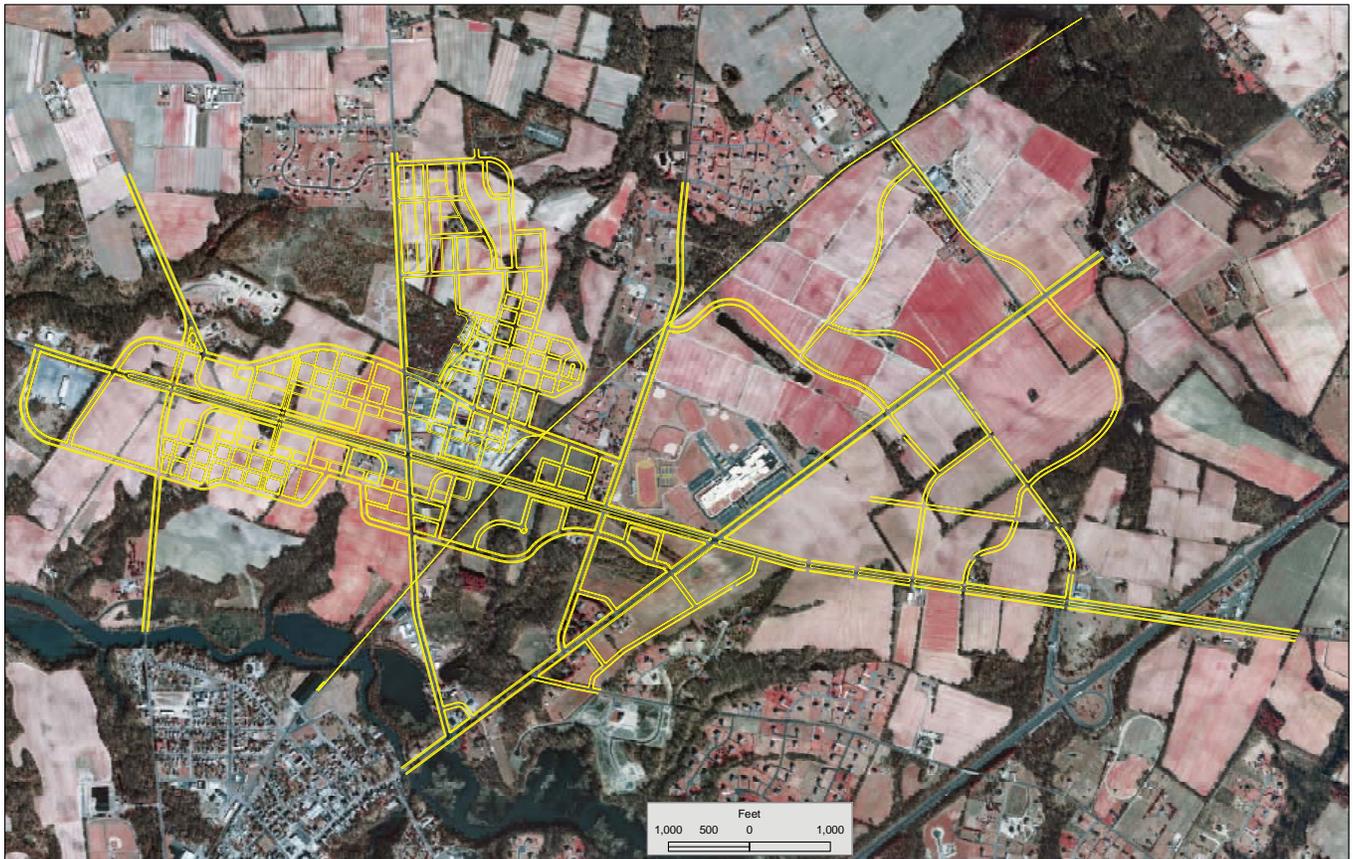
Sidewalks, multi-purpose paths, linear parks, pedestrian-friendly intersections and traffic calming measures will all be employed to facilitate multi-modal circulation within the New Town. In fact, these measures will be employed throughout the Regional Center, both on existing roadways and on new roads.

Other improvements, including the eventual widening of US 322, may be necessary to accommodate projected trips once the entire Regional Center is fully built out. Thus, continued coordination with Gloucester County and New Jersey Department of Transportation will be essential, to ensure needed improvements, intersections, and traffic calming solutions are provided on State and county roads. Discussions with New Jersey Transit should continue as the Township plans for expanded bus transit opportunities. In the event Salem Secondary rail line is abandoned, right-of-way reservation will be critical to support potential future potential passenger rail service.

Additional findings and conclusions regarding transportation infrastructure can be found in the *Woolwich Township Circulation Plan*.

### Land Availability

Today, nearly 82% of the US 322 Corridor Receiving Zone (606.7 acres) consists of farmland and woodlands. Although 55 out of a total of 94 parcels contain a residential or commercial structure, most of these are small properties (four acres or less in size). The predominantly open landscape allows for a great deal of flexibility in which to site new development and infrastructure.



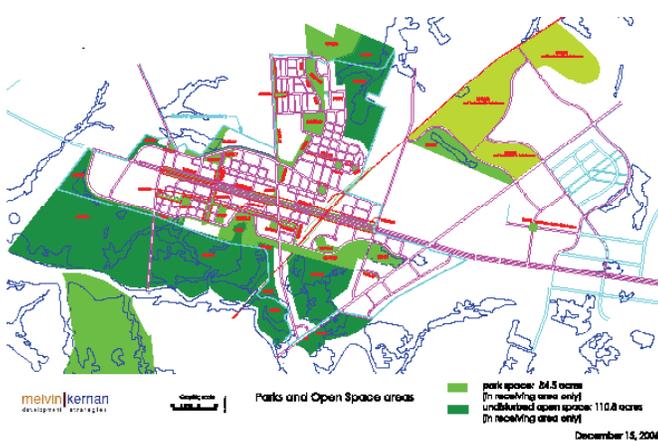
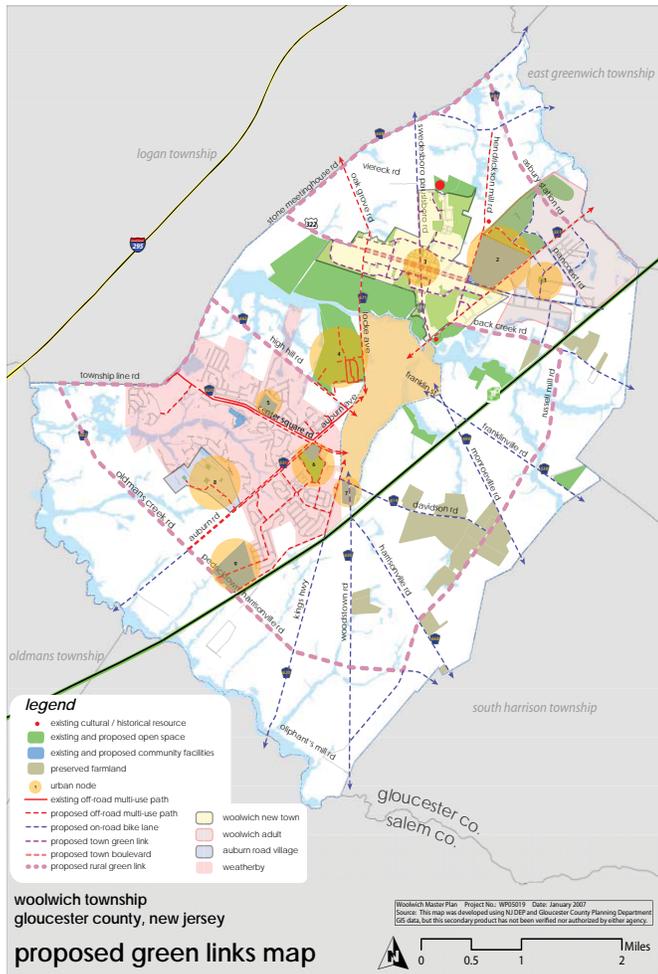
*Much of the US 322 Corridor Receiving Zone is currently undeveloped land.*

### Access to Activity Centers

The receiving zone is strategically located within easy access of numerous existing or planned communities, activity centers and nodes of interest. These include towns, large residential developments, shopping areas, parks, historic and cultural landmarks, and civic institutions. Several of these destinations and neighborhoods are currently within walking or biking distance of the receiving zone. Implementation of the Woolwich Township linkages plan will create even more opportunities to travel between the receiving zone and other destinations throughout the Township, via foot, bicycle and other non-vehicular means.

Existing and planned destinations accessible to the receiving zone include:

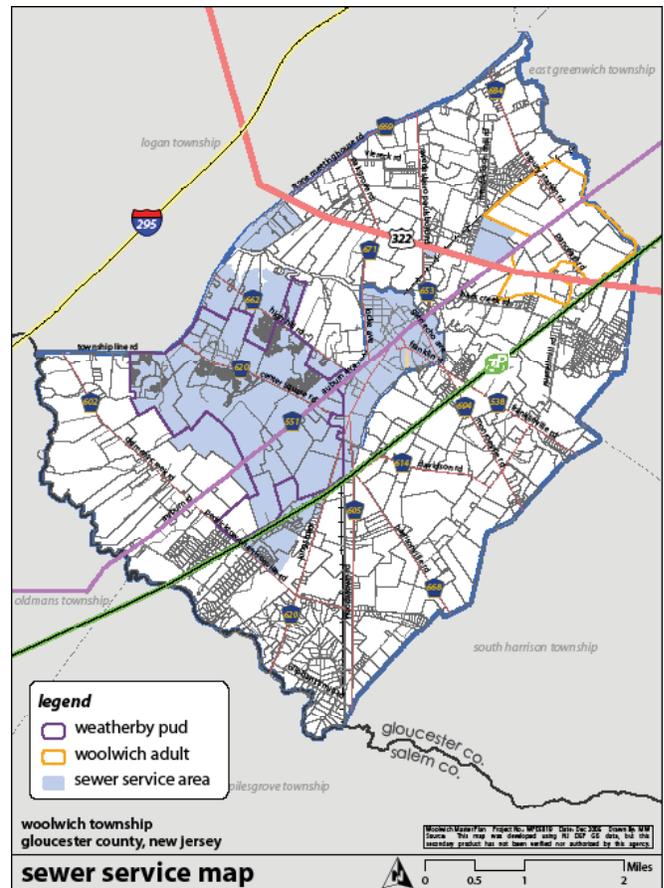
- Swedesboro Borough
- Woolwich Adult retail facilities
- Weatherby development
- Kingsway Middle School and High School campus
- Locke Avenue Park
- Governor Stratton School
- Site of three future elementary schools
- Sites of existing and future municipal services
- Governor Stratton House
- Future park at former Nike Missile site
- Auburn Road Village



### Sewer Service

While sewer service does not currently exist along the highway, plans are already underway to secure needed utilities.

Woolwich Township is partially served by the Logan Township Municipal Utilities Authority (LTMUA). The sewer service area is limited to the Weatherby development and several adjacent properties. The LTMUA operates a wastewater treatment facility with a discharge to the Delaware River. The US 322 Corridor Receiving Zone lies outside the existing LTMUA sewer service area.

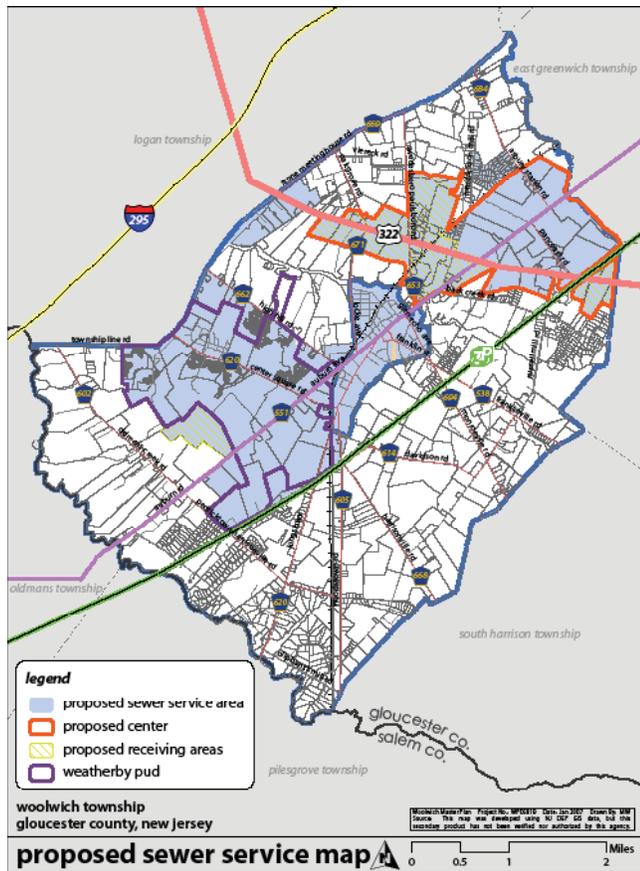


The Kingsway Regional High School and Middle School campus, located on US 322, is served by the Swedesboro sewerage treatment plant via a dedicated force main. A commercial property on the highway (Wawa) has its own private treatment plant. Aside from these sites, development along the corridor relies exclusively on individual on-site septic systems. Given the density of development planned for the US 322 Corridor Receiving

Zone, Woolwich Adult, and for other properties along the highway, septic systems will no longer be a viable option and must be replaced with sewer service.

Woolwich Township's settlement agreement with Woolwich Adult directs the Township to cooperate with the developer's attempts to secure sewer service for the 750 acres owned by Woolwich Adult, providing the developer adheres to stipulations outlined in the settlement agreement. Woolwich Adult must pay its pro rate share of the construction of a sewerage treatment plant based on needed capacity for its proposed development.

Under the settlement agreement, areas along the US 322 Corridor adjacent to the 750 acres owned by Woolwich Adult would be able to obtain sewer capacity. Woolwich Township is responsible for preparing a wastewater management plan to accommodate an expansion of the sewer service area in the Township. Aqua New Jersey holds the wastewater disposal franchise in Woolwich Township. Working with the Township, it will arrange for, own and operate the facilities needed to satisfy demand in a new sewer service area that will address the needs of the entire US 322 corridor within the municipal boundaries, including



the receiving zone. This will be done in accordance with existing and/or future service agreements with the Township and developers.

Pre-application meetings have already taken place with NJDEP to initiate the wastewater management planning process. A wastewater management plan is expected to be completed and submitted to NJDEP in 2007. In the meantime, Aqua New Jersey has prepared

a preliminary analysis that addresses the following issues:

- initial projections of total wastewater flows
- feasibility of various treatment options
- hydrogeology of the area of concern
- identification of potential sites for sewerage disposal
- estimated costs of planning, permitting and construction of the sewerage conveyance, treatment and disposal system needed

Aqua New Jersey projects a total of approximately 1.9 million gallons per day (mgd) in wastewater flows for the US 322 Corridor based on plans for the Regional Center and expanded sewer service on the far west end of the highway. Of this, an estimated 1.3 mgd will be generated in the receiving zone, including both Woolwich New Town and the section east of the NJ Turnpike.

As a wastewater management plan is developed, continued proactive planning and coordination with Woolwich Adult, Aqua New Jersey and New Jersey Department of Environmental Protection (NJDEP) will be essential. This should result in successfully delivering needed sewer service to the receiving zone by the year 2012.

Additional information concerning proposed sewer service can be found in the Woolwich Township TDR Utility Services Plan.

### Public Water

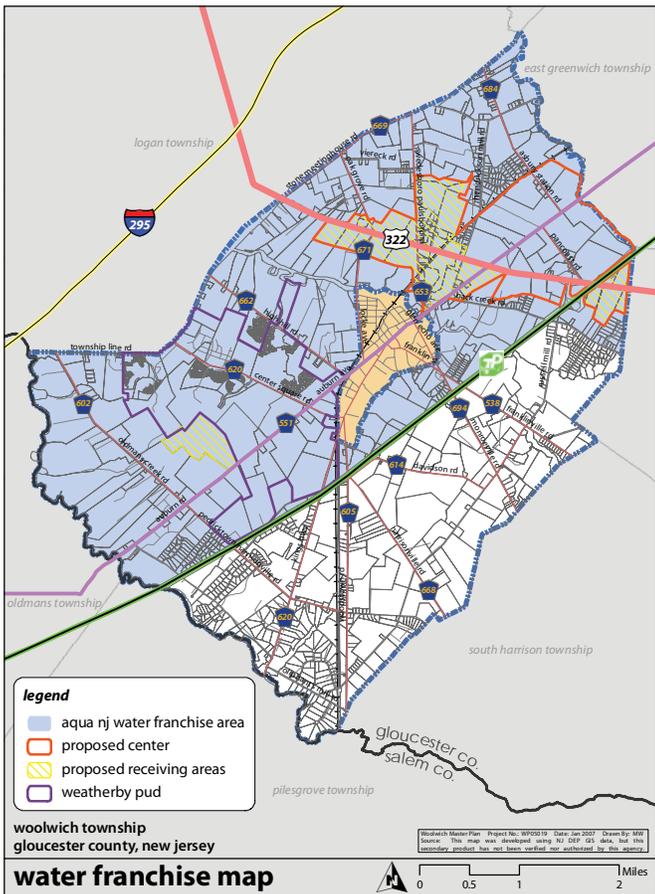
Like public sewers, public water supplies will be an essential component of the receiving zone. At present, public water supply in Woolwich Township is limited to the Weatherby development and immediately adjacent areas along Center Square Road. However, the opportunity exists to bring public water to the receiving zone.

Aqua New Jersey holds the water supply franchise in Woolwich. It is responsible for arranging for, owning and operating facilities in accordance with existing and/or future service agreements with the Township and developers. Aqua's current source of water is groundwater, as permitted by NJDEP's Bureau of Water Allocation.

The settlement agreement between Woolwich Township and Woolwich Adult calls for the designation of public water service for the developer's property on US 322 and for other properties identified in the settlement agreement. The receiving zone falls within the proposed water service area. Woolwich Township must cooperate with the developer in facilitating expansion of the water supply service area, providing the developer adheres to protocol outlined in the settlement agreement.

Aqua New Jersey projects 1.7 million gallons per day in water demand along the US 322 corridor based on programmed development. Of this amount, an estimated 1.2 mgd will be generated within the receiving zone.

Given recent ground water modeling and NJDEP water allocation decisions, Aqua New Jersey believes that the



best source of water will be surface water from New Jersey American Water Company supplemented by ground water sources.

As with the delivery of public sewer service, continued coordination with Aqua New Jersey, Woolwich Adult and NJDEP will be essential to ensure timely and successful provision of public water to the receiving zone. Permitting issues will be significantly less for the water pipeline than for sewers. The key issue will be securing financial agreements with Woolwich Adult. From the point that funding agreements are signed, it should take no more than 18 months to two years to have infrastructure in place.

Additional background information on water supply issues, needs and opportunities can be found in the Woolwich Township TDR Utility Services Plan.

### Market Conditions

A real estate market analysis was performed for the purpose of assessing the feasibility of the transfer of development rights program as proposed in Woolwich Township.

At the time that the analysis was conducted, the Township estimated a total of 1,283 credits that could be generated in the sending zone, based on the number of housing units that could be built in total under current zoning. A total of 137 credits would be allocated to properties in the receiving zone that participate in TDR. The remaining credits must be purchased from properties in the sending zone or provided through bonus credits. A formula was devised that assigns bonus ratios to the

credits purchased from the sending zone to calculate the total units, in addition to those permitted by right, that could be constructed in the receiving zone.

Key to the success of the TDR program is ensuring that there is a sufficient balance between credits generated in the sending zone and development capacity in the receiving zone. Furthermore, there must be sufficient demand for development credits to absorb development in the receiving zone.

The real estate market analysis found that market conditions do indeed suggest success in transferring development rights into the receiving zone. The analysis concluded the following, assuming that certain economic conditions and policies at the national, state, regional, county and local levels continue to prevail in the future:

- There is sufficient demand to absorb 3,217 units of single-family, twins, townhouses and multi-family units;
- There is sufficient demand to absorb 1.1 – 2.1 million square feet of retail and 500,000 – 1.5 million square feet of office/ flex space;
- The receiving zone is ideally situated for mixed use (i.e. residential, retail, office/commercial) development, given excellent access to the regional highway network, existing residential development pressures that exist in the Township, and strong development interest in residential and commercial uses along US 322 as demonstrated by Woolwich Adult;
- The proposed bonus development credits, coupled with anticipated levels of residential and market demand, will provide sufficient market demand to support needed sales of the 1,283 credits in the sending zone
- Supportable land values (what developers are willing to pay) for various housing types in the receiving zone are more than the cost of land in the receiving zone;
- Available funds exceed anticipated cost of credits in the sending area by 11% - 17% for almost all housing types, resulting in a financial incentive for developers to pursue purchase of development credits.

Further details can be found in the *Woolwich Township Transfer of Development Rights Real Estate Market Analysis*.

### Summary

Woolwich Township is fortunate to have so many conditions favorable to the siting and successful implementation of its principal receiving zone along US

322. Although not all conditions are present today, planning is well underway to ensure that needed infrastructure is in place in due time. The economics of the program are inarguably essential to the success of the TDR program. All indicators are that existing and future market conditions are indeed supportive of the program.

## OVERCOMING CONSTRAINTS

While a number of factors suggest the viability of the receiving zone, several potential development constraints are also present that must be addressed in order to see the land plan through to fruition. They are the following:

- Topography and drainage
- Soils
- Wetlands
- Habitat of threatened and endangered species
- Groundwater recharge
- Historic/cultural resources

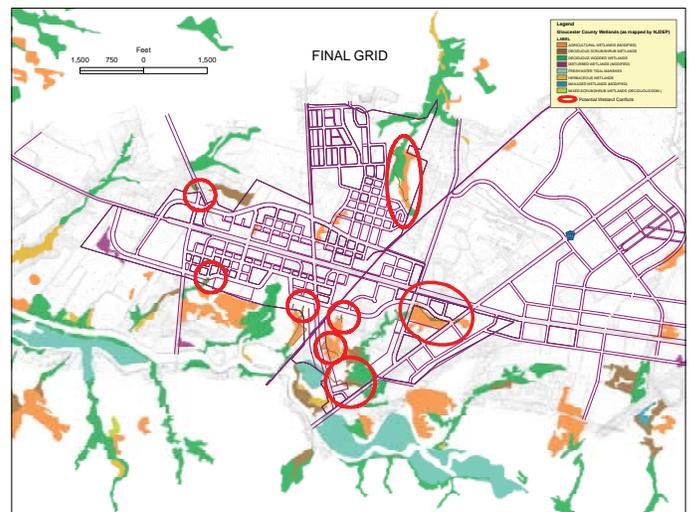
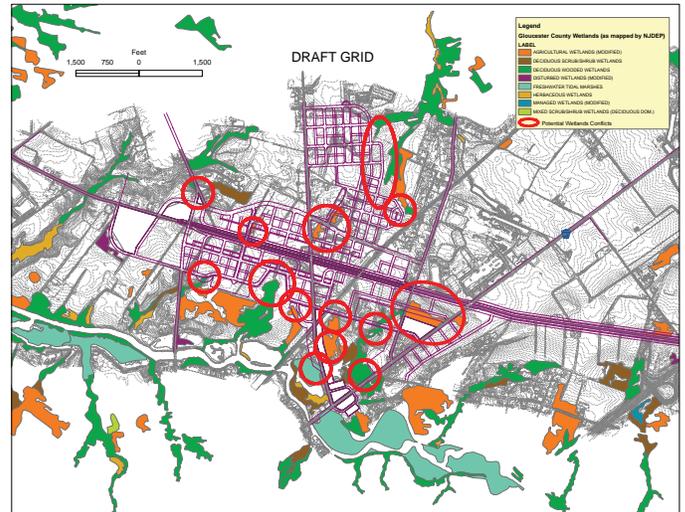
These constraints were flagged early on in the process of locating an ideal site for a receiving zone. Aerial flights were commissioned to prepare detailed, two-foot contour topography maps to be able to analyze surface features and drainage. Environmental consultants were hired to field check wetlands and habitat of threatened and endangered species. Early in the planning process, state permitting issues were identified with the intent of minimizing the need for any extraordinary considerations. To this end, Woolwich Township planning consultants worked with members of the NJDEP staff to identify and avoid critical areas where possible. Historic and cultural resources were identified, with the intent of designing around them to avoid disturbance and to strengthen their stature as historic/cultural nodes in the Township.

The following is a description of each environmental and resource constraint identified and the strategy for overcoming potential obstacles. The analysis of environmental constraints is limited to Woolwich New Town because this is the section of the Receiving Zone potentially impacted by environmentally sensitive areas, most notably, wetlands and bald eagle habitat. These issues are of special concern to NJDEP. Furthermore, its proximity to Raccoon Creek and the presence of several steep ravines throughout the subject area warranted special attention to this section of the receiving zone.

### Topography

Several steep ravines are found on the south side of US 322 feeding Raccoon Creek. An early version of a proposed grid for Woolwich New Town included a road crossing over several steep areas crossing wetlands. The grid was subsequently redesigned to significantly reduce the extent of intrusion into these areas.

Another area of concern west of Paulsboro-Swedeseboro Road to the south of the grid was avoided altogether by incorporating it into proposed open space. West of it is the tip of an unnamed tributary to Raccoon Creek and associated wetlands. Most of the area where this feature extends into the development grid is planned green space. To the extent that the tip of the ditch, which is highly degraded and undesirable, crosses over into a planned roadway, a permit to fill this ditch at the headwaters of the wetlands will be necessary but attainable via a General Permit under the State's wetland regulations. (See Appendix E for further discussion of wetland intrusions and needed permits).

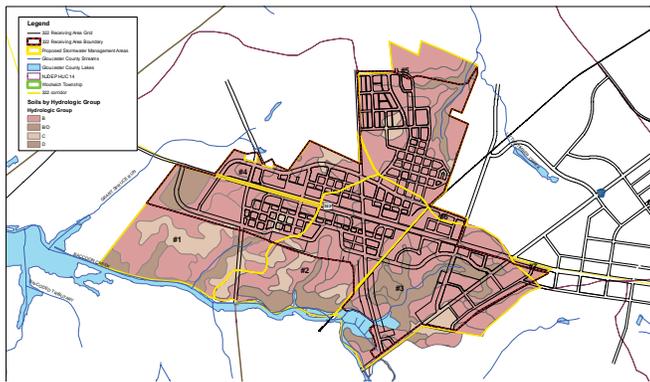


## Soil Suitability for Development

Development suitability of soils was determined using Natural Resources Conservation Service Web Soil Survey mapping. Soil data of particular relevance included seasonal high water table, hydric classification, hydrologic groups and septic suitability. Each soil type was evaluated based on these criteria and assigned a development suitability rating ranging from slight development limitations to severe development limitations.

The location chosen for the majority of development is by and large underlain by soils that are well drained and well suited for buildings and roads.

Soil Development Suitability	
Suitability Ranking	Acreage
Slight	503.1
Moderate	52.4
Severe	109.9



## Streams

Three streams and/or tributaries thereof impact Woolwich New Town. They are Raccoon Creek, Grand Sprute Run, a tributary to Raccoon Creek, and Little Timber Creek.

Grand Sprute Run travels in a southwesterly direction beginning east of Oak Grove Road along the outer boundary of the receiving zone, crossing US 322 before draining to Raccoon Creek.

Raccoon Creek runs in a northwesterly direction from its origin in Elk Township across Gloucester County towards the Delaware River. Within the area of the Receiving Zone, it is surrounded on both sides by tidal waters. It generally forms the southernmost boundary of Woolwich New Town.

Little Timber Creek extends from north of Woolwich New Town into the northernmost section of it.

No new stream crossings are proposed within the receiving zone. However, the existing bridge over Raccoon Creek, south of Woolwich New Town, is projected to experience a high concentration of north-south traffic flow once the receiving zone and entire Regional Center are built out. Consequently, either the bridge may have to be widened in the future, or else another bridge constructed over Raccoon Creek. This will have to be addressed in the future. But it is not an insurmountable issue that would impede the ultimate development of Woolwich New Town.

## WETLANDS

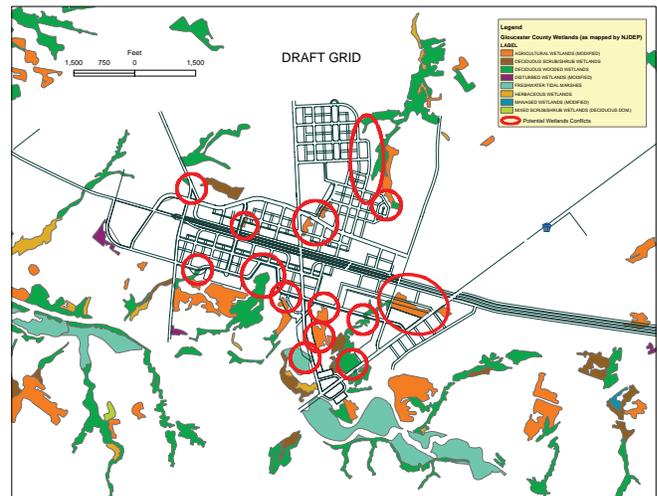
Wetlands primarily fall into one of two categories:

- Naturally occurring features that have developed over time along stream corridors
- Man-made features that have been created over time for agricultural drainage purposes

There are approximately 55 acres of wetlands in Woolwich New Town. However, a total of 119.5 acres of wetlands are impacted by Woolwich New Town. The additional acreage is located on properties immediately south of Woolwich New Town that will host regional stormwater basins. The placement of regional basins is being closely coordinated with NJDEP both in terms of wetlands and bald eagle habitat. The description below is of wetlands within the boundaries of the receiving zone.

When the planning and design process began for Woolwich New Town, an independent wetlands consultant was hired to help determine locations within the overall project site that constitute wetlands areas. Initially, this was done using mapped data. The initial Receiving Zone design reflected a conscious effort to avoid development in wetland areas.

A preliminary field inspection was then conducted to verify the shape and extent of each of the mapped wetland features. Where discrepancies were found, more detailed analysis and field investigations were completed.



Through an iterative process, the land plan and grid for Woolwich New Town underwent a series of design changes, reflecting new environmental information and attempts to avoid encroachment. In the end, a combination of site investigations and re-design reduced the number of locations with wetland impacts from 14 to eight.

The following sites may require freshwater wetland permits or wetland buffer transition area waivers in compliance with the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A):

1. Ditch, highly degraded, 0' buffer, General Permit #7 (Human-made ditches or swales in headwaters) needed
2. Assuming a 150' buffer requirement, possible General Permit #10B (minor road crossing); also, transition area waiver – buffer averaging needed
3. Ditch, General Permit #7; Transition Area Waiver – buffer averaging needed
4. Probably no permit is needed in this location
5. Transition Area Waiver – buffer averaging needed
6. This is considered a State Open Water; General Permit #6 (Non-tributary wetlands) needed; Transition Area Waiver – buffer averaging needed
7. Ditch, General Permit #7 needed; Transition Area Waiver – buffer averaging needed
8. General Permit #10B may be necessary but unlikely



The areas of concern were evaluated conservatively. Thus, in the end, some may not even require permits. However, any permits that are necessary are not based on extraordinary impacts. All wetland permits needed appear to be General Permits. Individual Permits are far more involved but do not appear to be necessary.

A detailed description of each impacted wetland area can be found in Appendix E of the TDR Plan Element.

### THREATENED AND ENDANGERED SPECIES HABITAT

Land that qualifies as habitat of threatened or endangered species includes the Grand Sprute Natural Heritage Priority Site, bald eagle foraging areas and Ranks 1 and 5 of NJDEP's Landscapes Project habitat classifications.

The Grand Sprute Natural Heritage Site is a 263.1-acre area that provides habitat for two plant species of special concern. Woolwich New Town encroaches on only 23.4 acres of this site. Furthermore, a portion of it will become dedicated open

space.

Threatened and endangered species habitats have been mapped by NJDEP as part of its Landscape Project. NJDEP delineated five different habitat types and then assigned rankings to each “patch” or mapped geographic area, according to the status of the species present. Woolwich Township contains four different types of habitats. Ranks 1 and 5 are the only ranks present in the Township.

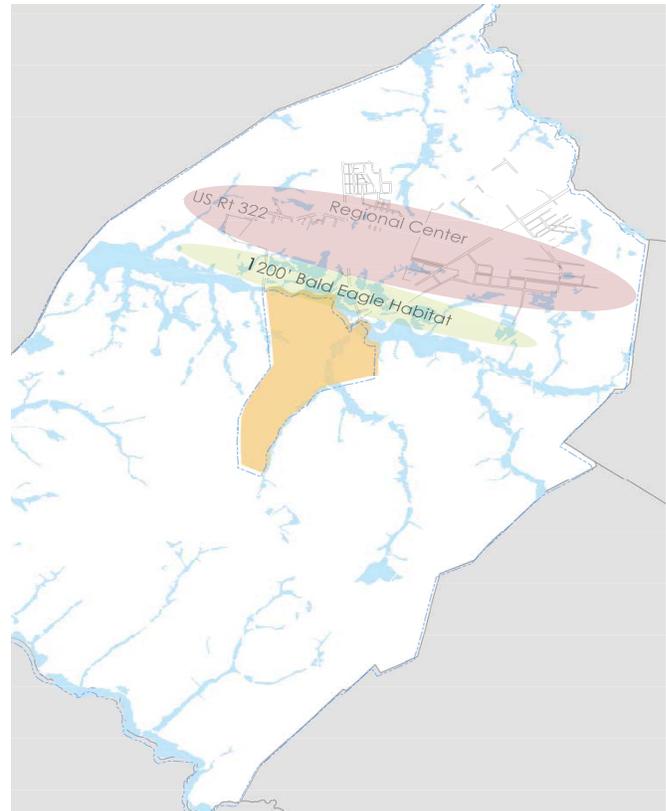
Rank 1 habitat encompasses the sum total of all areas that can possibly support the habitat of any of a number of species. This designation does not imply that any threatened or endangered species are using these areas for habitat. If there was documented proof of their existence, then the area of their use would be given a higher ranking (Ranks 4 and 5 have confirmed species present). Thus, Rank 1 habitat was discounted from consideration in the design of Woolwich New Town.

Rank 5 grasslands identified in Woolwich New Town are habitat of the federally listed bald eagle according to NJDEP Landscapes Project data. This differs from the bald eagle foraging habitat in that foraging habitat is associated with wetland areas, while the grassland habitat is associated with upland areas. However, both areas are utilized by the bald eagle in its life cycle.

Woolwich Township worked in partnership with NJDEP staff to establish the southernmost limits of Woolwich New Town that would minimize disruption to bald eagle habitat. Through this process, it was determined that the limits of development should more or less coincide with a 1,200 foot distance from US 322. Despite adherence to this boundary, at least some encroachment was inevitable.

Since Woolwich New Town encroaches into mapped habitat, the wetlands consultant hired to investigate the wetlands paid special attention to the presence or absence of individual bald eagles and/or nests in the area. In order to establish the size of the wetland buffers that will be mandated by NJDEP, bald eagle grassland habitat and foraging areas were reviewed using the NJDEP’s Landscape Project Map (Version 2.0). Regulations require a 150 foot buffer around wetlands located in bald eagle foraging areas as well as wetlands in grassland habitat associated with bald eagles. Results of the above described investigations are folded into the anticipated list of wetland permits described above.

Woolwich Township is taking great measures to protect critical habitat and environmentally sensitive areas. Protection of 3,638 acres of Landscapes Project ranked habitat will be achieved through the protection of TDR sending zone parcels. Furthermore, extensive field investigations and close coordination with NJDEP staff has resulted in a design of the receiving zone that is believed to minimize impacts to wetlands and bald eagle habitat. To the extent that there is some intrusion, necessary actions as dictated by NJDEP will be taken to ensure that needed environmental permits are properly secured.



*Some of the environmental constraints on development of the regional center include wetlands and endangered bald eagle habitat.*

Threatened/Endangered Habitats	Woolwich New Town Acres
Natural Heritage Priority Site	23.4
Bald Eagle Foraging Area	21.8
Grasslands Habitat	
Landscapes Project Rank 1	234.7
Landscapes Project Rank 5	154.4
Forested Wetlands	
Landscapes Project Rank 1	29.9
Landscapes Project Rank 5	0
Emergent Wetlands	
Landscapes Project Rank 1	25.5
Landscapes Project Rank 5	0
Upland Forest	
Landscapes Project Rank 1	0
Landscapes Project Rank 5	1.8

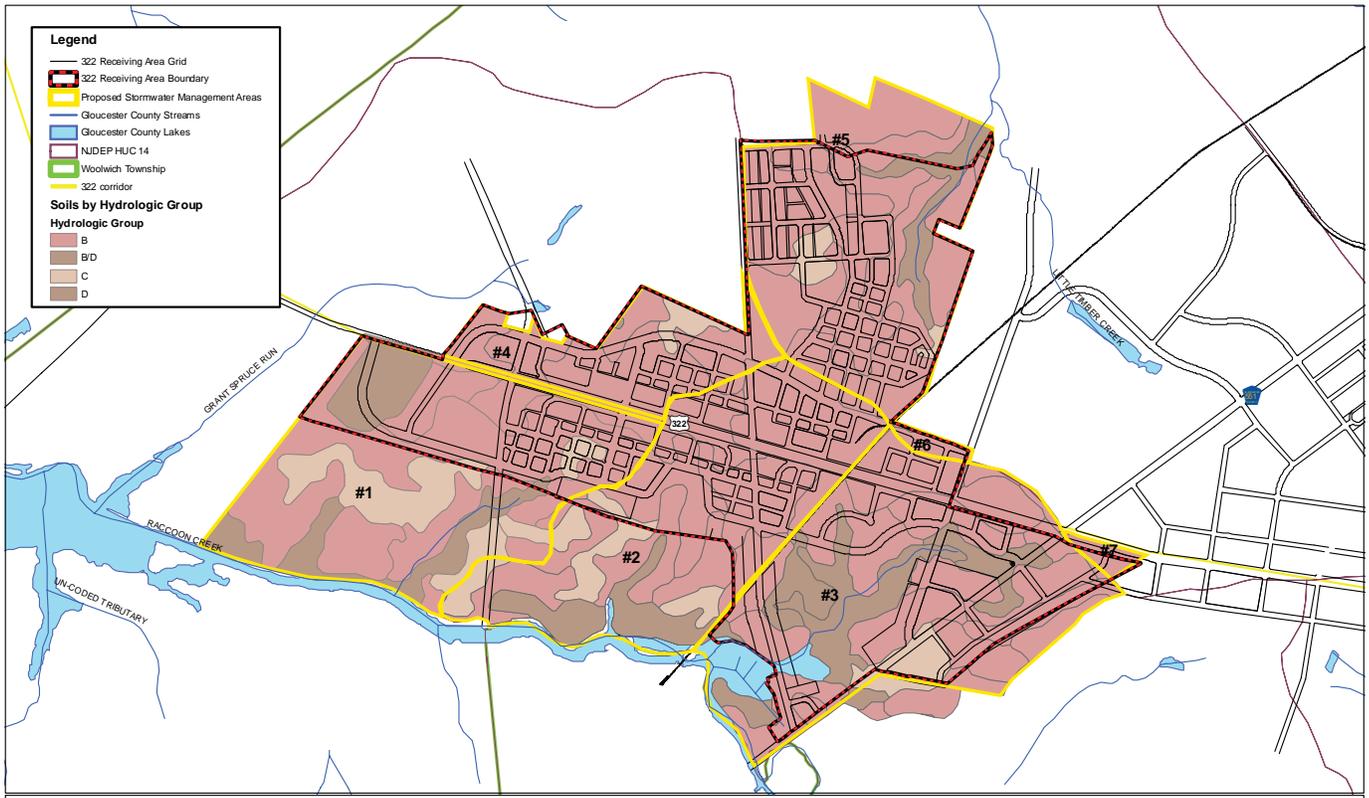
### STORMWATER RECHARGE

Roughly 84% of the soils underlying Woolwich New Town are prime soils for stormwater recharge. Prime soils for stormwater recharge are generally soils in Hydrologic Group B, which are well drained with permeability rates falling in the ideal range for recharge. Group A soils are also good for recharge, but since sand particles have a much smaller surface area, these A soils can sometimes drain too quickly.

On the other side of the spectrum, Group C and D soils are poorly drained, meaning they typically have limited

recharge capacities for stormwater management and they generate significant amounts of runoff during storm events. The areas within the development grid that are underlain by soils in Hydrologic Groups C and D are almost entirely concentrated in an area that will remain undeveloped.

Since the majority of soils underlying the development grid in Woolwich New Town are soils in Hydrologic Group B, they are prime soils for stormwater recharge. Therefore, they provide optimal conditions for pursuing stormwater management solutions that reduce overland flow of stormwater, replenish aquifers, and reduce flood potential.



### HISTORIC AND CULTURAL RESOURCES

A number of important landmark locations are found in or immediately adjacent to Woolwich New Town. The proposed grid was designed to facilitate access to and enjoyment of these resources by New Town residents, while maintaining their integrity by avoiding direct encroachment. The resources of concern are as follows:

Governor Stratton House



Mount Zion African Methodist Episcopal Church and cemetery

Former Nike Missile Site



Victorian and Colonial homes along the south end of Paulsboro-Swedesboro Road

The Governor Stratton House was the home of the sixteenth governor of New Jersey, Charles Creighton Stratton. Governor Stratton was born and raised here and spent his final years at the house. This historic landmark, currently housing a private law firm, is located on Kings Highway slightly north of the intersection with Paulsboro-Swedesboro Road. It sits immediately outside of Woolwich New Town. Wetlands abut the property north of the site. These are proposed to remain in undisturbed open space. This will help to maintain the integrity of the Governor Stratton House, while enhancing visual access to this resource for Woolwich Township residents by virtue of its proximity to Woolwich New Town.

The Mount Zion African Methodist Episcopal Church is the oldest AME congregation in New Jersey. The Church is located on Garmen Road, south of the railroad crossing. The cemetery is located just west of the railroad tracks, behind the Church. One of the early versions of the Woolwich New Town circulation plan called for a new railroad crossing in this location. However, it has since been relocated to avoid impacting this historic site.

A former, federally-owned Nike Missile base is located immediately north of Woolwich New Town, accessed from Paulsboro-Swedesboro Road. The site is one of two in the Township, established during the Cold War for defense against potential Soviet nuclear bombing of the Philadelphia region. The missile installations were discontinued and missiles removed after 1974. The site is now under municipal ownership and is slated to become a public park in the future. Its proximity to Woolwich New Town will afford residents access to a public park. The park should incorporate educational kiosks to broaden public awareness and appreciation of its historical significance.

A series of Victorian and Colonial homes front Paulsboro-Swedesboro Road on the south end, near the intersection with Kings Highway. This location falls within Woolwich New Town. The homes form a tight-knit linear community, characterized by mixed densities and shallow setbacks from the road. The design standards for this section of Woolwich New Town will ensure that new construction in the vicinity of this area maintains the density and visual character created by the hamlet.

## SUMMARY

The location and design of the US 322 Corridor Receiving Zone was not without its challenges. Absent needed research and careful analysis, the receiving zone could have had deleterious effects, especially on sensitive environmental areas. This, in turn, would have necessitated re-design, a more expensive prospect late in the planning process. Fortunately, a combination of field investigations, data collection and coordination with county, State and private sector interests informed the planning process sufficiently to minimize, if not altogether avoid impacts to environmental and historic resources. In fact, from this process emerged creative solutions that will enhance the public value of these resources, transforming them from obstacles into community assets.

## Section 8. Auburn Road Receiving Zone

This section presents an overview of the Auburn Road Receiving Zone, known as Auburn Road Village. Following the overview is a description of opportunities and constraints that were identified in the process of developing the receiving zone land plan and circulation system.

Far fewer constraints presented themselves at this site, compared to the US 322 Corridor Receiving Zone. It appears that those which were found can be readily addressed through proper planning. Therefore, the conclusion reached with regard to Auburn Road Village is that there is a realistic opportunity for development to occur in the receiving zone and that it will be able to support growth transferred from the sending zone.

### OVERVIEW

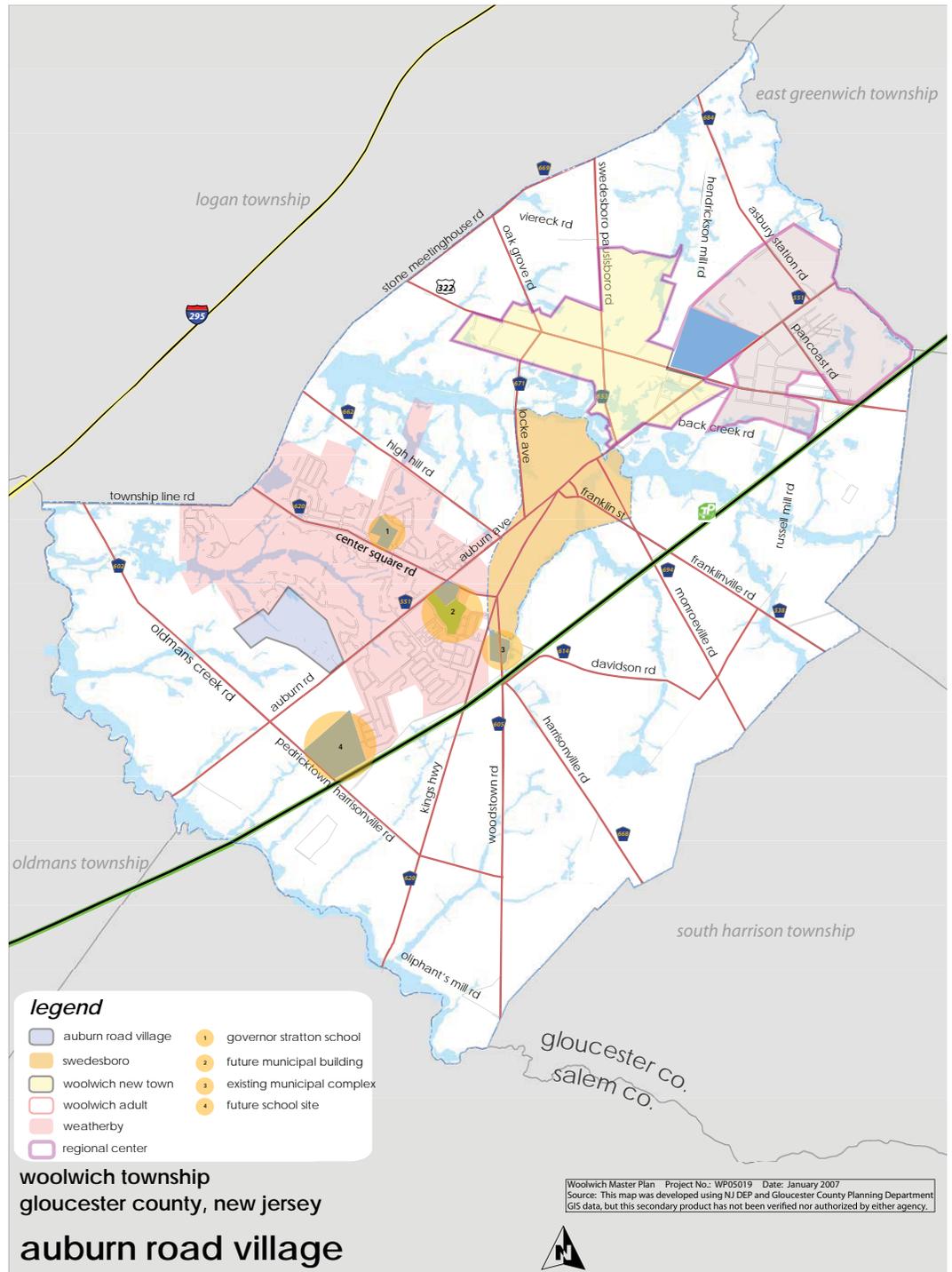
Auburn Road Village is located on the west side of Auburn Road, south of the Four Seasons development within Weatherby. Auburn Road Village consists of a single parcel of land, comprising roughly 125 acres. Of this, 81.5% (101.9 acres) is agricultural land. Wooded areas are present as well, although they comprise a much smaller portion of the total property (17.6 acres). There are three acres of wetlands along the headwaters of a tributary to Oldmans Creek. The property in question is located in an approved sewer service area.

As proposed, the Village will contain a maximum of 502 housing units including 130 single family homes, 162 twins and 210 townhouse units. The single family units will be permitted by right, as will 110 twins. The remaining units will be built via the transfer of development rights.

A total of 50,000 square feet of commercial space will line Auburn Road along the frontage of the property. This will be permitted by right, rather than being created through the transfer of development rights. Green spaces will be distributed throughout the Village to afford ready access by all residents.

The transfer of development rights will create a walkable, compact community with a mix of housing types, commercial space and public open space. Much like the US 322 Corridor Receiving Zone, the master plan for this site establishes an integrated system of connected streets and opportunities to link this site to the roadway system in Weatherby.





Receiving Zone Proposed Land Use	Units/Sq. Ft/ Acres	Avg Residential Lot Size
Single-family homes	130	10,000 sf
Twins	162	5,000 sf
Townhouses	210	2,250 sf
Retail and office space	50,000 sq. ft.	
Open space and parks	31 acres	

## CAPITALIZING ON OPPORTUNITIES

Woolwich Township's decision to create a second receiving zone was not made at the inception of the TDR planning process. Over time, however, a number of considerations led to this decision:

- Preference to reduce density of US 322 Corridor Receiving Zone by distributing a portion of projected growth to a second receiving zone
- Proximity to existing development and other activity centers
- Circulation system
- Availability of public sewer service
- Availability of public water supply
- Developer interest in the site and in TDR, suggesting favorable market conditions

The following is a description of existing and future anticipated conditions that present opportunities for developing Auburn Road Village.

### PREFERENCE TO DISTRIBUTE DENSITY BEYOND THE US 322 CORRIDOR RECEIVING ZONE

Through an extensive educational process, Woolwich Township leaders came to recognize the fundamental relationship between density and the look and function of a true town. This was a central tenet of Woolwich New Town. It is because of this understanding that Woolwich New Town is designed to accommodate residential lot sizes as small as 2,250 per square foot (townhouses) and no larger than 10,000 square feet (single family units).

The concept of density is something that is not readily understood or accepted by many. In part, this is a function of the disconnect between density and visual impacts; misconceptions about the relationship between density and tax impacts (due to the number of children generated by residential development); and inadequate information about the relationship between density and traffic. Garnering a greater public understanding of these issues takes time and resources. While these were issues that were addressed throughout the Township's visioning process, municipal leaders recognized that they would continue to impact the planning process.

To help defray concerns about density, Woolwich Township took advantage of existing developer interest in designating a second receiving zone. By doing so, this reduced the ultimate build out of Woolwich New Town, without compromising the functional and visual integrity of the New Town. In the end, it was clearly the more politically acceptable solution for distributing sending area credits.

### PROXIMITY TO EXISTING DEVELOPMENT AND OTHER ACTIVITY CENTERS

Auburn Road Village abuts one of the two major planned growth areas in Woolwich Township, namely Weatherby. It is also proximate to the Borough of Swedesboro.

Commercial facilities within Weatherby will be accessible to Auburn Road Village residents. Likewise, future



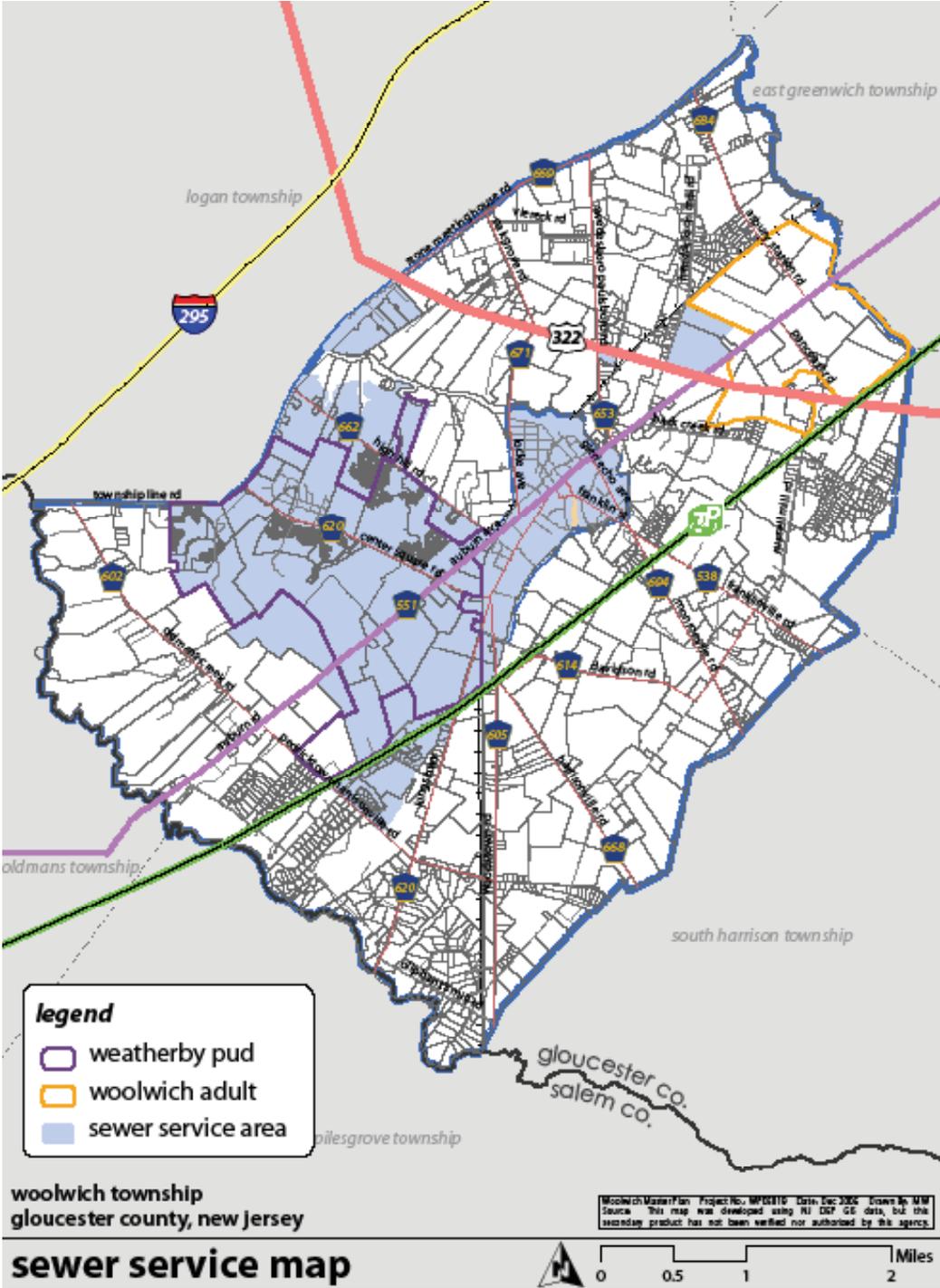
*Photographic example of proposed Auburn Village Road community*

commercial development in Auburn Road Village will be convenient to Weatherby residents. Other proximate nodes include the Governor Charles C. Stratton School (elementary), the site of three future elementary schools, and the existing and future municipal building.

### SEWER SERVICE

Currently, Woolwich Township is partially served by the Logan Township Municipal Utilities Authority (LTMUA). The sewer service area is limited to the Weatherby development and several adjacent properties, including the site of the future Auburn Road Village. The LTMUA operates a wastewater treatment facility with a discharge to the Delaware River.

Aqua New Jersey has a wastewater contract with the Logan Township Municipal Utilities Authority. This contract provides for wastewater treatment from the portion of Aqua's franchise area that is located in the LTMUA service area.



Aqua New Jersey projects total flows of .151 million gallons per day at Auburn Road Village when fully built out. To facilitate this, additional capacity must be purchased. LTMUA expects to undertake a treatment plant expansion in the near future to serve certain other planned developments in Woolwich Township. This does not include Auburn Road Village. If capacity is not purchased in advance of this for Auburn Road Village, then a subsequent expansion will be necessary. Even so, this could be accomplished through the existing contract between Aqua New Jersey and LTMUA.

The LTMUA sewer conveyance system is believed to have sufficient capacity for projected flows from Auburn Road Village. The type of collection system needed has yet to be determined.

Additional details, including cost estimates, are found in the *Woolwich Township TDR Utility Services Plan*.

## PUBLIC WATER

Like public sewers, public water supplies will be an essential component of the receiving zone. At present, none is available in the receiving zone. Public water supply in Woolwich Township is limited to the Weatherby development and immediately adjacent areas along Center Square Road. However, the opportunity to extend public water to Auburn Road Village appears feasible.

Aqua New Jersey holds the water supply franchise in Woolwich. As such, it is responsible for arranging for, owning and operating facilities in accordance with existing and/or future service agreements with the Township and developers.

Aqua's current source of water is groundwater, as permitted by NJDEP's Bureau of Water Allocation. Four wells, one treatment plant, 1.65 million gallons of storage, a booster station and water distribution mains serve existing subdivisions within and adjacent to Weatherby.

Although Aqua's current water allocation is sufficient for short-term needs, it will have to be supplemented by purchasing water from New Jersey American Water Company. A water main extension from Aqua's existing water plant to Auburn Road Village will be necessary to provide service to that site.

Projected water demand at Auburn Road Village is .143 million gallons per day.

Given recent ground water modeling and NJDEP water allocation decisions, Aqua New Jersey believes that the best source of water will be surface water from New Jersey American Water Company supplemented by ground water sources.

Additional background information on water supply issues, needs and opportunities can be found in the *Woolwich Township TDR Utility Services Plan*.

## CIRCULATION SYSTEM

Auburn Road Village will be served by an integrated, highly connected system of local streets serving smaller neighborhoods within the Village. The residential densities proposed, coupled with an interconnected street system, will facilitate easy access from place to place on foot and on bicycle.

The site will gain access to Auburn Road via a main residential collector street, designed as a divided parkway. Although Auburn Road may ultimately be the only access to the Village, projected traffic volumes both from the Village and from Weatherby are expected to be substantially less than the capacity of this two-lane roadway. Therefore, Auburn Road will be able to accommodate the growth.

Despite the ability of Auburn Road to accommodate projected traffic volumes, adding connections between Auburn Road Village and Four Seasons in Weatherby either by roadway or walking/bicycle path would be preferable for several reasons. An internal connections would create an alternate, parallel route to Auburn Road, reducing pressure on a single roadway. Secondly, children in Auburn Road Village would be able to get to the Governor Stratton School without having to travel on Auburn Road. Thirdly, it would provide an alternate route for Weatherby residents going to the commercial district of Auburn Road Village and for Auburn Road Village residents traveling to Weatherby's commercial district. Finally, it would offer better, more direct access to Auburn Road by residents of Four Seasons to the west of Auburn Road Village.

Weatherby has General Development Plan approval from the Township. This approval does not call for interconnections from Four Seasons to external sites adjacent to it, namely Auburn Road Village. Therefore, the TDR Plan does not mandate a connection into Four Seasons; rather, it recommends seeking developer consent to this proposition. Regardless, the existing and proposed transportation network, with or without connections into Four Seasons, will be able to accommodate the receiving zone.

## MARKET CONDITIONS

A real estate market analysis was performed for the purpose of assessing the feasibility of the transfer of development rights program as proposed in Woolwich Township.

At the time that the analysis was conducted, the Township estimated a total of 1,283 credits that could be generated in the sending zone, based on the number of housing units that could be built in total under current zoning. A total of 137 credits would be allocated to properties in the receiving zone that participate in TDR. The remaining credits must be purchased from properties in the sending zone or provided through bonus credits. A formula was devised that assigns bonus ratios to the credits purchased from the sending zone to calculate



*Auburn Road street classifications*

the total units, in addition to those permitted by right, that could be constructed in the receiving zone.

Key to the success of the TDR program is ensuring that there is a sufficient balance between credits generated in the sending zone and development capacity in the receiving zone. Furthermore, there must be sufficient demand for development credits to absorb development in the receiving zone.

The real estate market analysis found that market conditions do indeed suggest success in transferring development rights into the receiving zone. The analysis concluded the following, assuming that certain economic conditions and policies at the national, state, regional, county and local levels continue to prevail in the future:

- Development potential in the receiving zone will be strongly influenced by its proximity to Weatherby. Weatherby has already seen significant absorption of units. The receiving one should benefit from similar market conditions
- There is sufficient demand to absorb the 502 residential units planned for Auburn Road Village
- The proposed residential development will support 60,000 – 70,000 square feet of retail space programmed for the Village
- Supportable land values (what a developer is willing to pay) for the permitted housing types exceed anticipated credit costs in the sending zone by 16% - 18%, providing a financial incentive to developers to purchase credits
- The proposed bonus development credits, coupled with the expected level of residential and retail demand, will provide sufficient market demand to support needed sales of the 1,283 credits in the sending zone

Further details can be found in the *Woolwich Township Transfer of Development Rights Real Estate Market Analysis*.

## SUMMARY

Physical, economic and political conditions collectively create a favorable environment in which to create a second receiving zone and specifically, in which to develop the site designated as Auburn Road Village. Although not all conditions are present today, planning is well underway to ensure that needed infrastructure is in place in due time.

## OVERCOMING CONSTRAINTS

The location of Auburn Road Village poses very few development constraints. The principal constraints are wetlands and associated threatened and endangered species habitat. NJDEP wetlands data was overlaid on top of the development grid and analyzed accordingly.

## THREATENED AND ENDANGERED SPECIES

According to NJDEP Landscape Project Map (version 2.0), wetlands that encroach into Auburn Road Village development grid are habitat for the federally threatened/state endangered Bog Turtle. As such, this wetland feature would almost certainly be deemed of Extraordinary Resource Value, and the outermost extent of the feature would be given a 150' buffer. However, if it can be shown that no bog turtle are utilizing the wetlands in this area, the buffer could be reduced and/or eliminated at the discretion of the NJDEP Land Use Regulation Program.

## WETLANDS

According to NJDEP GIS Mapping, 3.958 acres of deciduous dominated wetlands cross into the development grid. The wetlands that cross into the

development grid do not come into direct conflict with the proposed street network, as designed. However, when the assumed 150' buffer is added to the outermost extent of the feature, the buffer extends into portions of the proposed street network. To be exact, roughly 1.2673 acres of wetland buffer encroaches on planned streets and/or development areas. Unless it can be shown that there are no bog turtle using the wetlands, this could be resolved by obtaining a Transition Area Waiver – Buffer Averaging Permit. The Permit would allow encroachment into the buffer in certain areas by adding increased buffers to another portion of the same wetland feature.

*150 foot wetland buffer within Auburn Road Village*



## SUMMARY

Auburn Road Village is a viable and appropriate secondary receiving zone. It is a smaller scale community compared to Woolwich New Town, but designed at similar densities that will afford many of the same benefits. That there are relatively few constraints on this site makes site planning and implementation feasible.

## SECTION 9: MECHANISMS AND PROCEDURES FOR TRANSFERRING DEVELOPMENT RIGHTS

### TDR CONCEPT

Transfer of development rights is a “market driven” land use management zoning tool that, when fully implemented, seeks to permanently preserve open space, agricultural land and other important lands within certain defined areas of the Township known as “sending zones” while encouraging and promoting growth and development in other areas of the Township known as “receiving zones”. Receiving zones are also commonly known as growth areas and sending zones are where farmland is to be preserved. The Township believes that TDR is necessary and even critical to maintaining the remaining rural character of the community while spurring economic growth in the 322 Corridor. It is recognized that continued patterns of suburban sprawl development are unacceptable and will result in the fragmentation of farmland and threaten the rural character of some portions of the Township.

The TDR works by shifting the permitted development intensity located within the sending zones to permit a greater density of development in the receiving zones. The Township adopts a TDR ordinance that establishes a certain total number of TDR credits in the sending zones on an individual parcel by parcel basis. The ordinance also results in the design of a receiving zone development intensity that can only be achieved through a transfer of development rights between landowner interests located in both zones.

Therefore, there is a rational nexus between the size and permitted density of the receiving zone(s) and the number of possible TDR credits. A credit transfer takes place to increase development intensity in the receiving zone. Both the sending and receiving areas have a permitted by-right development density and a complete listing of permitted uses, bulk and area standards and design criteria.

### STATE TDR ACT

The State TDR Act requires the Township to prepare the following: an amendment to the Township Master Plan to create a Development Transfer Plan Element; the adoption of a municipal capital improvement program; a Utility Service Plan Element of the Township Master Plan; a Real Estate Market Analysis; and a transfer ordinance. These documents must be submitted to the County Planning Board, and when farmland is involved, to the County Agricultural Board for review. In addition, the County Agricultural Board and the NJ Office of Smart Growth must be involved in the periodic review of the program.

The Township must implement TDR through the adoption of Master Plan amendments and a zoning ordinance which deals with both the sending and receiving zones in accordance with the State Transfer of Development Rights Act, N.J.S.A. 40:55d-137 et seq. The sending zones and receiving zones are interconnected by way of the TDR concept in that, in order for land to be permanently preserved in the sending zone a pre-determined number of “development credits” in the sending zone” must be



purchased by a developer, property owner and/or other investors located in a “receiving zone”. A rational nexus is created between the sending zone and the receiving zone. The receiving zone must accommodate the number of dwelling units expected from the sending zone in a balanced exchange of value that creates no undue market advantage to either the seller or the buyer.

Once a development credit is sold, the sending zone land affected is deed restricted for preservation. The development right is gone for good, protecting open space and farmland while giving the landowner a profit. Based on market analysis a developer typically receives an allowance of additional dwelling units on the receiving parcel for the purchase of development rights on a sending parcel. Typically, the landowner who sold the development rights retains ownership of the sending parcel because the property retains all of its other inherent rights. The TDR concept compliments the state preservation programs such as Green Acres and the State Agricultural Preservation Program to preserve farmland in that fewer public funds are needed to preserve farmland.

### TOWNSHIP TDR PROGRAM

The purpose of TDR in the Township is to preserve and mitigate the impact of development on the following resources within the sending zones: prime farmland or agricultural land; mature woodlands; stream valleys with associated floodplains and wetland; and historic, scenic and cultural resources; open space protected

for water supply; habitat and recreational areas. The concept, when fully implemented, will accommodate population growth without consuming valuable open space parcels. It should be remembered that expensive infrastructure will not be needed or required in sending zones. No public sewer capacity is allocated to a sending zone and the level of public infrastructure and public investment is kept to a minimum.

The sending zone in Woolwich Township is composed predominately of land having one or more of the following attributes:

- Agricultural land, woodland, floodplain, wetlands, threatened or endangered species habitat, aquifer recharge area, recreation or park land, waterfront, steeply sloped land or other lands on which development activities are restricted or precluded by local laws or ordinances or by laws or regulations adopted by federal or State agencies;
- Other improved or unimproved areas that should remain at low densities due to inadequate transportation, sewerage or other infrastructure, or for such other reasons as may be necessary to implement the State Plan and local or regional plans.

The Township proposes to utilize TDR to transfer from agricultural lands primarily to areas north of Swedesboro and south of the Weatherby residential development. The predominantly-agricultural sending area includes parts of the Tomlin Station Natural Priority site and the Grand Spruce Run National Heritage site. The community aims to curb development in the area to maintain its rural character, while making accommodation for economic development in more suitable growth areas.

Zoning in both receiving zones will be changed to accommodate the Township’s anticipated residential pressures detailed above and the Township’s desire to preserve the sending zone. If the TDR Program were not implemented, the total potential buildout of the sending zone is estimated at 1,283 single-family units, which are likely to be absorbed by 2020. Based on this total buildout, there are 1,283 development credits available from the Sending Area’s 3,817 acres to be used in the receiving zones. The following details the development potential for the receiving zones under these new zoning regulations:

#### Route 322 Receiving Area No. 1:

Based on absorption analysis and assuming current development patterns continue, there appears to be sufficient demand to absorb the following development during the 2012 to 2029 period:

- 3,217 units of single-family, twins, townhome, and multi-family building units
- 1.1 – 2.1 million square feet of retail and 500,000 – 1.5 million square feet of office/flex space

#### Auburn Road Receiving Area No. 2:

Based on recent development patterns and adjacency of the Auburn Road Receiving Area No. 2 to the Weatherby development, there appears to be sufficient demand to absorb the following development during the 2012 to 2029 period:

- 502 single-family and townhome units
- 60,000 to 70,000 square feet of convenience retail

After the rights are transferred from a sending zone parcel onto a receiving zone parcel, a restrictive covenant or conservation easement is placed over the sending zone parcel that will maintain the existing and/or any permitted open space usage into perpetuity. The land in the receiving zone is then allowed to develop at a greater density to create a focal point, place of interest and/or town center area within the Township. The receiving zone is specifically designed as a “sustainable development” to absorb greater densities through the transfer of development rights by maintaining and comprehensively planning for adequate facilities including but not limited to public sewer and water, roadway capacity, schools, park and recreation, stormwater management and the fulfillment of low/moderate income housing needs.

#### Township Sending and Receiving Zones

The TDR Program establishes a sending zone that includes 4,011 acres of current farmland and open space which the Township desires to remain in these farming and open space uses and from which the Township desires development rights to be transferred. The TDR Plan Element further establishes two receiving zones—one of 743 acres that contributes to the desired Regional Center along the Route 322 Corridor and a second, smaller area of 125 acres that is immediately adjacent to the Weatherby Planned Residential Community, which is in mid-development. The Township intends on amending current zoning to provide opportunities for more intensive development within the receiving zones. Under this proposed zoning, the potential for more intensive development will be subject to developers purchasing development rights from property-owners in the sending zone.

Current zoning in the sending zone includes four classifications: R-1; R-2; R-3; and 5AC. The 4,011 acres of the sending area are divided among these four classifications in this manner:

- R-1 1,800 acres
- R-2 1,949 acres
- R-3 172 acres
- 5AC 90 acres

All four zoning classifications limit allowable uses to single-family detached dwellings; agricultural, horticulture, farmhouses, farm buildings, farm markets, and related uses; certain community residences; public and nonprofit park & recreation facilities; and Township buildings. As conditional uses, the R-1, R-2, and R-3 classifications allow for schools, libraries, museums, and certain utility facilities. The maximum allowed densities are:

- R-1 0.50 dwelling units per acre
- R-2 0.66 dwelling units per acre
- R-3 2.17 dwelling units per acre
- 5AC 0.20 dwelling units per acre

The parcels zoned R-3 within the Sending Area are outside of the sewer service area; under this circumstance, zoning requires R-2 density, even though the parcel is within a R-3 district.

Current zoning in the US 322 Corridor Receiving Zone includes two classifications: R-2 and FOC. The 743 acres of this receiving area are divided among these two classifications in this manner.

- R-2 147 acres
- FOC 596 acres

The uses and densities allowed in classification R-2 are detailed above. The FOC classification allows offices; banks; certain amusement, recreation and leisure uses; business and household service uses including repair shops for business equipment, appliances, and the shops of tradesmen such as plumbers and electricians; and warehouse, distribution, and light manufacturing uses, provided that they are located at least 400 feet from the right-of-way of U.S. Route 322. As conditional uses, the FOC classification allows for auto dealerships, telecommunications towers, libraries, museums, certain utility facilities, and automobile service stations and repair facilities. The maximum allowed floor-to-area ratio is .15, resulting in maximum development of 6,534 square feet per acre.

#### TDR CREDIT CALCULATION FORMULA

All properties considered developable were analyzed that were 10 acres in size and located in a residentially zoned district outside of an existing sewer service area. These properties were entirely or predominantly undeveloped agricultural land, forested areas or open

space. Parcels equal to or less than 10 acres in size were subsequently added to the inventory where they abut other potential sending parcels. This allows smaller parcels the opportunity to merge with other properties and thereby participate in TDR.

The initial list of properties was vetted through the Woolwich Township Plan Petitioning Committee and then through the Office of Smart Growth. Initial feedback from the Office of Smart Growth led to further refinement of the list. A second iteration was reviewed by a subcommittee of the Plan Petitioning Committee and then the full Committee.

The final list of selection criteria were as follows:

- Parcel is undeveloped or largely undeveloped;
- Parcel is located in the R-1, R-2, R-3 or 5 Acre Zoning Districts outside of existing sewer service areas;
- Parcel is greater than 10 acres (with a few exceptions as noted above);
- Parcel contributes to the creation of a large contiguous block of farmland or open space;
- Parcel adjoins preserved land;
- Parcel is not already encumbered with development restrictions or easements;
- Parcel may be subject to a pending or approved development application which compromises the integrity of an Agriculture Development Area;
- Parcel is not subject to pending closing through the Farmland Preservation Program;
- In the aggregate, parcels meet statutory criteria for uses in the sending zone;
- Cumulatively, parcels selected create requisite number of credits needed in the receiving zones.

Credits in the Township TDR Program were calculated based upon soil septic suitability in the sending area, current zoning in the proposed sending area, and an inventory of actual approved dwelling unit yields in approved subdivisions. Some of the subdivisions that were tested were approved under earlier ordinances that provided for density bonuses. In addition to utilizing soil septic suitability and reviewing prior subdivision approvals, research was also conducted into other formulas used including Chesterfield Township, New Jersey. The proposed credits formula was tested against twelve (12) approved subdivisions within the Township.

The soil suitability classification was taken from the USDA, Natural Resources Conservation Service, Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app>). The information was taken from the Tabular Data Version 3, dated September 12, 2005. The technical criteria utilized to generate the Slight, Moderate and Severe classification are in "Standards for Individual Subsurface Sewerage Disposal Systems" New Jersey Administrative Code 7:9A. The criterion evaluates limiting soil features within the upper ten feet of the soil profile and recommends an overall soil suitability class. All soil information has been taken from the referenced data source and is a tool in evaluating the overall area. Actual field testing may result in either a more favorable or less favorable condition.

The rating class term indicates the extent to which the soils limit the suitability of subsurface sewage disposal and directly links the suitability to the soil features that affect these uses. "Slight" indicates that the soil has features that are very favorable for the specialized use. "Moderate" indicates that the soil has features that are moderately favorable for the specified use. "Severe" indicates that the soil has one or more features that are unfavorable for the specified use.

A soils constraints analysis was applied to each parcel (net acres, after deducting a certain percentage of land for infrastructure) located in the sending zone. Net acres were calculated by multiplying the gross acreage of a parcel by .88 in the R-1 and R-2 zones, by .8 in the R-3 zone and by .97 in the 5 acre zone to account for infrastructure.

Soils with slight development constraints are given full credit, moderate development constraints are given 1/2.22 of a credit, and severe development constraints are given 1/18 of a credit. In order to determine the number of TDR Credits the formula separates the total parcel acreage into three acreage totals-one for the amount of soils with slight development constraints, one for the amount of soils with moderate development constraints, and one for the amount of soils with severe development constraints. Next, the formula divides each of these totals by the minimum lot size (in acres) allowed by zoning. Then we multiplied the slight development constraint figure by 1, the moderate constraint figure by 1/2.22, and the sever constraint figure by 1/18. Finally, the formula adds the resulting three figures together to arrive at the total number of TDR Credits per tax lot. All tax lots receive are assigned a minimum of 1 full credit, even if the result is a fraction of a credit. Any credit calculation resulting in more than 1 credit is rounded down to the nearest quarter credit.

A real estate market analysis was conducted to establish and document land values in the sending and receiving zones to estimate the land value component of the proposed development in the receiving zones under the proposed zoning, and to determine the economic relationship of development rights in the sending zone to development rights in the receiving zones for various use categories. To create additional financial incentives to developers to purchase the development credits, and to compensate for the fact that in addition to purchasing development credits,

they must also purchase land in the receiving area, the TDR Program proposes development credit bonuses – that is, additional units that can be built within the receiving areas when credits are brought in addition to the allowable number of units under the base zoning code. With the addition of bonus ratios, the cost of buying development credits for use in the receiving zone is less than the cost of the land that is currently available for development in the sending zone.

Based on the market analysis, each receiving zone starts with a modest "By-right" residential density that may only be exercised as sewer-based developed in conjunction with the purchase of development credits from the sending zone.

The proposed bonus ratios for US 322 Corridor Receiving Zone are 0.30 for single-family detached housing; 0.80 for twins; 1.80 for townhomes; and 2.00 for multi-family building flats. These bonus ratios are applied to the total of development credits purchased from the sending zone. For example, if a developer purchased 20 development credits from the sending zone, the proposed development would receive a bonus of 6 credits (20 purchased times 0.30) and 26 single-family detached units could be constructed. This would be in addition to the approximately 5 units which could be constructed "by right" from the development credits associated with the receiving zone land.

Similarly, if a developer purchased 20 development credits from the sending zone for the purpose of constructing twin homes in the US 322 Corridor Receiving Zone, the proposed development would receive a bonus of 16 credits (20 purchased times 0.80) and 36 units could be constructed. This would be in addition to the approximately 4 units which could be constructed "by right" from the development credits associated with the receiving zone. If the developer purchased 20 development credits from the sending zone for the purpose of constructing townhomes, the proposed development would receive a bonus of 36 credits (20 purchased times 1.80) and 56 units could be constructed, in addition to the approximately 3 units which could be constructed "by-right".

Transferred development rights are also proposed for use in the US 322 Corridor Receiving Zone to increase allowable FAR in commercial building above .15 FAR to a maximum of .3 FAR. The proposed future land use for this Receiving Area includes approximately 200 acres devoted to retail, office, and flex commercial development in purely commercial buildings. Zoning permitting retail use represents a change from the current FOC zoning. Most retail development can be effectively accommodated with surface parking at densities above .15 FAR, provided that access to sewage treatment facilities is available. Based on 200 acres of land proposed for exclusively commercial development and up to 6,534 square feet of additional development per acre, an additional 1.3 million square feet of commercial space could be accommodated within Receiving Area No. 1 under this proposed Transfer of Development Rights feature. At one development credit per 10, 000 square feet of additional commercial development, demand for as many as 130 additional development credits would be created within this area devoted to exclusively commercial buildings.

The proposed **bonus ratios for Auburn Road Receiving Zone are 0.60 for twins and 1.50 for townhomes.** These bonus ratios are applied to the total of development credits purchased from the sending zone. For example, if a developer purchased 20 development credits from the sending zone for the purpose of constructing twin homes in the Auburn Road Receiving Zone, the proposed development would receive a bonus of 12 credits (20 purchased times 0.60) and 32 units could be constructed. Similarly, if a developer purchased 20 development credits from the sending zone for the purpose of constructing townhomes in the Auburn Road Receiving Zone, the proposed development would receive a bonus of 30 credits (20 purchased times 1.50) and 50 units could be constructed.

## TDR APPEAL PROCESS

Any landowner eligible for participation in a TDR program who is dissatisfied with their credit allocation may appeal their allocation in accordance with the procedures set forth in the TDR Ordinance.

Any appeal of a credit allocation must occur prior to the recording of a TDR easement. Once a property is restricted through the recording of the TDR easement, the opportunity for an allocation appeal is lost and the parcel's owner will be irrefutably presumed to have elected to accept the allocation given as an appropriate measure of the development potential of the parcel.

The parcel owner must submit a properly completed notice of appeal and required application and review fees to the Planning Board Secretary.

In order to appeal the allocation of credits, a conceptual subdivision plan conforming to the submission requirements of the Township's subdivision checklist and the \_\_\_\_\_ District yard and lot layout standards without variance and waiver shall be submitted. Percolation test results shall be submitted and approved by the Township Board of Health certifying the viability for each proposed building lot for on-lot effluent disposal. The Planning Board will determine the lot yield for the tract within the time or action required of a preliminary subdivision application, once a complete application has been submitted. Each lot that the Planning Board finds to be without variance and waiver and certified by the Board of Health shall be assigned one credit.

### Basic Criteria

- Sending Sites and receiving sites are privately owned land identified on maps and adopted by the Township Committee in the Land Development Ordinance.
- Adding a sending or receiving site to the Map is processed through a Land Development Ordinance Amendment.
- Process and standards of TDR program are adopted in the Land Development Ordinance.
- A TDR unit cannot be split and the "pieces" used in receiving sites.

### Criteria For Sending Sites

- The sending site shall be designated on the TDR plan of the Township Master Plan.
- A sending site must be at least 10 acres in size on the date that the ordinance is adopted.
- A parcel located in a sending zone shall not be subject to existing deed restrictions on further development.
- A sending site shall not be owned by government.
- Property adjoining and including critical area sites (aquifer recharge, wetlands, steep slopes) that would decrease development pressure on these critical areas.

### Criteria For Receiving Sites

- The parcel must be located within the boundaries of a receiving zone as amended and as identified on the TDR Plan Map of the Township Master Plan.
- Located within areas that contain public services and includes existing intense development patterns, good roadway areas and redevelopment areas.

### Credit Allocation

- The Woolwich Township TDR credit allocation formula seeks to closely estimate the number of dwelling units which could have been built on each eligible parcel given the base zoning density as set forth for the \_\_\_\_\_ District, which zoning is replaced by the adoption of this section and the environmental constraints present.
- The underlying \_\_\_\_\_ District zoning requires the use of individual septic tanks for sewage disposal. Accordingly, it has been determined that it is the suitability of soil for septic tank permitting which most directly indicates the development rights or credits that are allocated.
- The standard source of information related to the septic suitability of soils located in Gloucester County is the USDA Soil Conservation Service (SCS) soil survey

(survey). The SCS survey characterizes soil based on numerous factors, one of which is the disposal of septic effluent. The combination of the soils' characteristics result in a septic suitability rating of slight, moderate or severe.

- In order to allocate credits in a manner consistent with the pre-existing zoning but within the context of environmental constraints, a formula was developed and applied to the computerized soils data generated for each parcel.

#### Sending Sites – Deed Restrictions

- Open space dedicated to a government or land trust; however, nothing shall be construed by this subsection to require the dedication of the land for public open space.
- Agricultural and farmland uses as defined in the ordinance and all other activities and improvements as specifically permitted by the New Jersey Right to Farm Act.
- Public areas as defined in the ordinance.

#### RECEIVING SITES – TDR IMPLEMENTATION

- The use of development credits shall occur as indicated on an approved plan for the receiving area lots that have been specified for development.

- Each of the permitted housing types shall be equal to the following development credits for units transferred from the sending zone(s):  
US 322 Corridor Receiving Zone:

- 1.3 Single-Family Detached = 1 credit
- 1.8 Duplex or Twin Unit = 1 credit
- 2.8 Townhouse = 1 credit
- 3.0 Urban Apt/Flat = 1 credit

#### Auburn Road Receiving Zone:

- 1.6 Duplex or Twin Unit = 1 credit
- 2.5 Townhouse = 1 credit

- No credits are needed to construct housing in mixed-use buildings located above the first floor.

- The number of credits to be transferred shall be determined pursuant to a conceptual subdivision plan on the land so designated for transfer pursuant to the appeal process.

- The TDR development option may be exercised only for parcels located within receiving zones or districts.

Applicants exercising the TDR development option shall submit an application that includes land within both the sending and receiving zones or districts in accordance with their respective requirements. Application for the receiving zone development may only be made after the layout for that portion of the receiving districts intended for importation of credits from the sending zone(s) has received preliminary subdivision approval from the Planning Board. The applicant shall have secured through an equity interest all necessary credits for increasing the permitted density in the receiving area(s) prior to final action being taken by the Planning Board.

Woolwich Township's sending zone contains 115 tax parcels, totaling 4,011 acres. All participating properties are located in one of four residentially zoned districts including the R1, R2, R3 and 5 Acre Districts. Eligible properties included those that were either vacant or under-developed according to the zoning ordinance.

SENDING ZONE CHARACTERIZATION BY ZONING DISTRICT, TOTAL PARCELS AND ACREAGE		
Zoning District	Total Number of Tax Parcels	Total Acres
R1 – 2 acre density	58	1,800
R2 – 1.5 acre density	47	1,949
R3 – 20,000 s.f. density	5	172.0
5 Acre – 5 acre density	5	90

Source: 2006 Tax Data, Woolwich Township.

Initially, all properties considered developable were analyzed that were over 10 acres.

The following is a calculation for a sample sending parcel:

Parcel X: 10 acres

Zoning: R-1 (minimum lot size of 2 acres)

Soils with Slight Development Constraints: 3 acres

Soils with Moderate Development Constraints: 3 acres

Soils with Severe Development Constraints: 4 acres

Slight	Moderate	Severe
$3 \div 2 \times 1 = 1.5$	$3 \div 2 \times \frac{1}{2} \times .22 = 0.68$	$4 \div 2 \times \frac{1}{18} = .11$
Credits	Credit	Credit

Total

$$1.5 + 0.68 + .11 = 2.29 \text{ TDR Credits}$$

## CONCLUSION TO THE TDR PLAN

Successful town planning comes about as a result of strong leadership, financial and technical resources, public-private partnerships and community involvement. Successful town planning also comes about through strategic selection of planning tools and techniques. Three years ago, the New Jersey legislature enacted a law giving municipalities a powerful new planning tool. That tool is the transfer of development rights.

TDR will be instrumental in helping Woolwich Township achieve its ambitious “town and country” vision – a vision built upon the notion of sustainable growth and preservation. The planning process enabling the Township to use TDR began with the preparation of a development transfer plan element of its master plan, followed by other related master plan elements. Over a two year period, the Township implemented a planning process best described as challenging, inclusive and comprehensive. En route, it was fortunate to have the ongoing support of county and state partners. Today, Woolwich Township stands positioned to move forward with the goal of seeing its vision through to fruition.

*“Good plans shape good decisions. That’s why good planning helps to make elusive dreams come true.”*

*-Lester Robert Bittel*