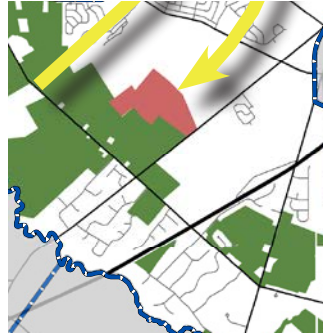
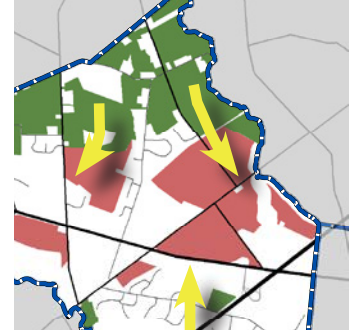
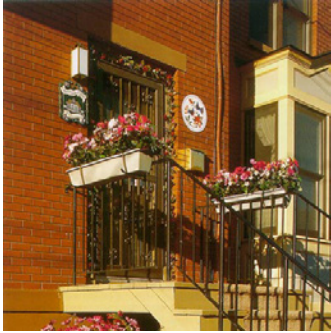


TDR PLAN



Contents

- Section 1 Introduction
- Section 2 The Planning Context: Setting The State for TDR in Woolwich Township
- Section 3 Agriculture in Woolwich
- Section 4 Visioning and Planning Objectives
- Section 5 Planning Strategy
- Section 6 Sending Zone Profile (not updated - refer to 2008 plan)
- Section 7 Kings Landing (US 322 Corridor) Receiving Zone
- Section 8 Auburn Road Receiving Zone
- Section 9 Mechanisms and Procedure for Transferring Development Rights
- Section 10 Conclusion
- Appendix

SECTION 1: INTRODUCTION

On March 29, 2004, the State Transfer of Development Rights Act was signed into law (N.J.S.A. 40:55D-137 et seq.), 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 five municipalities grants to develop their own TDR programs. Woolwich Township was among those municipalities. In 2007, Woolwich officially adopted their TDR Plan.



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 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 and preserve 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 play because new development is almost entirely residential 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 zones
- The procedure and method for issuing instruments to convey development potential from the sending to receiving zones
- Planning objectives and design standards governing the review of applications for development in the receiving zones

This document is the transfer of development rights 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 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.

Section 6 describes the proposed sending zone (refer to 2008 plan). Sections 7 and 8 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.

THE LINK BETWEEN TDR AND INITIAL PLAN ENDORSEMENT

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 program, and real estate market analysis. The following have been prepared accordingly.

- TDR Plan
- Land use plan
- Zoning regulations and design standards
- Public spaces plan
- Circulation plan
- Stormwater management plan
- Capital improvement program
- Real estate market analysis of the sending and receiving zones
- Utility services plan

Furthermore, before Woolwich adopted its development transfer ordinance, its planning documents were submitted 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. This endorsement was granted by the State on April 18, 2008.

Additional master plan elements and planning studies have been prepared that complement the TDR plan element. They include the following:

- Master plan and all plan elements
- 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 Policy Map
- Planning and Implementation Agreement

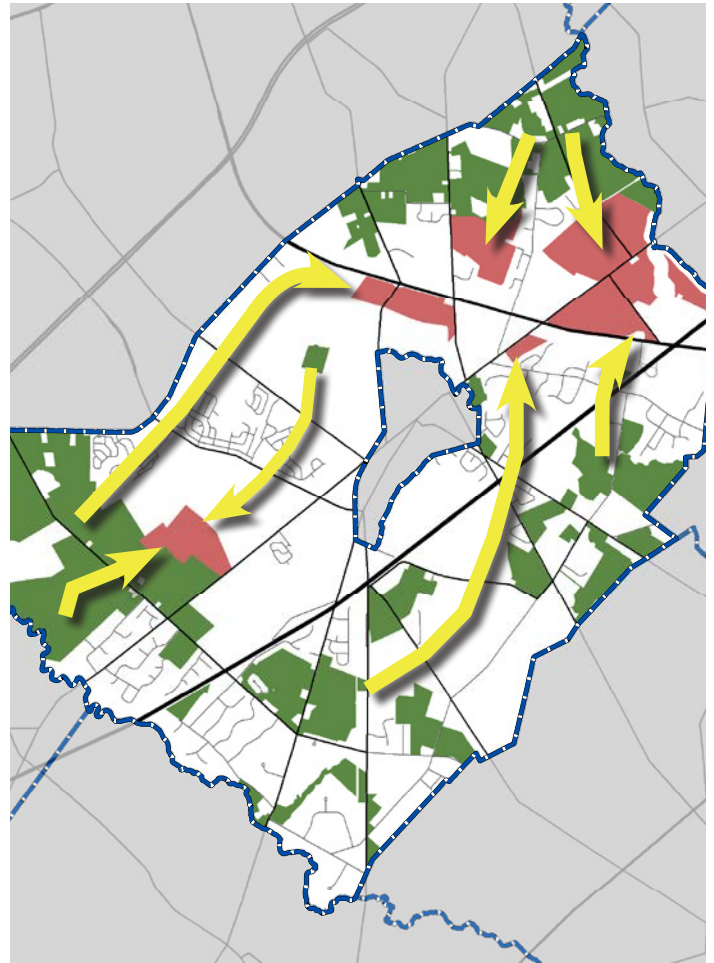
PLANNING PROCESS

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 an 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 Joint Land Use Board. Revisions based on local feedback and input from state agencies were incorporated into the plans prior to the Joint Land Use Board public hearing on March 1, 2007. All but the Capital Improvement Program were subject to the hearing, since a Capital Improvement Program 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. The Township Committee approved the TDR Plan and several months later, on April 18, 2008, the Office of Smart Growth endorsed the Plan. Thereafter, the Township officially adopted its TDR ordinance and actively began implementation of one of New Jersey's most proactive, visionary plans.



SECTION 2: THE PLANNING CONTEXT

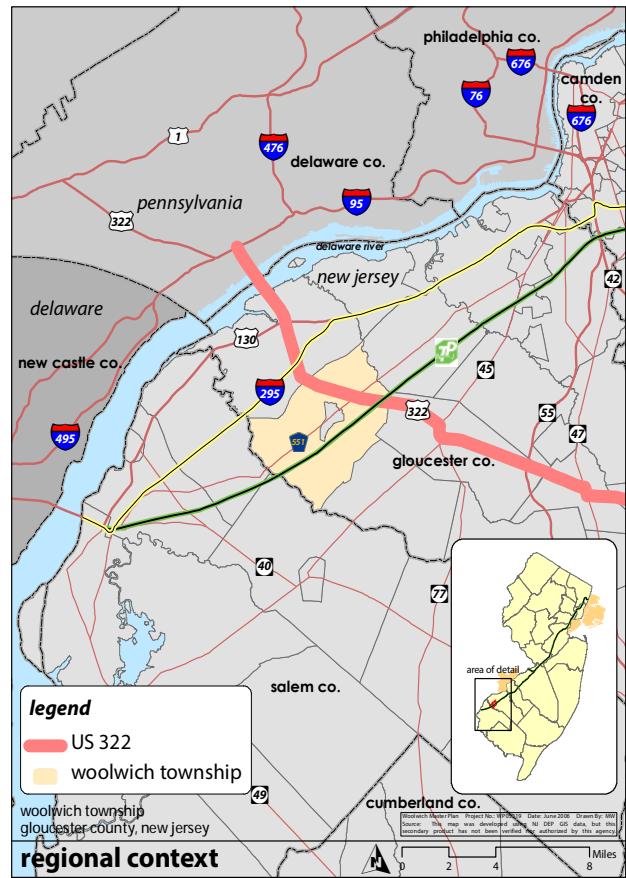
SETTING THE STAGE FOR TDR IN WOOLWICH TOWNSHIP

Woolwich Township is a 21 square mile rural-going-suburban community located in western 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. Woolwich Township surrounds Swedesboro Borough.

According to the 2012 Census of Agriculture over 48.8% of the land base was in agricultural or horticultural 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 eagles.

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 1,300 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.

Through the 1990s, its population soared to 3,032, and by 2010 the population reached 10,200. Population growth rates in Woolwich far outpaced Gloucester County, adjacent municipalities, and the State. The Delaware Valley Regional Planning Commission (DVRPC) makes population projections for counties within its jurisdiction, and Woolwich ranks second highest in the region for absolute anticipated growth, with an estimate of 12,898 residents by 2040, and first in terms of percent change, up 127% from 2010. (“Analytical Data Report: Municipal, County, and Municipal Population Forecasts, 2010-2040,” ADR 18-A, DVRPC, March 2013.)

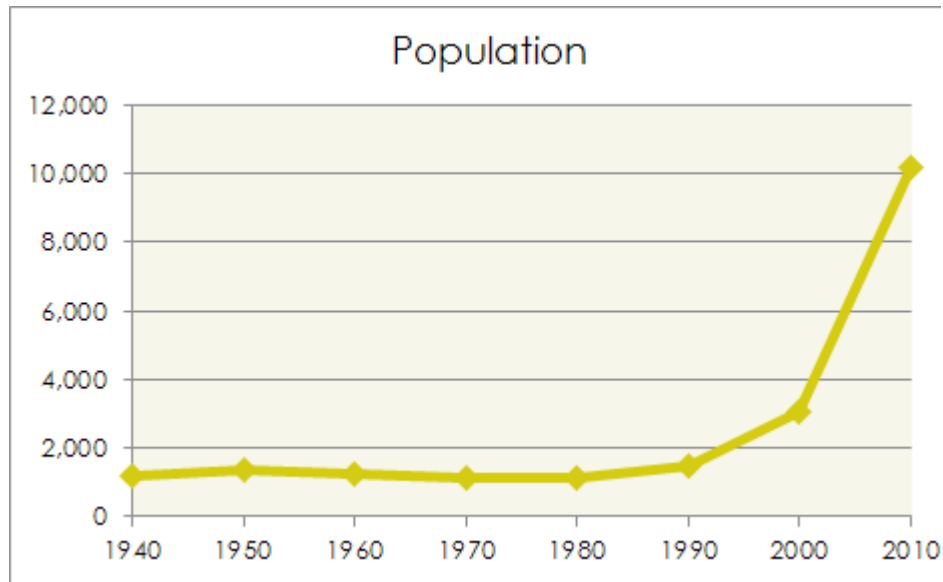


Fig. 1: Population, 1940-2010: Woolwich Township
 Source: U.S. Census, NJ Department of Labor and Workforce Development, Division of Labor Market and Demographic Research

AREA POPULATION GROWTH 1980 - 2010					
Municipality	1980 Census	1990 Census	2000 Census	2010 Census	Percent Change
Woolwich	1,129	1,459	3,032	10,200	803.5%
Gloucester County	199,917	230,082	254,673	288,288	44.2%
New Jersey	7,364,823	77,301,188	8,414,350	8,791,894	19.4%

Fig. 2: % Population, 1980-2010: Woolwich Twp., Gloucester County, and NJ
 Source: U.S. Census

SCHOOL CHILDREN, BABY BOOMERS AND SENIORS

Between 2000 and 2010, Woolwich Township witnessed a 283% increase in its school age population. Additionally, the baby boom cohort grew by more than 170% in Woolwich between 2000 and 2010. 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.

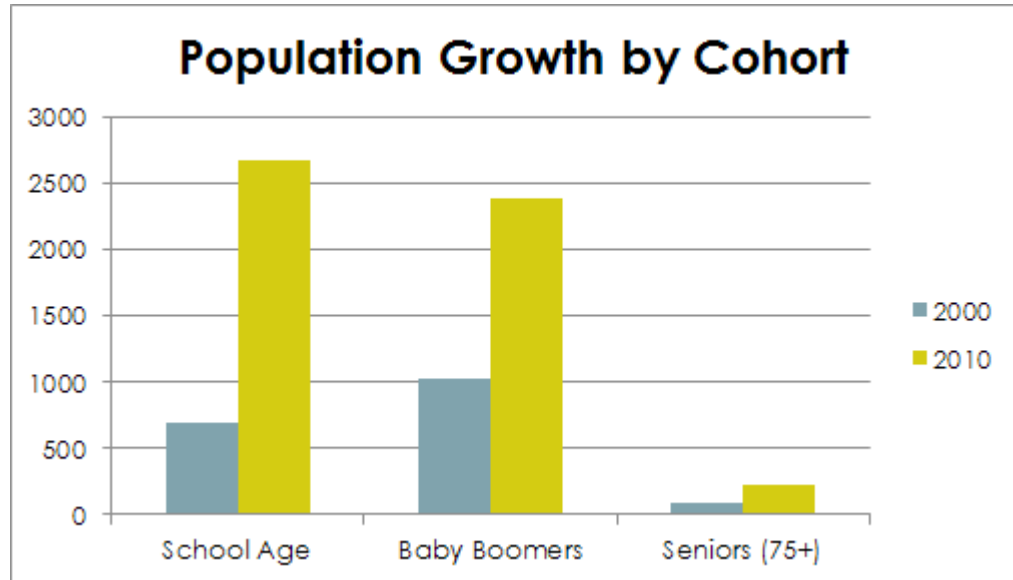


Fig. 3: % Change in Select Age Cohorts, 2000 and 2010 – Woolwich Township, Gloucester Co., NJ
Source: U.S. Census

HOUSEHOLD COMPOSITION

Household composition in Woolwich differs significantly from that of Gloucester County and New Jersey. More dramatic, however, is the difference from the national experience. The United States as a whole is experiencing a dramatic shift in household composition toward single-person households which may well affect Woolwich in the future as residents continue to move in.

Nationally and in New Jersey, the traditional two parent household with children represents approximately one-third of all households (33.5% and 35.2% respectively), according to the 2010 Census. In Woolwich, this cohort represents over half of the households (53.5%). Woolwich also has a low number of single person households compared to other geographic measures.

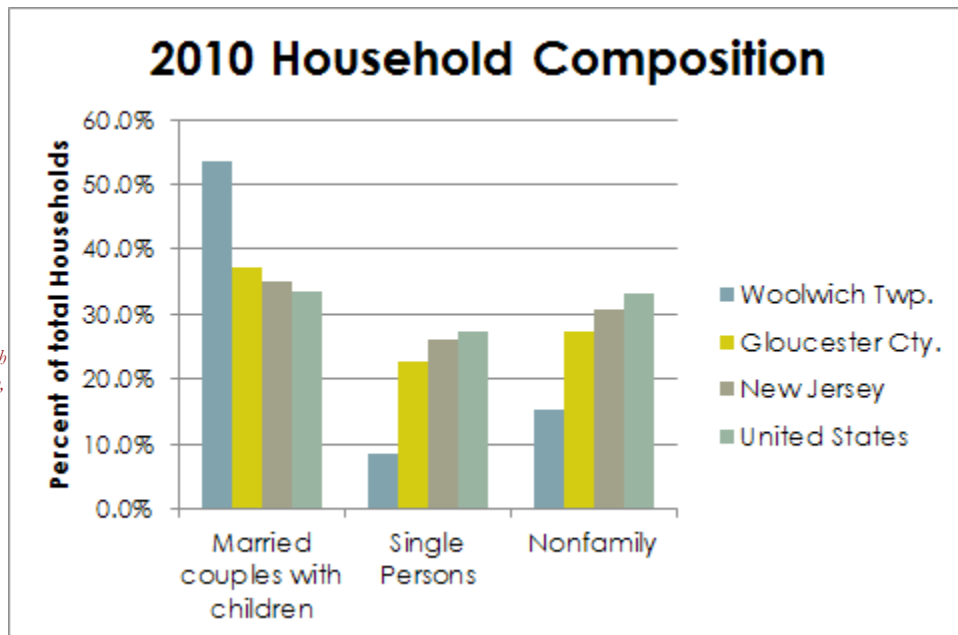


Fig. 4. Year 2010 Household Composition – Woolwich Township, Gloucester County, New Jersey, US
Source: U.S. Census, S2501 Occupancy Characteristics 2010

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. 2004 represents a substantial peak with 514 residential permits issued. From 2005 onward, however, there has been a drop in permits.

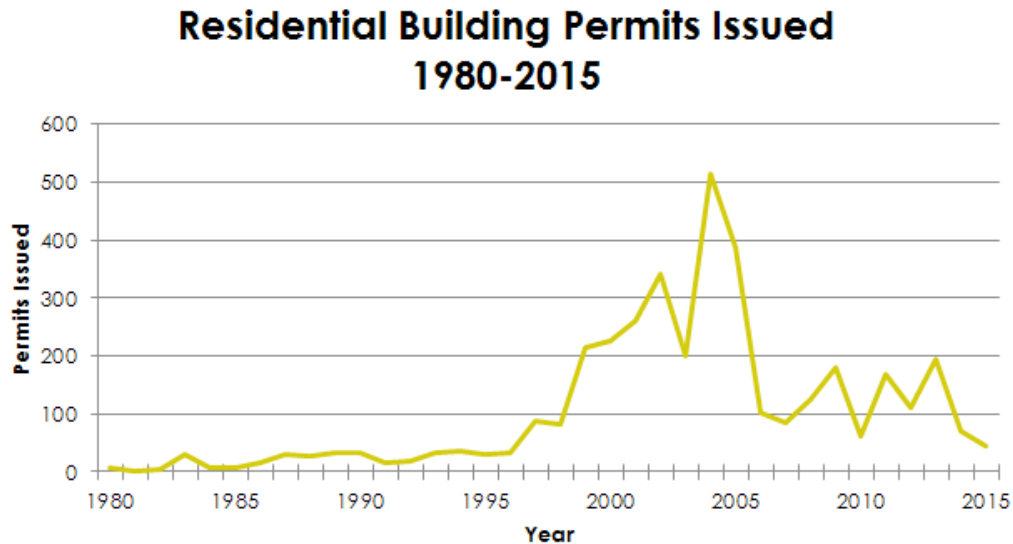


Fig. 5. Residential Building Permits Issued in Woolwich Tp: 1980 – 2015
Source: NJ Department of Labor and Workforce Development.

LABOR FORCE CHARACTERISTICS

The 2010 Census (2009-2013 Commuter Flows) reported 5,081 workers living in Woolwich Township. One-third (31.9%) worked in Gloucester County. Of these, the largest share worked in Woolwich (28.3%), Swedesboro (17.2%) and Logan Townships (11.8%). Sixty one percent of all residents worked within New Jersey, 35% worked in Pennsylvania (14% of the total population within Philadelphia proper), and with the balance employed in the greater Philadelphia region, Delaware, Maryland, and beyond.

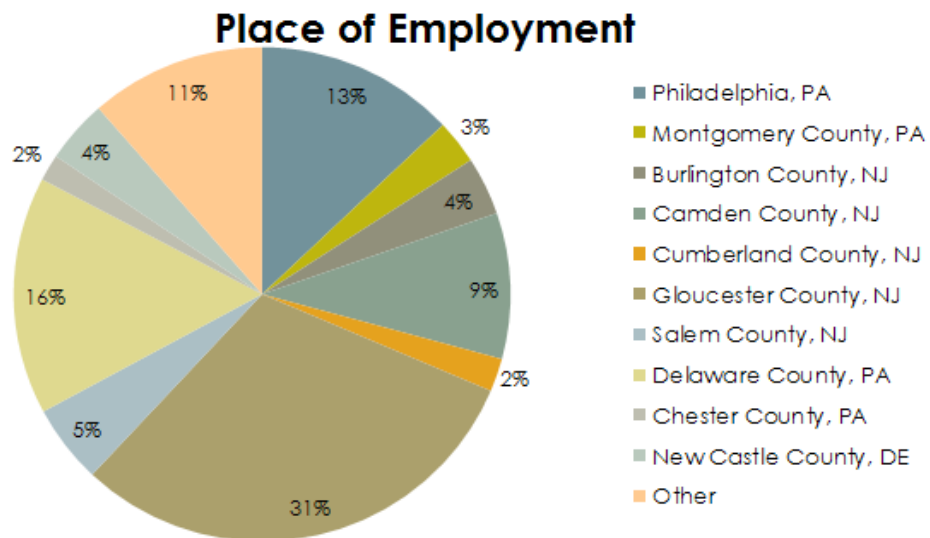
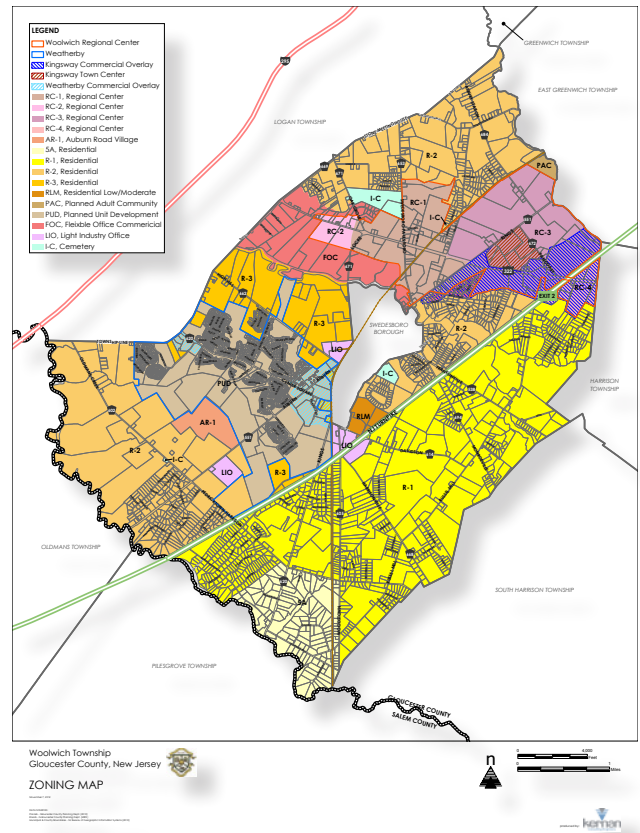


Fig. 6. Place of Employment of Woolwich Tp Workers in 2010
Source: U.S. Census County and Minor Civil Division Commuting Flows for the United States and Puerto Rico: 2009-2013

EXISTING LAND USE

In June 2006, when this TDR plan was originally created, 49% of land in Woolwich Township was still devoted to agriculture (6,586 acres) based on a land use/land cover inventory. This is despite mounting development pressures. Over 3,000 acres were in woodlands and residential land use occupied 2,660 acres. Commercial development only encompassed 197 acres, with most of this sprinkled along the US 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.

In the years since, the percentage of land used for agriculture has dropped only minimally, at 48.8% in 2012. This agricultural use includes but is not limited to farmland and farm homestead. Residential, commercial, and industrial uses have all increased since 2006.



Land Use - 2010				
Land Use Class	Number of Lots	Percentage	Total Value	Percentage
Vacant	614	15.5%	\$20,088,000	3.2%
Residential	2,900	73.4%	\$526,066,000	85.0%
Farm Homestead	105	2.7%	\$14,063,400	2.3%
Farmland	255	6.5%	\$4,954,300	0.8%
Commercial	68	1.7%	\$21,996,900	3.6%
Industrial	9	0.2%	\$23,066,100	3.7%
Apartment	1	0.0%	\$8,741,400	1.4%
Total	3,952	100.0%	\$618,976,100	100.0%

Fig. 7. 2010 Land Use as Percent of Township Total Land Value
 Source: http://www.state.nj.us/dca/divisions/dlgs/resources/property_tax.html

EXISTING ZONING

The majority of Woolwich Township is zoned for residential uses. Of Woolwich Township's total land area (13,712 acres), over 7,700 acres (56% of the total land area) falls in the R-1 and R-2 zoning districts. District regulations permit a minimum lot size of 2 acres and 1.5 acres respectively. The R-3 district permits a lot size of 20,000 square feet, provided 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 250 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 about half of the residential development is built and there are pending applications for 1,100 or more units. Weatherby is one of the few residentially zoned areas of the Township presently served by public sewer 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 approximately 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 624 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.



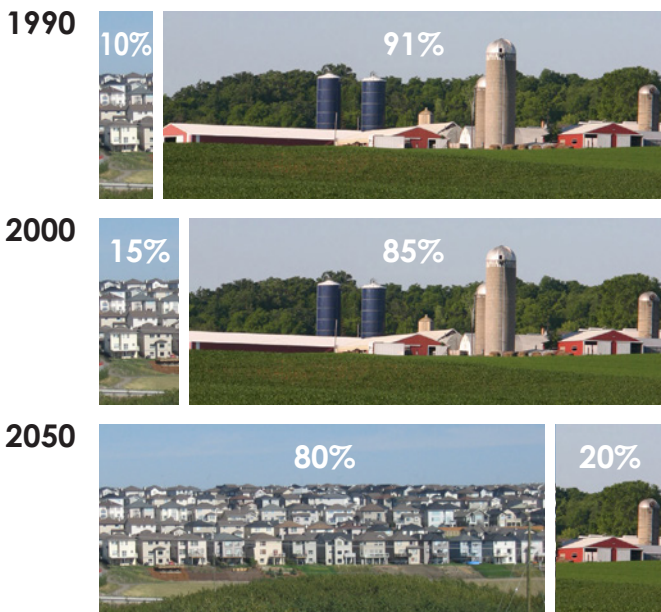
SEWER SERVICE

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 - BUILD OUT 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. Undeveloped lands included preserved lands as well as water bodies and wetlands.

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.

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 acreage 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 preserved properties. No additional farmland or open space is preserved.

Based on the above set of assumptions, a total of 6,346 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, 67% (5,346) 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 Rutgers University Center for Urban Policy Research. Accordingly, over 4,000 additional school children are anticipated.

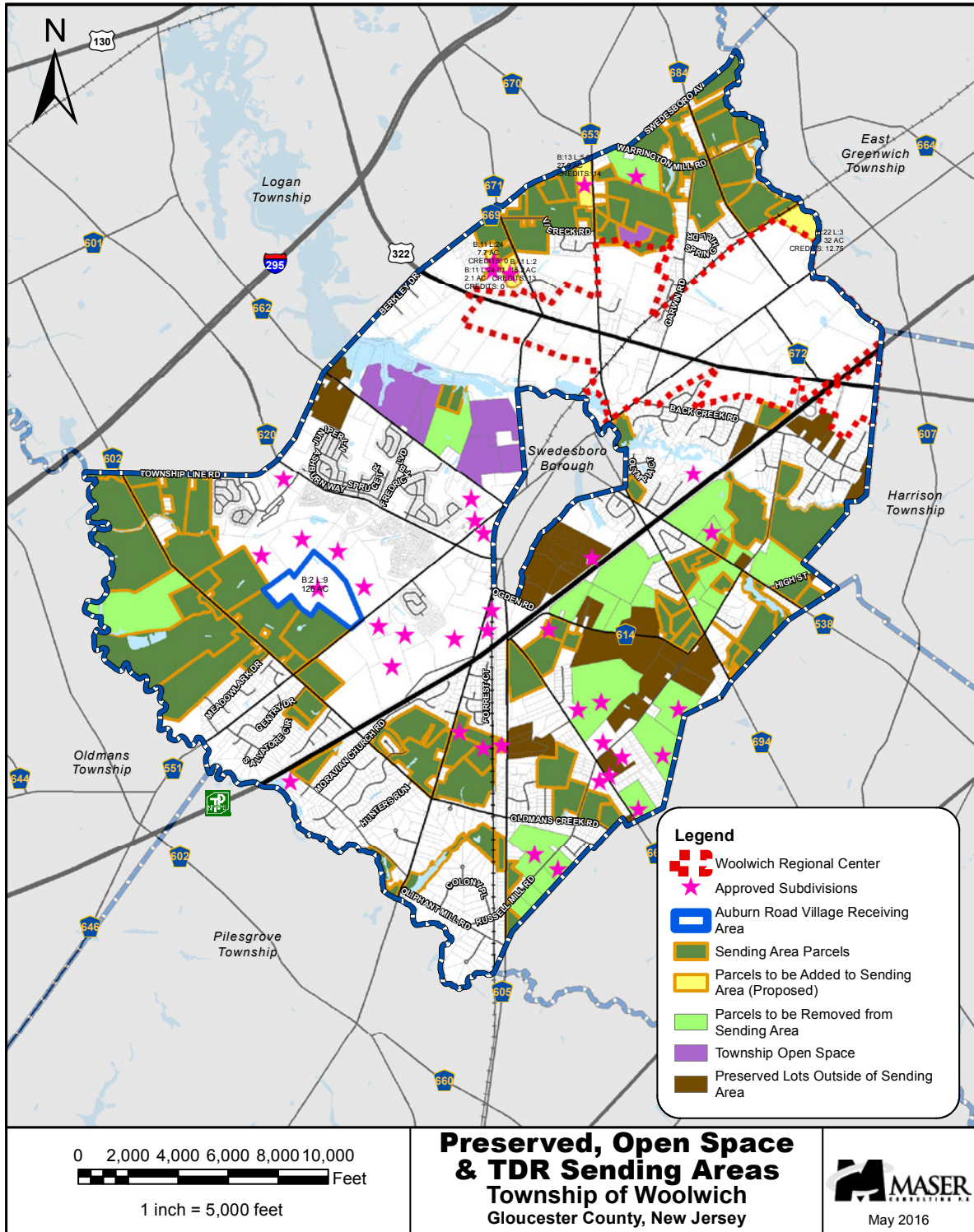
Under the zoning build out analysis, an additional 7.7 million square feet of commercial space will be constructed on all commercially zoned properties that are either vacant or underdeveloped.

ZONING BUILD OUT ANALYSIS - EXISTING ZONING

Fig. 8. Build-out analysis based on zoning conditions.

	BASELINE (2005)	ADDITIONAL	TOTAL
Housing Units	1,580*	6,346	7,926
School Children	1,461 (2005)	4,007	5,468
Commercial (Square Feet)	Not calculated	7,696,170	
Preserved Land (Acres)	855.0	855.0	855.0

*Housing units estimate derived from 2004 tax parcel GIS layer provided by Gloucester County and updated by melvin | kernan. Parcels classified as 2's and 3a's were each assigned one house. Parcels without a classification were each assigned one house as well.



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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 farm fields 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 alone (83%) according to the 2010 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 car volumes. 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.

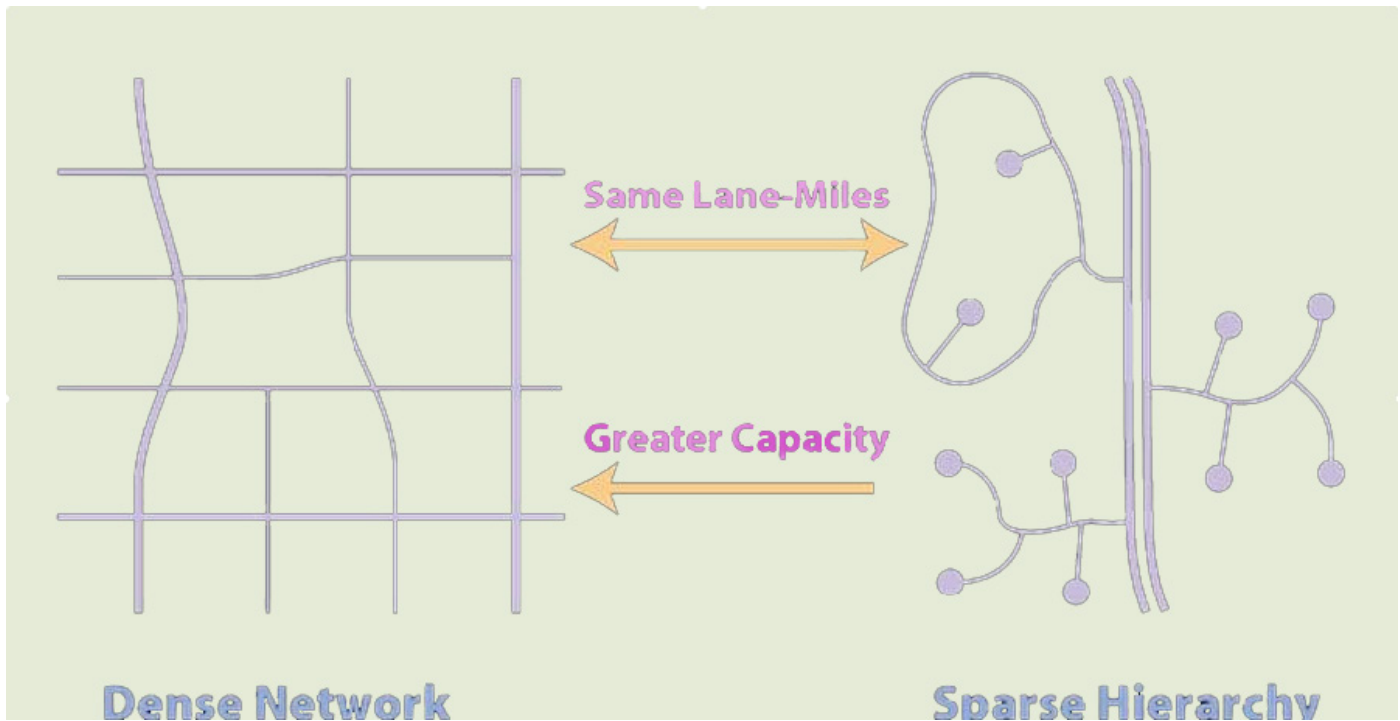


Image courtesy of Gladding Jackson



Image courtesy of Gladding Jackson

US 322's 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, but 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 a 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 congested rose from 34% to 59%. (TTI, 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.)



Image courtesy of Project for Public Spaces

Image courtesy of 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.) As of 2014, 35.2% of adults nationally are either overweight or obese, and in New Jersey, that number is 36.3%. Seventeen percent of children and adolescents between the ages of two and 19 are overweight. (Centers for Disease Control, National Center for Health Statistics at www.cdc.gov.)



Percentage of Overweight Persons by State

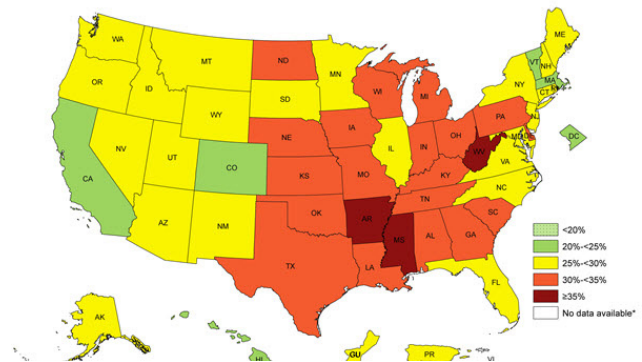


Fig.9. Obesity Trends Among U.S. Adults, BRFSS, 2014. (Percent of population having a Body Mass Index greater than or equal to 30.) Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control

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) 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. These areas with high recharge rates are where 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.)



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.

Another factor that impacts water quality is the way that watersheds are developed. The Environmental Protection 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). Since that assessment, the new middle school campus was developed, General Charles G. Harker School was opened (2007), and the Kingsway Regional School District continues to expand and seek additional land.

The existing zoning build out analysis assumes an additional 4,007 school children township-wide once all residentially zoned land is fully built out. At that time, 67% of all new homes are expected to be single-family detached construction.

Between 1980 and 2015, 3,815 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." This remains important in the 2016 Master Plan Reexamination Report, pending at the time of this writing, which states, "The character of the Township is largely found in the ample open space and farmland, so the preservation of that space is critical." 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 preserved the first farm through the State's farmland preservation program in 1989. 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 2015, 1,446 acres of farmland and 573 acres of open space have been preserved.

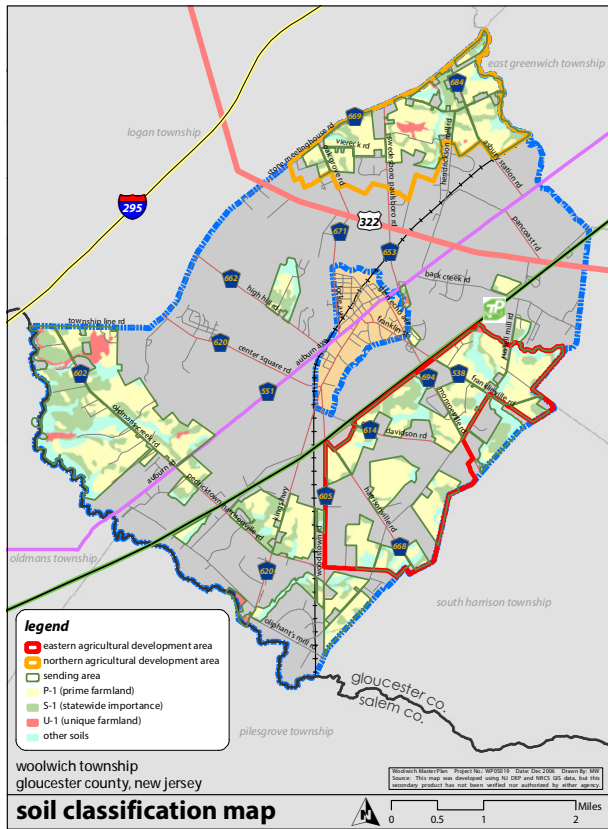
A right-to-farm ordinance was adopted in 1992. This helps protect farmers from nuisance complaints and overly restrictive regulations. In 2005, Woolwich Township strengthened the ordinance, using the State Agriculture Development Committee's model ordinance to amend its own. It also enacted an ordinance 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

AGRICULTURAL VIABILITY

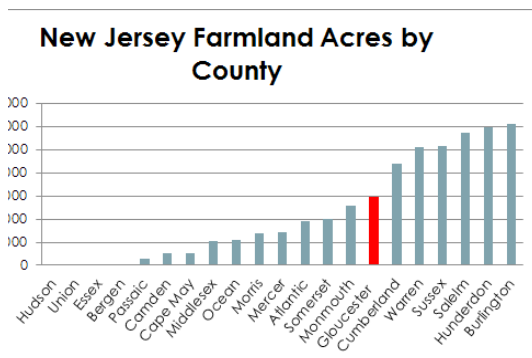
Gloucester County is one of New Jersey's leading agricultural counties. Woolwich Township, in turn, remains one of Gloucester County's premier agricultural communities.



GLOUCESTER COUNTY

According to the 2012 Census of Agriculture, Gloucester County had 43,265 acres of farmland (down from 50,753 acres in 2002). Despite this decline, Gloucester still ranked seventh statewide in total farmland.

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 2015 Tax Year indicate that Gloucester County ranked fifth statewide in the percent of total taxable acreage in farmland assessment (28%) and sixth in total assessed value of farmland assessed property (\$32,854,800). It ranked seventh in total acreage devoted to agricultural or horticultural use (61,852 acres). (<http://www.state.nj.us/treasury/taxation/pdf/lpt/2015farmland.pdf>)

The New Jersey Agricultural Statistics Service reported in their 2014 "Annual Report & Agricultural Statistics" that in Gloucester County led the state in commercial fruit, third for grain wheat, fourth for soybeans and blueberries, and rounded out the top five with the number of nurseries and milk cows.

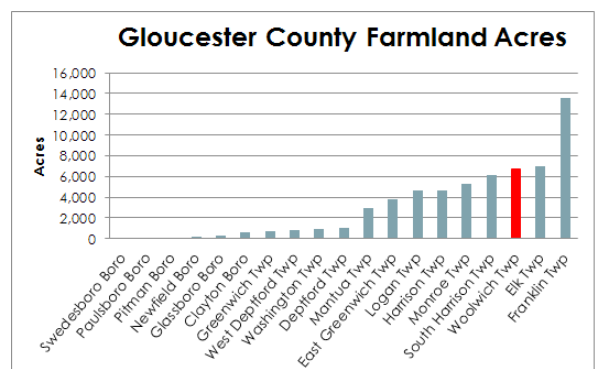
New Jersey launched its Farmland Preservation Program in 1984. Gloucester County entered the program in 1989, preserving 164 acres. As of 2016 a total of 14,000 acres were preserved. The State Agriculture Development Committee reported in their 2013 Annual Report that Gloucester County ranked eighth statewide in acreage of preserved farmland.

WOOLWICH TOWNSHIP

According to the Woolwich Township Farmland Preservation Plan (2005), 8,992 acres were in farmland assessment. 2015 State Farmland Assessment Data indicates that over 48.8% of Woolwich Township's land base was assessed as farmland, ranking fourth in the County. In terms of total acres, Woolwich recorded 13,728 farmland assessed acres including 6,693 acres devoted to agricultural and horticultural uses. Likewise, it tied for second in acreage of cropland harvested Countywide. Total value of its farmland assessed property was \$4,317,800, second highest in the County behind Franklin Township.

Farmland assessment data for the tax year 2015 shows that Woolwich had more land devoted to field crops (5,078 acres) than any other municipality in Gloucester County.

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.



Figs.11 and 12 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.

2015 Farmland Assessment Data - Gloucester County				
Municipality	Total land devoted to Agriculture/ Horticulture (acres)	% of Agriculture/ Horticulture to total acres	Value of Farmland assessed property	Harvested Cropland (acres)
Clayton Boro	641	12.5%	\$299,100	239
Deptford Twp	1,012	9.1%	\$403,500	398
East Greenwich Twp	3,835	50.9%	\$2,710,000	2,609
Elk Twp	7,034	54.4%	\$4,378,200	5,078
Franklin Twp	13,572	39.2%	\$6,105,900	6,599
Glassboro Boro	326	55.2%	\$234,900	217
Greenwich Twp	729	11.9%	\$435,500	521
Harrison Twp	4,674	37.2%	\$2,845,900	3,396
Logan Twp	4,634	30.0%	\$2,381,400	2,938
Mantua Twp	2,905	23.5%	\$1,600,100	1,783
Monroe Twp	5,282	17.7%	\$2,193,200	1,946
National Park Boro	0	0.0%	\$0	0
Newfield Boro	193	17.3%	\$122,500	161
Paulsboro Boro	45	35.2%	\$19,300	10
Pitman Boro	50	33.3%	\$14,300	12
South Harrison Twp	6,134	60.6%	\$3,680,300	4,060
Swedesboro Boro	22	44.6%	\$25,300	22
Washington Twp	978	68.6%	\$610,400	659
Wenonah Boro	0	0.0%	\$0	0
West Deptford Twp	837	82.2%	\$477,200	438
Westville Boro	0	0.0%	\$0	0
Woodbury City	0	0.0%	\$0	0
Woodbury Heights Boro	0	0.0%	\$0	0
Woolwich Twp	6,693	48.8%	\$4,317,800	5,078
Gloucester County	59,596	28.3%	\$32,854,800	36,164

Source: 2015 NJ Farmland Assessment Data, Gloucester County

Fig.13: New Jersey Farmland Assessment Data, 2015

Source: New Jersey Farmland Assessment 2015 - Fifty-second Report of Data from EA-1 Forms for 2015 Tax Year

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.

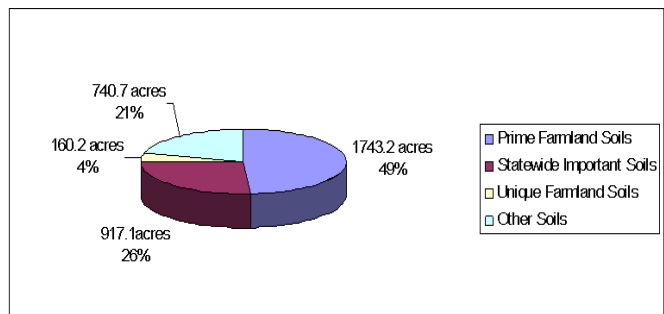


Fig.14: Classification of Woolwich Township Soils

Source: Natural Resources Conservation Service.

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.

Approximately 1,800 acres of farmland has been preserved in Woolwich Township, representing 24% 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 \$6,000 to \$23,000 per acre according to the New Jersey Farmland Preservation Program (2011-2015).



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.

- 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.

Development pressures create numerous potential conflicts with agricultural activities, most notably:

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

(McKee, Seth, *A Critical Mass Approach to Farmland Protection*, Scenic Hudson, Inc., P1; Daniels, Tom "A Cautionary Reply for Farmland Preservation," *Planning Markets*, LA: USC, 1999, P.2). 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.

Objectives:

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.

Of the above-listed goals in place at the time of the original TDR adoption, all except the last remained through the 2003 Master Plan and remain a part of the pending 2016 Reexamination Report.

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.

COMMITTEES TO GUIDE VISIONING

At the time of the original TDR adoption, the visioning process was guided by the Woolwich Township Plan Petitioning Committee, which was charged with completing the necessary steps to submit for "Initial Plan Endorsement" to the State Planning Commission and preparing a TDR Plan and supporting documentation

An Open Space and Pedestrian Circulation Committee was also created to offer direction and input as to the design and function of public spaces in the receiving zones as well as bicycle and pedestrian corridors. These ideas were ultimately folded into the *Woolwich Township Public Spaces Plan*.

INVOLVING THE PUBLIC

In 2005, public meetings were held and the general public was offered opportunities to get involved and inquire as to the TDR process, along with Township officials and developers. Moreover, prospective sending zone property owners were further involved with special meetings directed for them and their particular concerns and impacts.

As part of community involvement, residents were asked to complete a questionnaire about the types of development they would prefer to have in the Township in the future. Results varied, but included wishes for neighborhood retail, restaurants, and family entertainment.

NEW JERSEY STATE INVOLVEMENT

The New Jersey Department of Transportation (NJDOT) spearheaded a series of four design workshops attended by State, county and local representatives, and developers, to identify a consensus-based circulation system for the US 322 Corridor that would accommodate projected traffic growth in the US 322 Corridor Regional Center. Along similar lines, New Jersey Transit (NJT) was involved in conceptualizing the street network for the Kings Landing Receiving Zone, and to offer insight into potential opportunities for enhanced transit in the future, especially bus rapid transit.

The New Jersey Department of Community Affairs (NJ-CA) Office of Smart Growth was also an active participant in the visioning process, anticipating in public meetings, NJDOT design workshops, and several Plan Petitioning Committee meetings. They also facilitated Plan Endorsement meetings with Woolwich Township to provide state agency feedback on preliminary TDR plan proposals and draft State Plan Policy Map changes.

Staff of the State Agriculture Development Committee, housed within 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 and participated in Plan Endorsement meetings.

Last but not least, Woolwich Township planning consultants interacted with New Jersey Department of Environmental Protection (NJDEP) throughout the process to address potential impacts in the receiving zones on environmentally sensitive areas.

LOCAL INVOLVEMENT

Woolwich Township consulted with the Gloucester County officials during the US 322 Corridor circulation design process, and their concerns were incorporated into the resulting circulation plan.

Woolwich Township also met with Swedesboro officials to discuss the possibility of extending sewer capacity to the 322 Corridor from Swedesboro, and involves them in Route 322 Corridor Task Force meetings.

The Swedesboro-Woolwich Public School District was also brought into the discussions as they related to the potential siting of a future elementary school in relation to the TDR sending zone. The District was encouraged to locate the school buildings on a property that is going to serve as a campus for two other planned schools.

DEVELOPERS

In 2005 the Route 322 Task Force was created to clarify and resolve public-private issues and implement the Township's vision for growth along the US 322 Corridor.

Landowners and developers were active participants in discussions about water and sewer options, land use mix, the Plan Endorsement process and receiving zone boundary delineations, and various aspects of the planning process.

Through the outreach described above, Township officials were able to solidify the vision and translate it into a vision statement and planning objectives. The vision statement is presented in the following pages. Following this is a set of planning objectives for the TDR receiving zones and sending zone respectively.

VISION STATEMENT

Woolwich Township's ongoing smart growth approach continues to create tightly-knit, mixed use, vibrant places. Outside of these growth areas and Weatherby,

over 5,200 acres of land will be preserved, most of it the result of Transferring Development Rights. Traffic impacts will be far less than it would be if recent trends prevail because new growth will be compact, enabling local trips to be taken on foot or bicycle.



Kings Landing Regional Center (formerly Woolwich Regional Center) will provide a vibrant gathering place in which to live, socialize, shop, work, and play. It will offer housing that meets the full lifespan needs of existing and future residents, including young professionals, couples, families, singles and seniors. Diversity in hous-

ing options and prices will attract an equally varied resident population with fewer "traditional" families and school children. This combination of housing diversity and balanced commercial development will help mitigate rising costs of public service, infrastructure, and education.



Within Kings Landing Regional Center, the Kings Landing Receiving Zone will be the most compact and dense areas as they work as "receptacles" for development, deincenitizing the urge to develop farmland and open space that makes Woolwich a beautiful, rural community.

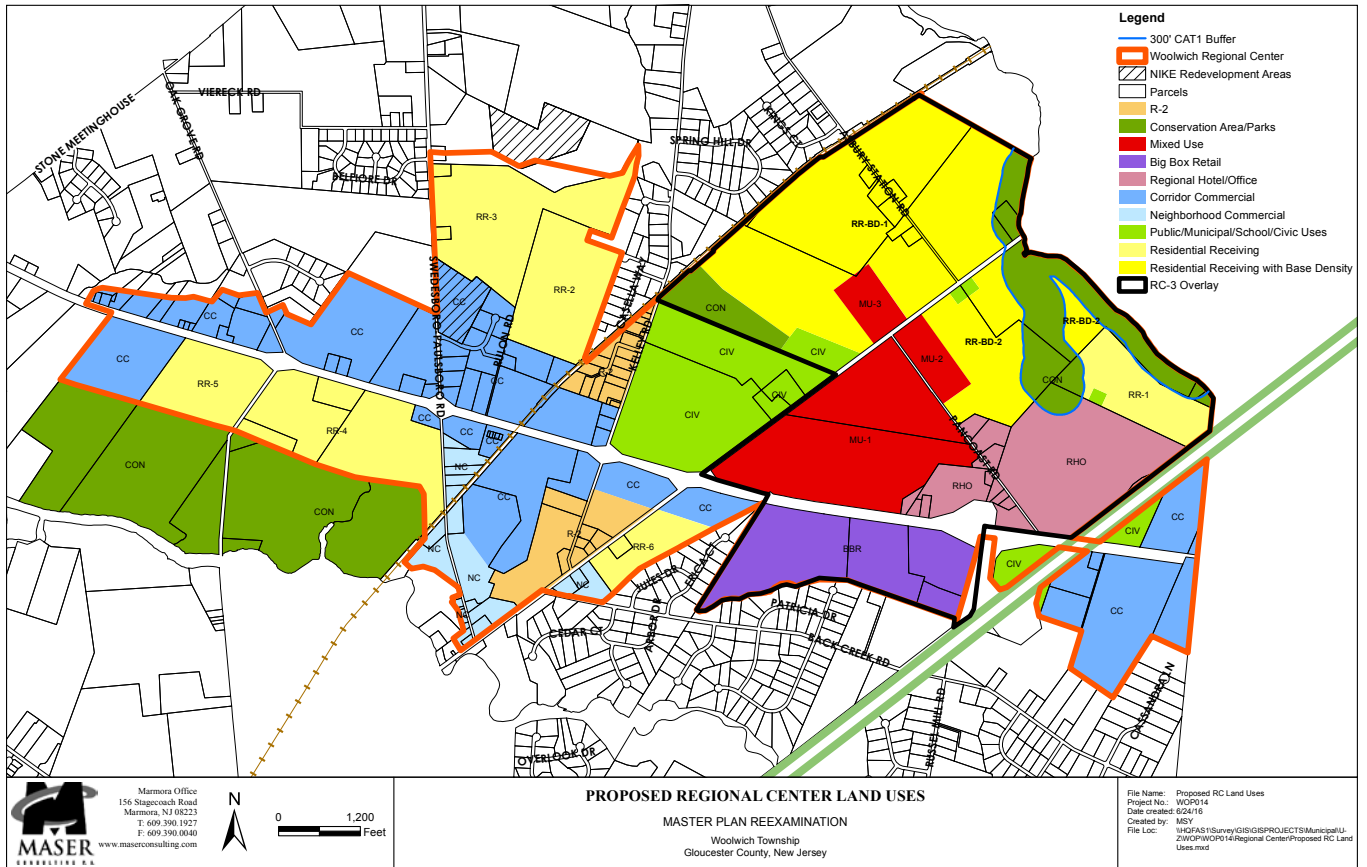
Auburn Road Village, Woolwich Township's second receiving zone, also provides mixed housing options in a compact village setting, along with local retail uses and services.

New development always brings changes. But with the TDR method of controlling and directing growth, the Township can continue to prioritize the environmental protection of over 5,000 acres of preserved land within Woolwich (roughly 38% of its land base) including stream filtering and infiltration systems that help with groundwater recharge, and habitat protection of threatened and endangered species, including bald

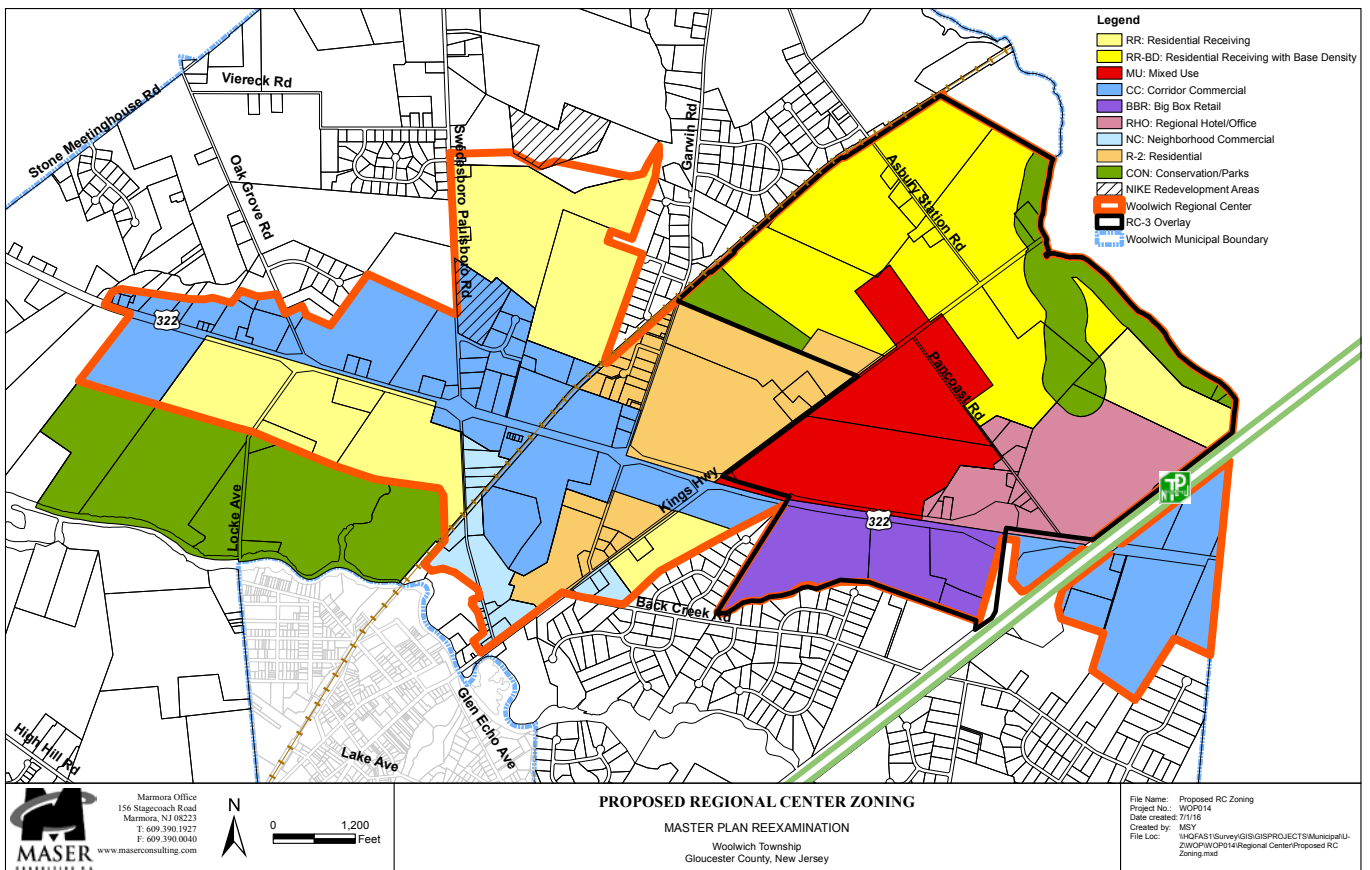
eagles. Much of the land outside of the Regional Center continues to be farmed because a critical mass of farmland is preserved and maintained to support agriculture.

Although the additional commercial and residential growth will impact adjacent municipalities, the negative effects are far less than they would be under existing zoning without TDR. Compact development patterns reduce traffic impacts and visual impacts of spread-out growth. An interconnected street system permits local traffic to bypass US 322, ensuring that its ability to handle regional traffic flow is not compromised. At the same time, land preservation in the sending zone provides visual and environmental benefits to adjoining municipalities and reinforces any farmland preservation efforts they may be pursuing.

Through the use of TDR, Woolwich Township will be proud of its accomplishments, especially of its status as one of New Jersey's premier sustainable communities.



Woolwich Regional Center designations

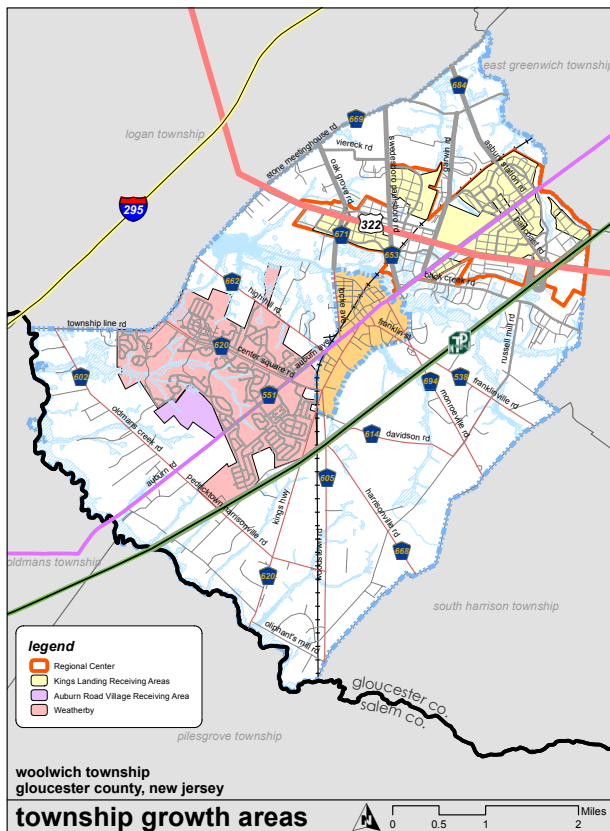


Regional Center Land Use Concept Plan

This sustainable land use planning approach 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:

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



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

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.

- 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 retailables. 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.)



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



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

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 - Kings Landing at Woolwich 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 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.



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

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 socioeconomic 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.

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.

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

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 afterthought 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.

SENDING 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 unwelcome 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 .

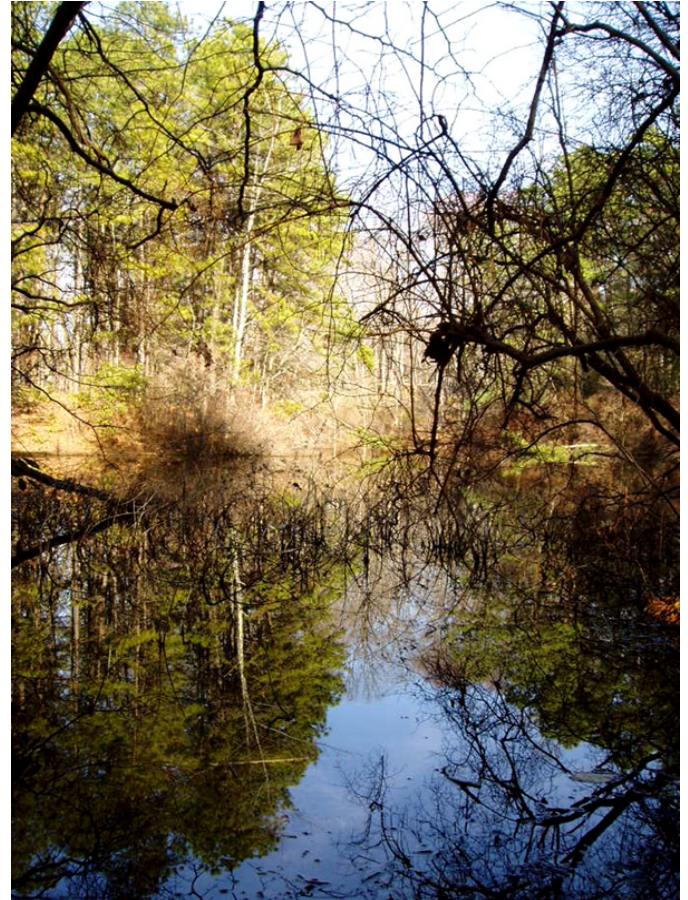
While many communities have made the laudable decision to invest in land preservation – participating in fee simple purchase or easement purchases and encouraging landowner donations – it is difficult to rely on this tool exclusively to preserve a meaningful amount of land. Over 5,000 acres of land will 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 costs 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 uses a two-prong strategy to accommodate future growth and achieve its Township vision. First, on April 18, 2008, Woolwich Township obtained Initial Plan Endorsement of its Master Plan and supporting elements from the State Planning Commission, validating that Woolwich Township's planning approach is consistent with the New Jersey State Development and Redevelopment Plan (State Plan).

Second, the Transfer of Development Rights (TDR) Plan is used to accommodate projected growth and achieve the Township's 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

Prior to its adoption, 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. The original TDR Plan addressed both of these requirements by including population and employment through the year 2025.

Year 2025 forecasts prepared by DVRPC and comparisons to projections prepared by Woolwich Township and Gloucester County were included in the original TDR Plan and are again provided in the following table.

In 2005, the DVRPC population forecasts in Woolwich Township for the years 2015 and 2025 were 8,900 and 13,910 respectively. The TDR Plan, however, used population projections that were prepared more recently and which used more current base year estimates and planning assumptions.

The TDR Plan projections converted housing units to population using Census 2000 multipliers representing household sizes for different household types and housing unit types. Furthermore, the TDR Plan projections reflected

the increased number of housing units that would result from implementing the Transfer of Development Rights in Woolwich Township.

An economic analysis prepared for the TDR Plan indicates that one single family home on a large lot in the Sending Zone has a market equivalency in the either Receiving Zone of 0.3 single-family homes, 1.25 duplexes or twin units, 1.95 townhouses and 2.40 multi-family flats. Thus, in order to create a realistic market condition in which to transfer development rights in Woolwich Township, a developer who purchases credits from the Sending Zone property owners must be allowed to build more units in the Receiving Zones, given the compact design, small lots and mixes of housing units that comprise the Receiving Zone. This assumption underlies the TDR Plan projections.

With regard to employment, DVRPC forecasted a total of 2,121 jobs in 2015 and 3,526 jobs in 2025: figures that fell short of the TDR Plan projections. DVRPC calculation methodology uses data obtained from the Census Transportation Policy Package and reconciles it with internal data to derive county level projections. From there, the forecasted number is distributed among the municipalities in a given county and adjusted based on historical growth trends and local land use change.

Like population projections, employment projections for the Woolwich Township TDR Plan were prepared more recently than were the DVRPC forecasts. Consequently, they were believed to reflect more current data and current planning assumptions. By the year 2015, the TDR Plan assumed that a TDR ordinance would be adopted and infrastructure would be in place to accommodate commercial growth in Woolwich Regional Center. Commercial development in the Regional Center was expected to begin sometime between 2012 and 2014 and continue to and beyond 2025.

POPULATION AND HOUSING UNITS

At the time of original adoption, population was expected

Population, Household, And Employment Projections Woolwich Township: 2005 – 2015 – 2025					
	2005	2015	2025	% Change 2005-2015	% Change 2015-2025
Population	7,563	21,095	30,817	178.9%	46.1%
Households*	2,703	7,456 - 7,502	11,288 – 11,733	176.7%	53.8%
Employment	1,165**	2,594	4,942	122.7%	90.5%

Fig. 15: Population, Household, and Employment Projections 2005-2025
 Source: Delaware Valley Regional Planning Commission: Regional, County, and Municipal Employment Forecasts, 2010-2040

to grow at an unprecedented rate between 2005 and 2015. The softening in the housing market that was experienced in 2006 was expected to continue through 2008, resulting in average annual production of less than 300 units. However, the rate of construction was expected to accelerate beginning in 2009. Between 2006 and 2013, development applications that had already received approvals were expected to be constructed. The rate of construction was expected to accelerate starting in 2009. Remaining development potential within Weatherby and other residential zoning districts was expected to occur through 2028.

Sewer service was expected to be available along the US 322 Corridor beginning in 2012, jump starting construction of a diverse housing stock in the Kings Landing Receiving Zone and then-anticipated Woolwich Adult development. Between 2012 and 2015, housing production was anticipated to rise significantly, peaking between 2014 and 2015, with 700 housing starts per year. Housing construction in Auburn Road Village was anticipated to begin in 2012 as well, contributing to the increased volume of construction.

EMPLOYMENT

The employment figures represent the number of jobs in Woolwich Township. The estimate for 2005 was 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 was expected to increase by 122.7% between 2005 and 2015, fueled by the projected availability of sewerage capacity as of 2012. Thus, retail development within Woolwich Adult was thought to begin at this time and continue over a 20 year General Development Plan time frame. By the year 2025, Woolwich Adult was projected to have built millions of square feet of commercial space, and during the same time frame, up to 435,049 square feet of commercial space was projected to be built in the Kings Landing Receiving Zone.

The commercial component of Auburn Road was 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 was expected to be constructed by 2015.

Projections between 2006 and 2013 took 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 was expected to be built by the year 2018.

CHANGES TO PROJECTED POPULATION AND EMPLOYMENT GROWTH

TDR projections for 2015 have proven likely to be over-estimated. The US Census American Community Survey (ACS) reports that in 2014, Woolwich Township had a total population of 10,961, a number close to the DVRPC model (8,900) and approximately 10,000 people less than the TDR projections.

In 2012, DVRPC updated their forecasts, predicting a 2015 Woolwich population of 10,812, a 2025 population of 16,649, and looking out to 2040 a population of 23,098. While these numbers are significantly lower than what the TDR forecasts predicted, the growth is still substantial and far outpaces growth in any other Gloucester County municipality and in fact any other municipality in the entire DVRPC area.

The TDR housing projections were modified in the Transfer of Development Rights 5-Year Review Report, Appendix 8, released in October 2013. This report noted that the original analysis assumed 9,600 new units would be added after 2006. Subsequently, however, Woolwich Adult LLC development approvals expired and the total number was lowered to 7,535 units.

The original plan anticipated a slow housing market through 2008 with an average annual production of less than 300 units. The rate of construction was expected to accelerate in 2009, rise significantly between 2012 and 2015, and peak between 2014 and 2015 with 700 housing starts per year.

In fact, between 2008 and 2015 development permits have fluctuated between 44 and 195 annually, averaging 119 units per year, nowhere near the numbers predicted.

The original employment figures anticipated an increase of 122.7% between 2005 and 2015. In 2013, DVRPC released revised numbers for employment projections. Woolwich remains constant - in fact slightly up - with 127% growth anticipated.

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

Woolwich Township includes Planning Areas 2, 3, 4, 4B and 5 within the Township’s borders. In addition, the proposed map changes show CESs and the Regional Center. At the time of original adoption, Woolwich was successful in its petition to have certain map changes made, as reflected in the current area map.

Planning Area 2- Suburban Planning Area

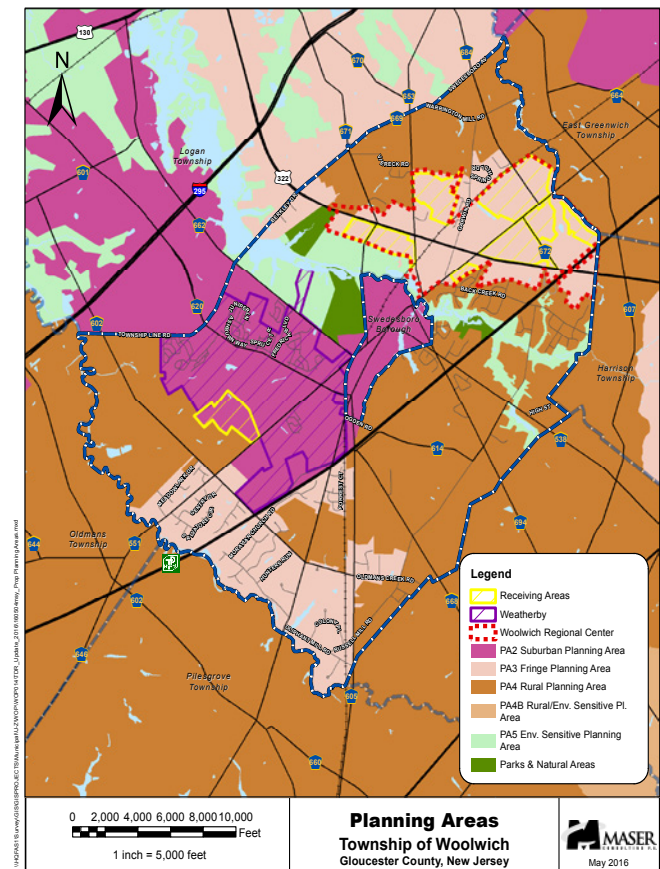
Provide for much of the state’s future development; promote growth in Centers and other compact forms; protect the character of existing stable communities; protect natural resources; redesign areas of sprawl; reverse the current trend toward further sprawl; and revitalize cities and towns.

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, within PA 2, 4,500 homes and 250,000 square feet of commercial space are planned, under construction or built on 2.63 square miles, in accordance with a previously approved General Development Plan for the Weatherby development, along with one school, and at least two more planned at the fringes of this development.

Adjacent to Weatherby is a 125 acre site, with access to Auburn Road Village, which will accommodate 502 homes and 50,000 square feet of commercial uses as one of two proposed TDR receiving zones in Woolwich Township.

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



Approximately 174 acres of PA 2, a portion of which is already occupied by warehousing facilities, is located along the US 322 Corridor, adjacent to the Regional Center which 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.



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.

Nearly six square miles (5.9) of Woolwich Township fall into PA 3. Development in this area is zoned for relatively low density development that relies on septic systems and wells. A few preserved farms are located in PA 3 as well. Additionally, roughly 2.7 square miles of PA 3 lie within Woolwich Township's planned Regional Center. Consistent with PA 3 policies, programmed infrastructure will be confined to the Center. PA 4 and 4B collectively occupy 9.8 square miles of farmland along with woodlands and stream corridors.

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.

A small portion of PA 4 is located in the western portion of Woolwich Regional Center. Additionally, there are scattered development and approved subdivisions in portions of these Planning Areas. But by and large, they are mostly undeveloped.

One contiguous region of PA 4 encompasses most of the area east of the NJ Turnpike, as well as the northernmost section of the Township - two Agricultural Development Areas in the Township. Exclusive of any approved but unbuilt developments, the Township's primary goal in PA 4 and 4B is to preserve farmland and open space.

PA 5 encompasses 1.6 square miles. Most of this area contains wetlands and woodlands adjacent to Raccoon Creek and tributaries as well as a critical bald eagle habitat documented by NJDEP, and buffers to help protect the stream corridor.

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.



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

The State Plan recognizes Critical Environmental Sites outside of environmentally sensitive planning areas. These 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 in PA 2, PA 3, and in Woolwich Regional Center. These waterways, along with wetlands and woodlands, Category One Special Water Resource Protection Areas, and critical species habitats are shown as Critical Environmental Sites totaling 930 acres.

Features that qualify as Historic and Cultural Sites include greenways and trails, dedicated open space, historic sites and districts, archeological sites, scenic vistas and corridors, and natural landscapes of exceptional aesthetic or cultural value. Woolwich Township has identified four resources for designation as Historic and Cultural Sites: the Mount Zion African Methodist Episcopal Church and Cemetery on Garwin Road, Old Stone Church on Stone Meeting House Road, Governor Charles Stratton House on Kings Highway, and Moravian Church on Swedesboro-Sharptown Road. All of these sites are listed on both the State and National Registers of Historic Places.

The Mount Zion AME Church, built in 1834, was a stop along the Underground Railroad and remained an

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.

important station until the start of the Civil War. The Cemetery is owned by the Church and is the burial site for 13 black Civil War soldiers (www.njht.org/dca/njht/funded/sitedetails/mount_zion_cemetery.html).

The Old Stone Church, built in 1793, is the oldest Methodist Church in South Jersey (<http://nj.searchroots.com/Gloucesterco/oldstone.html>). The Governor Stratton House, built in 1794 by Dr. James Stratton, was home to Governor Charles Creighton Stratton, the first governor elected under the 1844 State Constitution. The Moravian Church, believed to be New Jersey's oldest such church that remains standing, was erected in 1786 (www.co.gloucester.nj.us/CountyInfo/Historicalsites.cfm; <http://www.nps.gov/history/nr/travel/underground/nj4.htm>).

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, with 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 with densities and mixed uses creating walkable neighborhoods, and often an environment supportive of transit. Centers have an unmistakable "town" feeling that distinguishes them from suburbs.

Woolwich Township is a designated Regional Center,

which is intended to facilitate future development of tightly knit, compact neighborhoods and commercial areas that will be accessible through an integrated network of streets and paths.

The Regional Center, known as Kings Landing, encompasses the four pockets of the Kings Landing TDR Receiving Zone. It will also include at its core a mixed use main street, with offices, small shops and residential units, parks, plazas and pedestrian paths will weave through the Center. This Regional Center will become the civic core and economic engine of Woolwich Township in the future.



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

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

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.

Upon selling the 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.



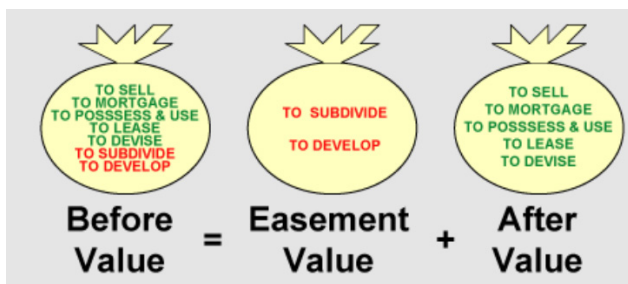
Source King County, Washington TDR Program

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 3,160 acres or 24% of the Township's land base and consists of mostly farmland, woodlands and wetlands.

There are two proposed receiving zones. The Kings Landing Receiving Zone totals ±700 acres. This receiving zone has the potential to include ±3,700 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.

In the end, it is the three principal growth areas in Woolwich Township – Kings Landing Regional Center, the Auburn Road Village Center Receiving Zone, and Weatherby – that will absorb the lion's share of future growth. Most of the remaining growth will occur by virtue of pending approved development applications throughout the Township that are not participants in the transfer of development rights.

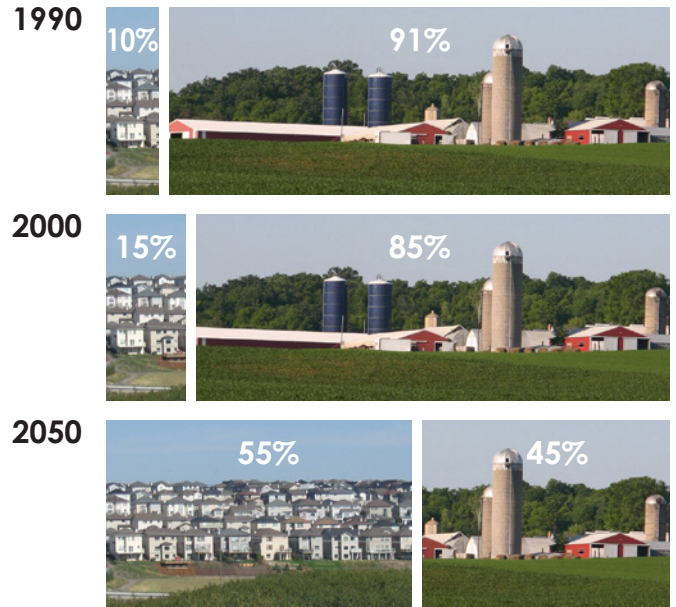


Source: NJ Office of Smart Growth

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 Kings Landing 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.

Under the TDR scenario, over 3,000 acres of land are preserved in the sending zone compared to only 855 as identified under a typical build out scenario. Commercial build out is nearly identical. TDR generates significantly fewer school children despite having more housing units because these housing units are predominantly twins, townhouses and flats (Burchell, Robert, Who Lives in New Jersey? A Quick Guide to New Jersey Residential Demographic Multipliers, November, 2006.)



SECTION 7. KINGS LANDING (US 322 CORRIDOR) RECEIVING ZONE

This and the following section present a detailed description of the Kings Landing 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 socioeconomic 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

This section presents an overview of the Kings Landing 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

At the time that the original TDR plan was adopted, the Township delineated two receiving zones - the Kings Landing Receiving Zone and the Auburn Road Receiving Zone. As the Township's vision for development transfers has developed over time, however, the Kings Landing Receiving Zone is also being modified.

The Kings Landing Receiving Zones are located within the greater Kings Landing Regional Center, a 1,700 acre area recognized by the New Jersey State Plan as being a designated center, and where development and commercial activity is to be directed.

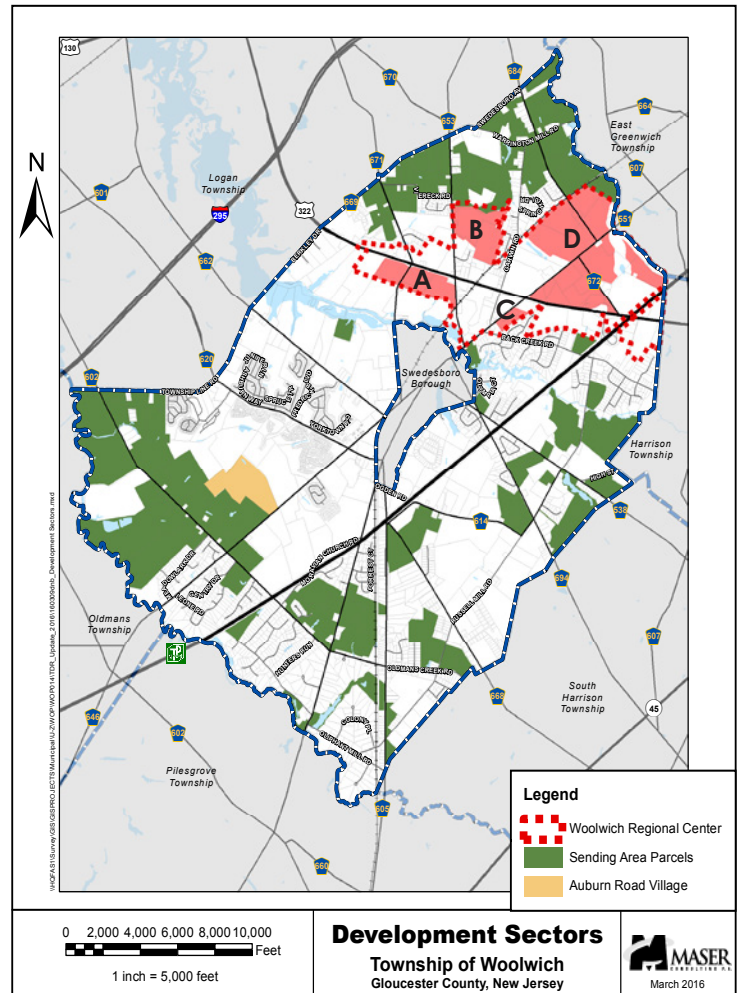
The receiving zone within this Center is comprised of ± 700 acres of land across the four separate clusters of land which the Township believes are ripe for residential development based on location, infrastructure, and adjacent uses. These are identified as Areas A, B, C, and D.

From west to east, Receiving Area A is along the southern side of US 322 west of Swedesboro-Paulsboro Road and totals approximately 107 acres. Here, we expect to see a mix of small lot single-family homes, townhomes, and twin homes, as well as public spaces, parks and open space.

The second receiving area, Receiving Area B, is along Swedesboro-Paulsboro Road a bit north of US 322, and it totals just less than 130 acres. Within this area, as with Area A, we expect to see a mix of small lot single-family homes, townhomes, and twin homes, as well as public spaces, parks and open space.

Receiving Area C is a small 18 acre strip of land southeast of the US 322/Kings Highway intersection. Here again we expect to see a mix of small lot single-family homes, townhomes, and twin homes, as well as public spaces, parks and open space.

And, the final receiving area within the Kings Landing Receiving Zone, Receiving Area D, is a large swath of land on the north side of US 322, lying between the municipal border with East Greenwich and the railroad tracks, generally flanking Kings Highway. This area has approximately 428 gross acres of land (because of environmental constraints, the net developable land is 343 acres). Due to the considerable amount of

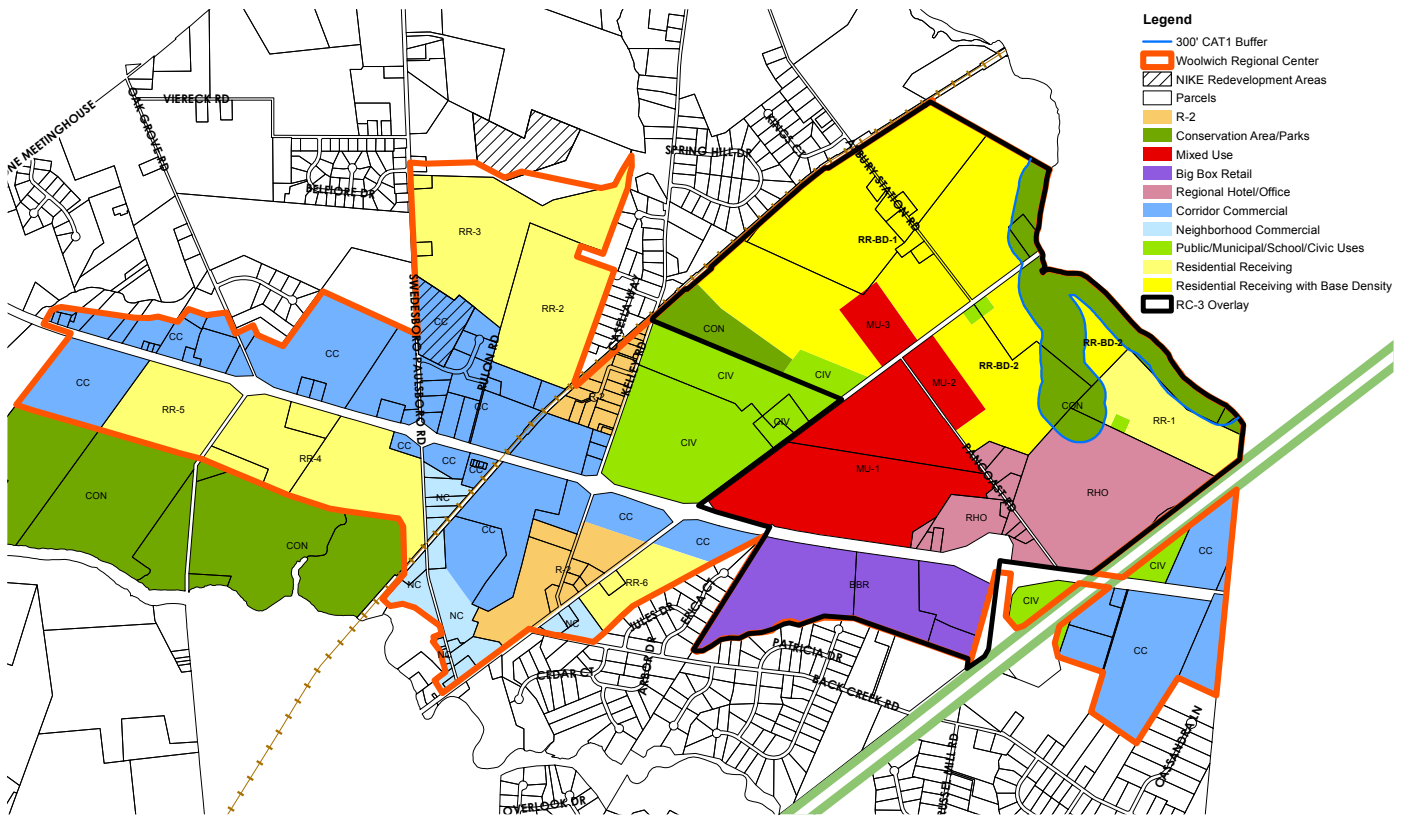


available land area, this area will contain a mix of small lot single-family homes, townhomes, twin homes, multi-family units/flats, public spaces, municipal uses, parks, and open space like the other three areas.

Of the potential $\pm 3,700$ homes planned in these four areas, a mix of single family, twins, townhouses, multi-family units/flats, and units above small shops are all expected to create a vibrant, eclectic neighborhood. Both market rate and affordable housing will be included. This diversity in housing types will ensure a better fiscal outcome for the Township and the ability to meet changing market demands.

The intent of the Kings Landing Receiving Zone is to provide housing in a compact design that also reduces the need to drive by providing housing in proximity to shopping and lifestyle destinations. As for vehicular traffic, a highly connected street network takes pressure off of US 322, allowing regional traffic to use the highway, while local traffic can utilize neighborhood streets.

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



Regional Center Land Use Concept Plan

townhomes



mixed use main street



power center



multi family streetscape



twin homes



lifestyle center



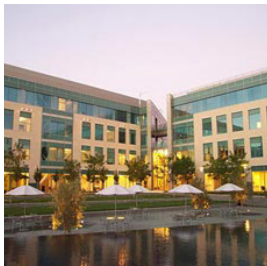
single family detached homes



neighborhood park



single use office space



fountain / pedestrian area in retail area



CAPITALIZING ON OPPORTUNITIES

The siting and design of the Kings Landing 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

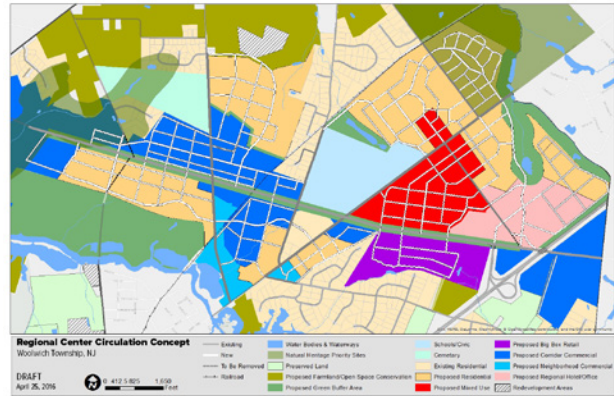
Available Local And Regional Transportation Network

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 run north-south. Exit 2 of the Turnpike is located adjacent to the eastern section of the receiving zone.

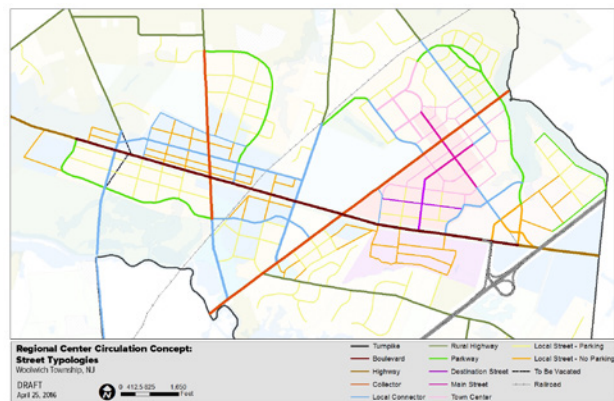
A network of county roads traverses or passes nearby the receiving zone, providing critical connections to nearby Swedesboro as well as other adjacent municipalities.

Transit service is limited but nonetheless available within the general vicinity of the receiving zone. New Jersey Transit operates three bus lines accessible to Woolwich residents, including the 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 via Route 45 in Harrison Township. New Jersey Transit also provides bus service on Route 47 in Glassboro.

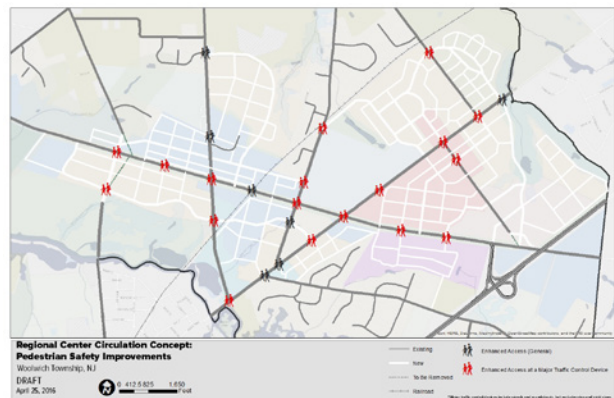
A single track freight railroad - Salem Secondary - is located parallel to and approximately 2,000 feet west of Kings Highway (County Route 551), crossing through Kings Landing in a northeast-southwest direction. Conrail Shared Asset Operations provides the freight rail service on this line. New Jersey Transit has invested in upgrades to the Salem Secondary in recent years and encourages its continued use for freight.



Street Grid



Street Typologies



Pedestrian Safety Improvements

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.

The land use plan and roadway network within the receiving zone will be designed to encourage walking and bicycling, and will accommodate future opportunities for bus transit, while at the same time reducing reliance on cars for local trips.

Sidewalks, multi-purpose paths, linear parks, pedestrian-friendly intersections and traffic calming measures will all be employed to facilitate multi-modal circulation within the receiving zone. 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 Kings Landing Regional Center is fully built out. Thus, continued coordination with Gloucester County and the 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 that Salem Secondary rail line is ever abandoned, right-of-way reservation will be critical to support potential future passenger rail service.

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

Land Availability

In 2007, nearly 82% of the Kings Landing 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 Kings Landing 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 residential developments, schools, shopping areas, parks, historic and cultural landmarks, and civic institutions. Implementation of the Woolwich Township

Public Spaces 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
- 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 development at former Nike Missile site
- Auburn Road Village

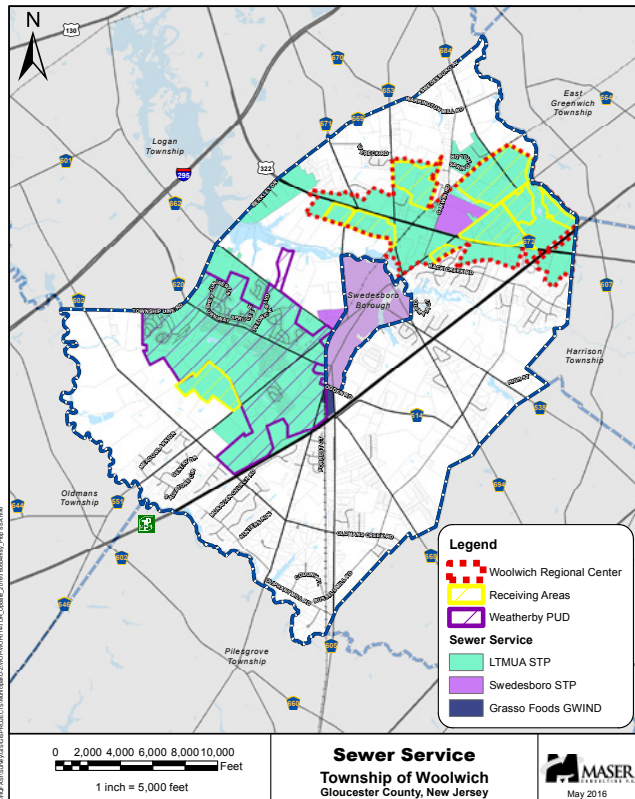
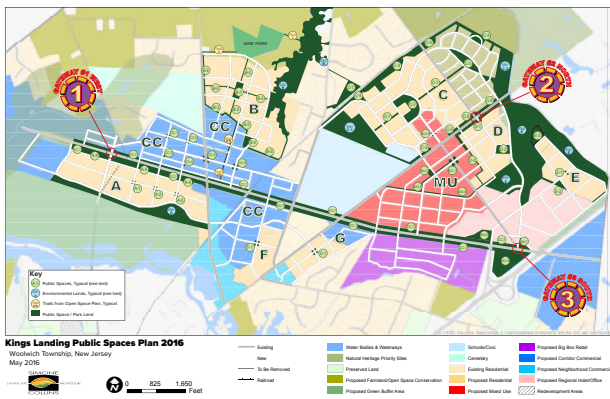
Sewer Service

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

In 2015, a legal agreement was signed between the Logan Township Municipal Utilities Authority (LTMUA), Summit Ventures (Weatherby developer), and Aqua-NJ. LTMUA has committed to expand its treatment plant to add between 250,000 – 500,000 gallons per day (gpd) in added sewer capacity. This new capacity will serve customers in both Logan and Woolwich Township on a first-come-first-serve basis following municipal site plan approvals in either township, within their respective state-approved sewer service areas. In Woolwich, that area includes the entire Weatherby development, the 2.5 square mile Rt. 322 Regional Center, “Kings Landing at Woolwich”, as well the future Auburn Road Village project. Under the agreement, LTMUA has promised to commence plant expansion within 24 months, and has already initiated the permitting process for expansion of the treatment facility by 500,000 gpd.

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 Kings Landing 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.

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.

Aqua New Jersey projects a total of approximately 1.8 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, close to 1.3 mgd will be generated in the Regional Center.

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.

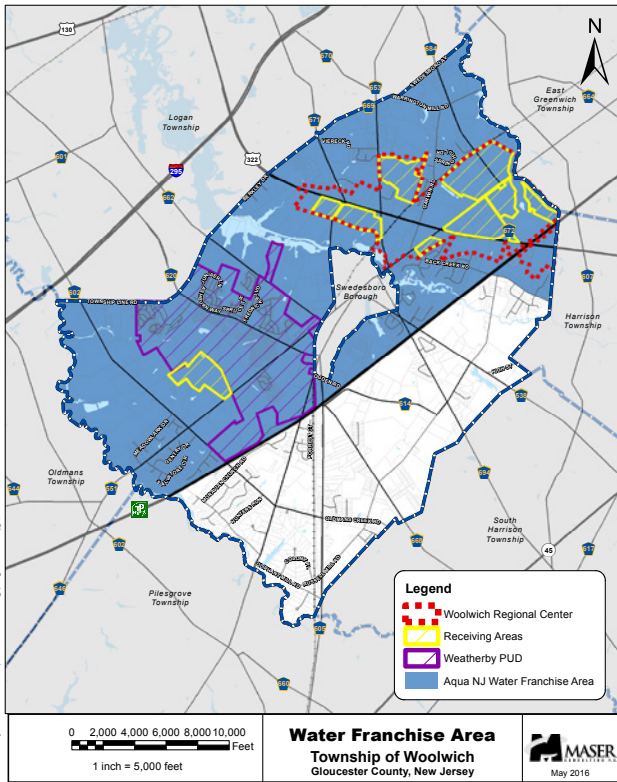
Aqua New Jersey holds the water supply franchise in Woolwich. It is responsible for arranging for, owning and operating facilities in accordance with existing and/or future service agreements with the Township and developers. Aqua's current source of water is groundwater, as permitted by NJDEP's Bureau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

Aqua New Jersey projects 1.8 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, Regional Center developers, 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 developers. 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

An economic analysis was performed for the purpose of assessing the feasibility of the TDR program as originally proposed in Woolwich Township.

At the time that the analysis was conducted, the Township estimated a total of 1,336 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.

Since that time, and with the modification of the sending zone, the Township now estimates a total of 1,009.25 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 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 economic market analysis at the time of original adoption 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 $\pm 3,700$ 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 1,009 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; and
- 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 TDR *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. Additionally, a sensitive area west of Swedesboro-Paulsboro Road to the south of 322 has been incorporated into proposed open space. West of it is the tip of an unnamed tributary to Raccoon Creek and associated wetlands. Areas where this feature extends into the development grid should be dedicated as green space.

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.

Streams

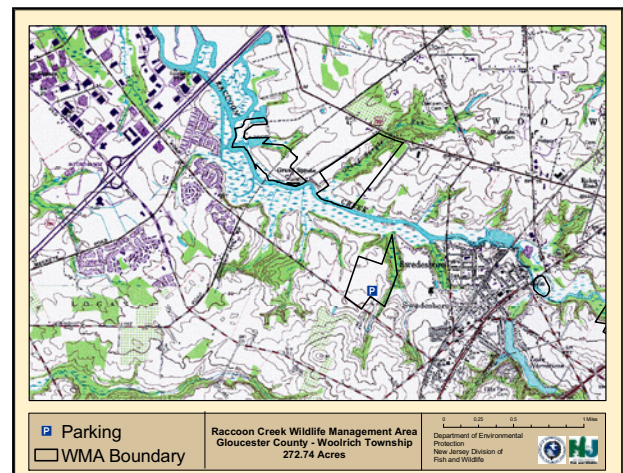
Three streams and/or tributaries thereof impact the Woolwich receiving zone: Raccoon Creek, Grand Sprute Run, a tributary to Raccoon Creek, and Little Timber Creek.

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.

Little Timber Creek also runs through the area of Kings Landing.

No new stream crossings are proposed within the receiving zone. However, the existing bridge over Raccoon Creek, south of Receiving Zone A, 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.



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 receiving zones. However, approximately 120 acres of wetlands are impacted. The additional acreage is located on properties immediately south of US 322 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.

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. Receiving areas encroach 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 Kings Landing.

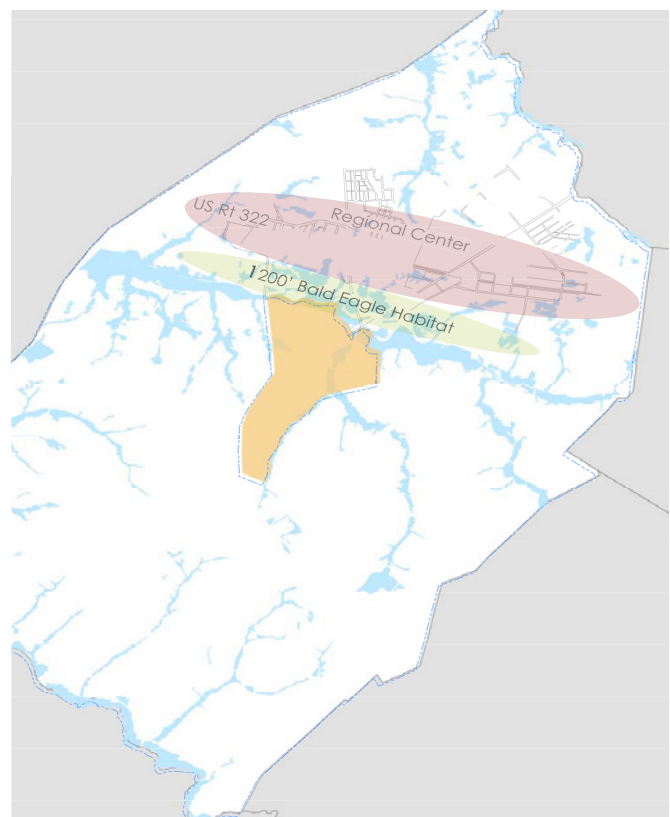
Rank 5 grasslands identified in Woolwich Kings Landing are habitat of the federally listed bald eagle according to NJDEP Landscapes Project data. This differs from the bald eagle foraging habitat in that foraging habitat is associated with wetland areas, while the grassland habitat is associated with 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 Kings Landing 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 Kings Landing 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 3,674.7 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.

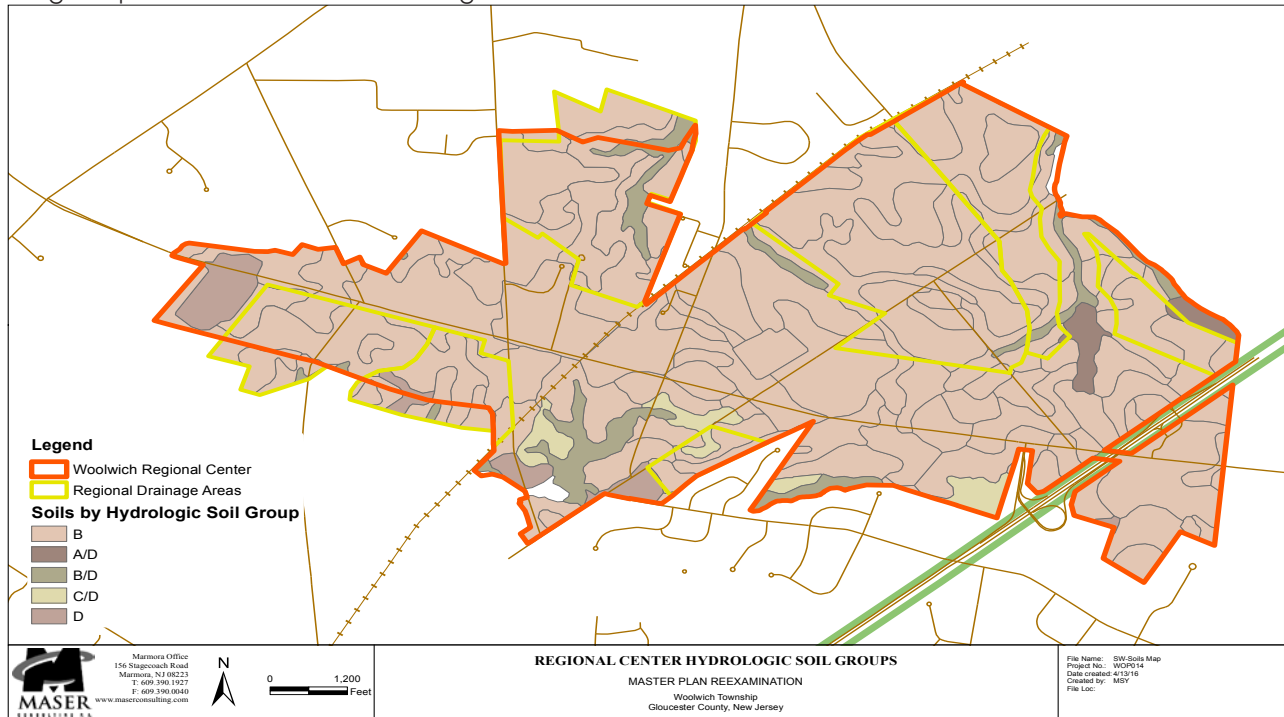
Stormwater Recharge

The vast majority of the soils underlying Kings Landing 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 Kings Landing 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 Kings Landing. The resources of concern are as follows:

Governor Stratton House
 On the State and National Registers of Historic Places



Mount Zion African Methodist Episcopal Church and Cemetery
 On the State and National Registers of Historic Places

Former Nike Missile Site



Victorian and Colonial homes along the south end of Swedesboro-Paulsboro 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 Swedesboro-Paulsboro 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 Kings Landing.

The Mount Zion African Methodist Episcopal Church is the oldest AME congregation in New Jersey. The Church is located on Garwin Road, south of the railroad crossing. The cemetery is located just west of the railroad tracks, behind the Church.

Black Cherry Tree

A black cherry tree, *Prunus serotina*, located in the Kings Landing Receiving Zone toward the western end and north of the highway, was deemed to be the third largest of its kind in the State by the NJ Department of Environmental Protection. The tree is estimated to be 214 years old with a circumference at breast height of 14 feet and in very good health given its age and species.

The tree's location coincides with future development opportunities in the Kings Landing Receiving Zone.

A former, federally-owned Nike Missile base is located immediately north of Kings Landing and is accessed from Swedesboro-Paulsboro 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 a redevelopment study is underway. Its proximity to Kings Landing will tie the two developments together.

A series of Victorian and Colonial homes front Swedesboro-Paulsboro Road near the intersection with Kings Highway within Kings Landing. 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 Kings Landing will ensure that new construction in the vicinity of this area maintains the density and visual character created by the hamlet.

NJDEP indicated that the tree is worthy of long-term retention and that this can be achieved with appropriate construction practices that minimize impacts to the tree both before and after development occurs. Thus, the opportunity exists to enable sufficient protection of the black cherry tree in the face of growth within the receiving zone.



SUMMARY

The location and design of the Kings Landing 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 Kings Landing 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.

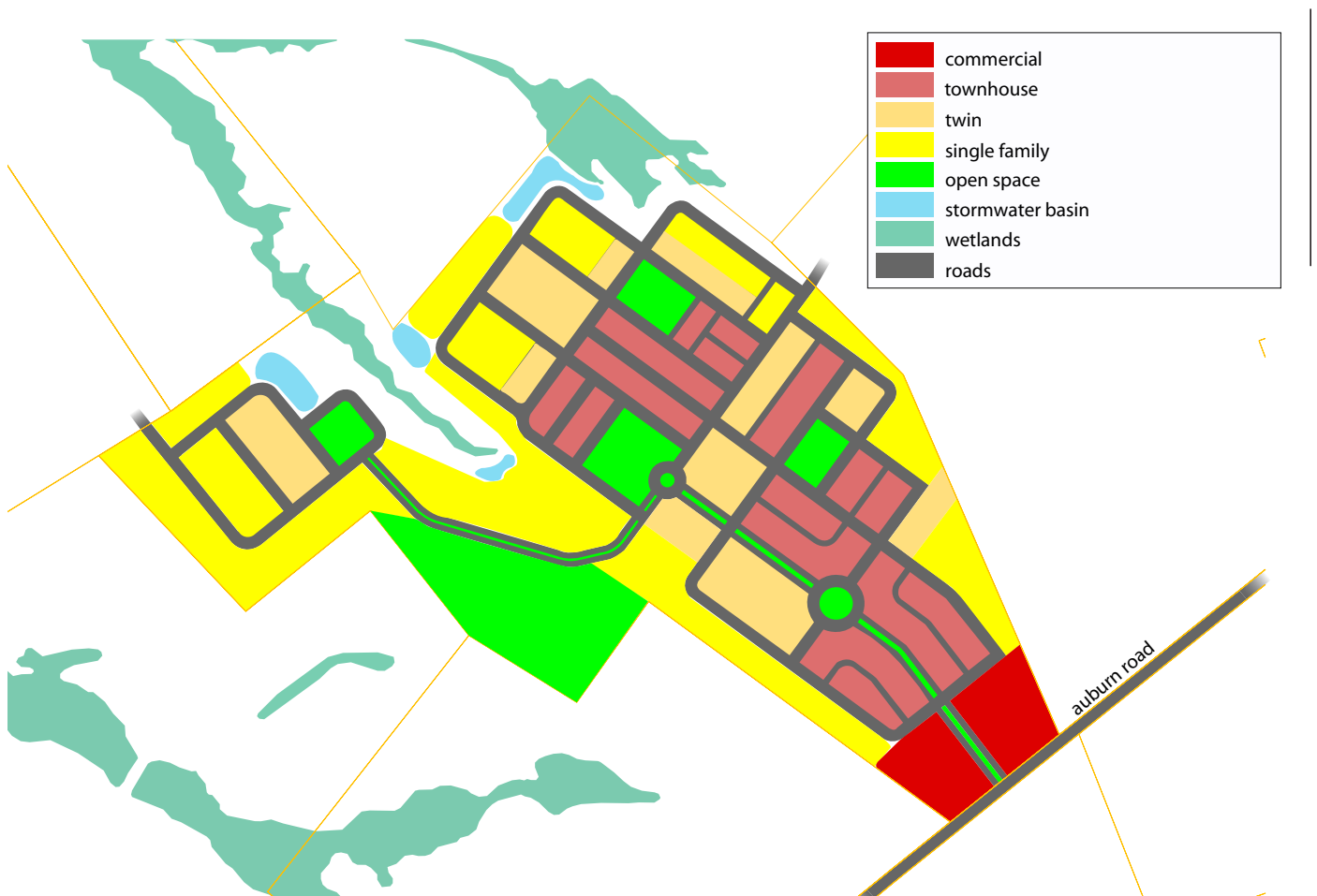
OVERVIEW

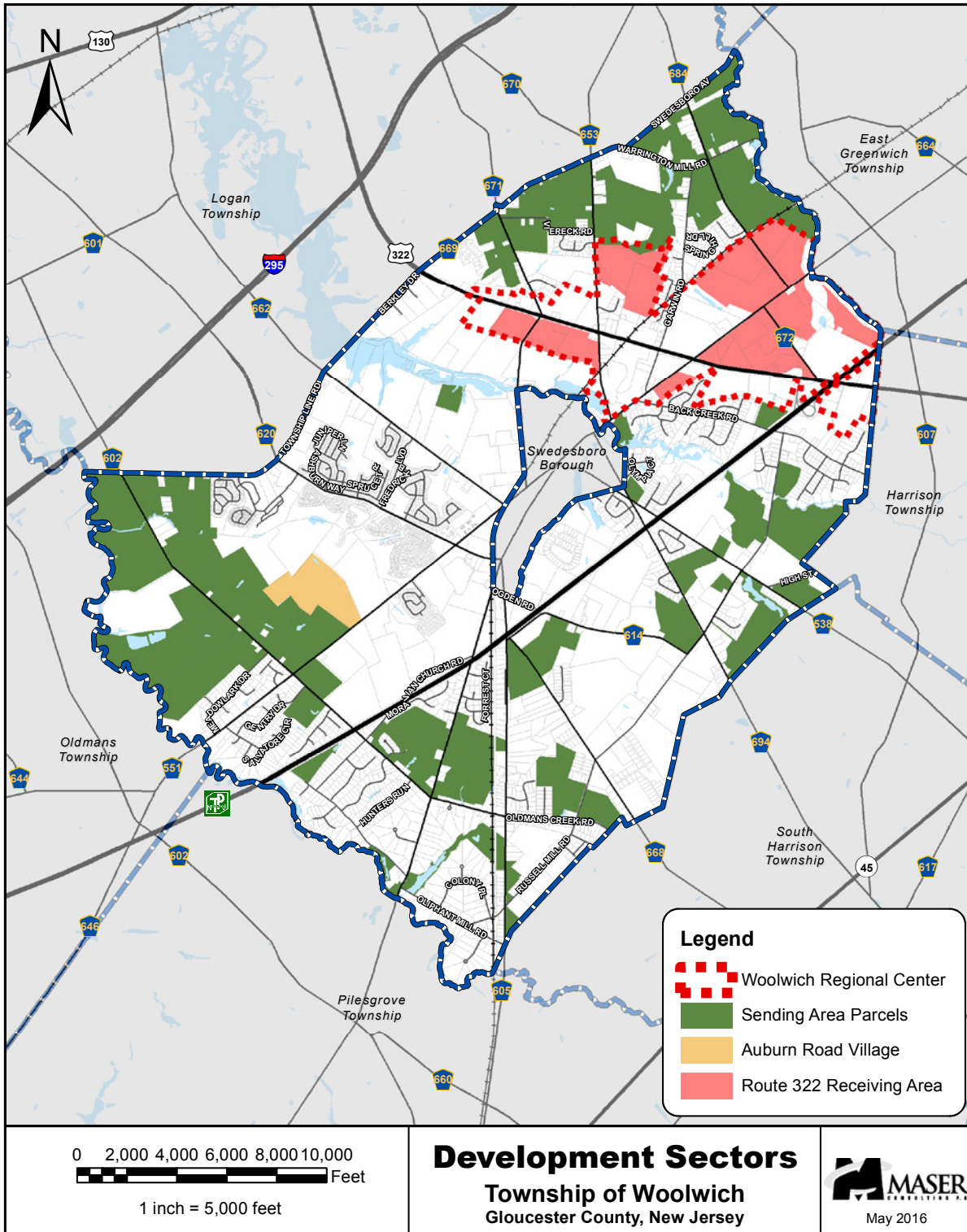
Auburn Road Village is located on the west side of Auburn Road, south of the Four Seasons development within Weatherby. Auburn Road Village consists of a single parcel of land, comprising roughly 125 acres. Of this, 81.5% (101.9 acres) is agricultural land. Wooded areas are present as well, although 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 Kings Landing 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	

Fig. 22 Proposed Land Dimensions for Receiving Zone

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 Kings Landing 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 KINGS LANDING 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 Kings Landing. 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 the US 322 Receiving Zone without compromising the functional and visual integrity of the area. 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



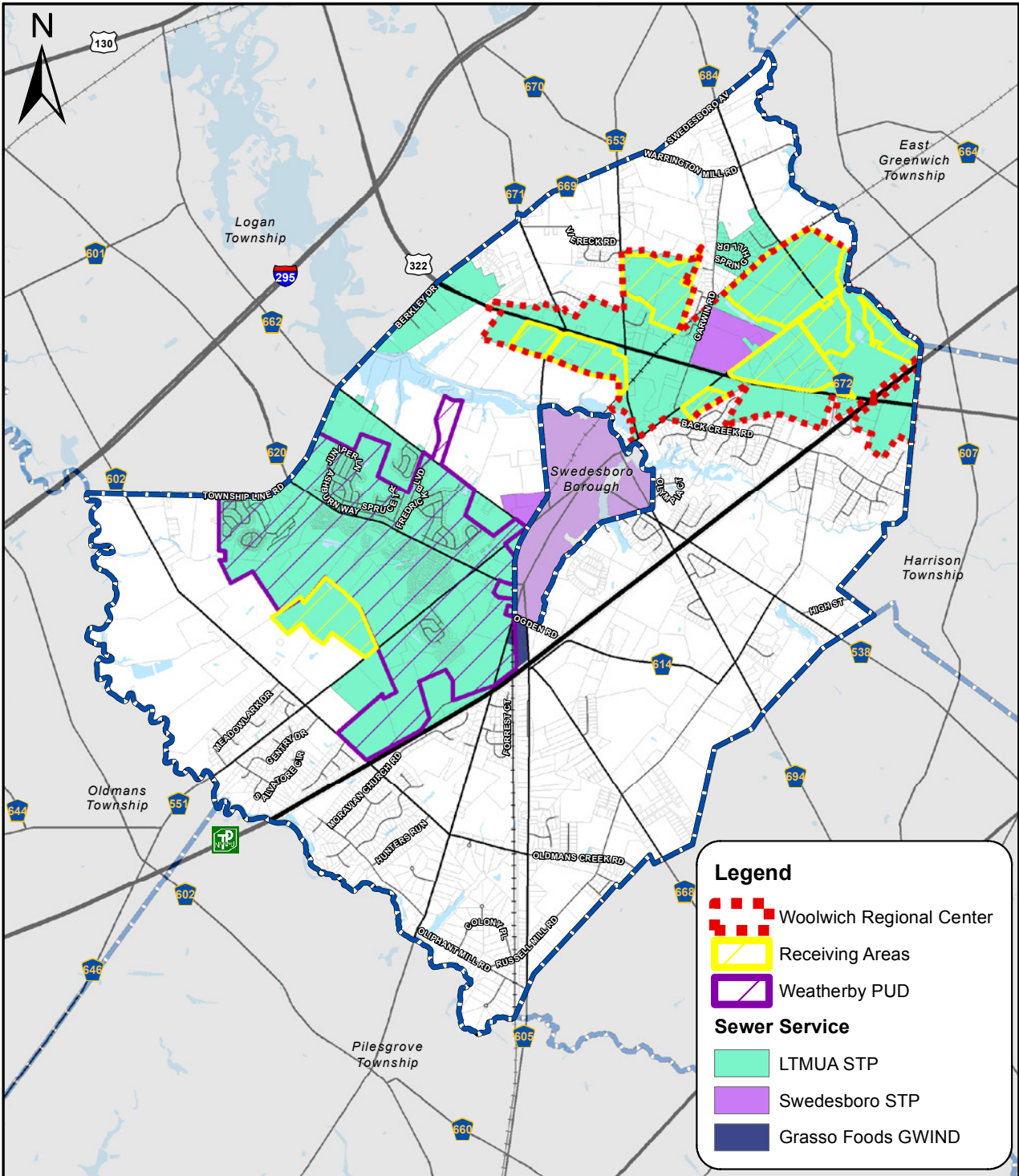
Photographic example of proposed Auburn Village Road community

to Auburn Road Village residents. Likewise, future 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.

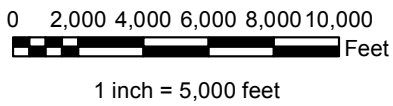
SEWER SERVICE

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



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Sewer Service
Township of Woolwich
Gloucester County, New Jersey



of Aqua's franchise area that is located in the LTMUA service area.

Aqua New Jersey projects total flows of 0.151 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 0.143 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.

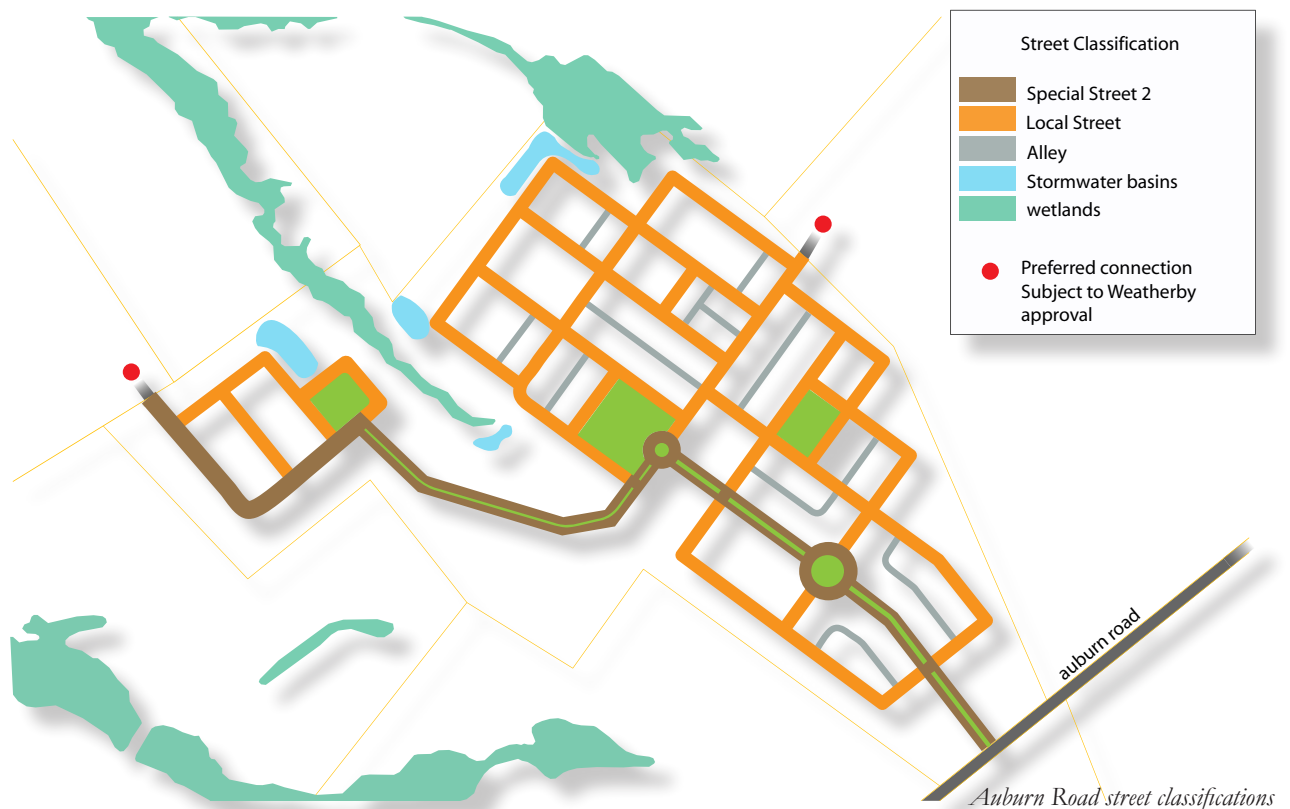
Despite the ability of Auburn Road to accommodate projected traffic volumes, adding connections between Auburn Road Village and Four Seasons in Weatherby either by roadway or walking/bicycle path would be preferable for several reasons. Internal connections would create an alternate, parallel route to 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, internal connections 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

An economic analysis was performed for the purpose of assessing the feasibility of the TDR program as proposed in Woolwich Township.

At the time that the analysis was conducted, the Township estimated a total of 1,336 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 economic 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 zone 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 50,000 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 1,336 credits in the sending zone

Further details can be found in the Woolwich Township TDR 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

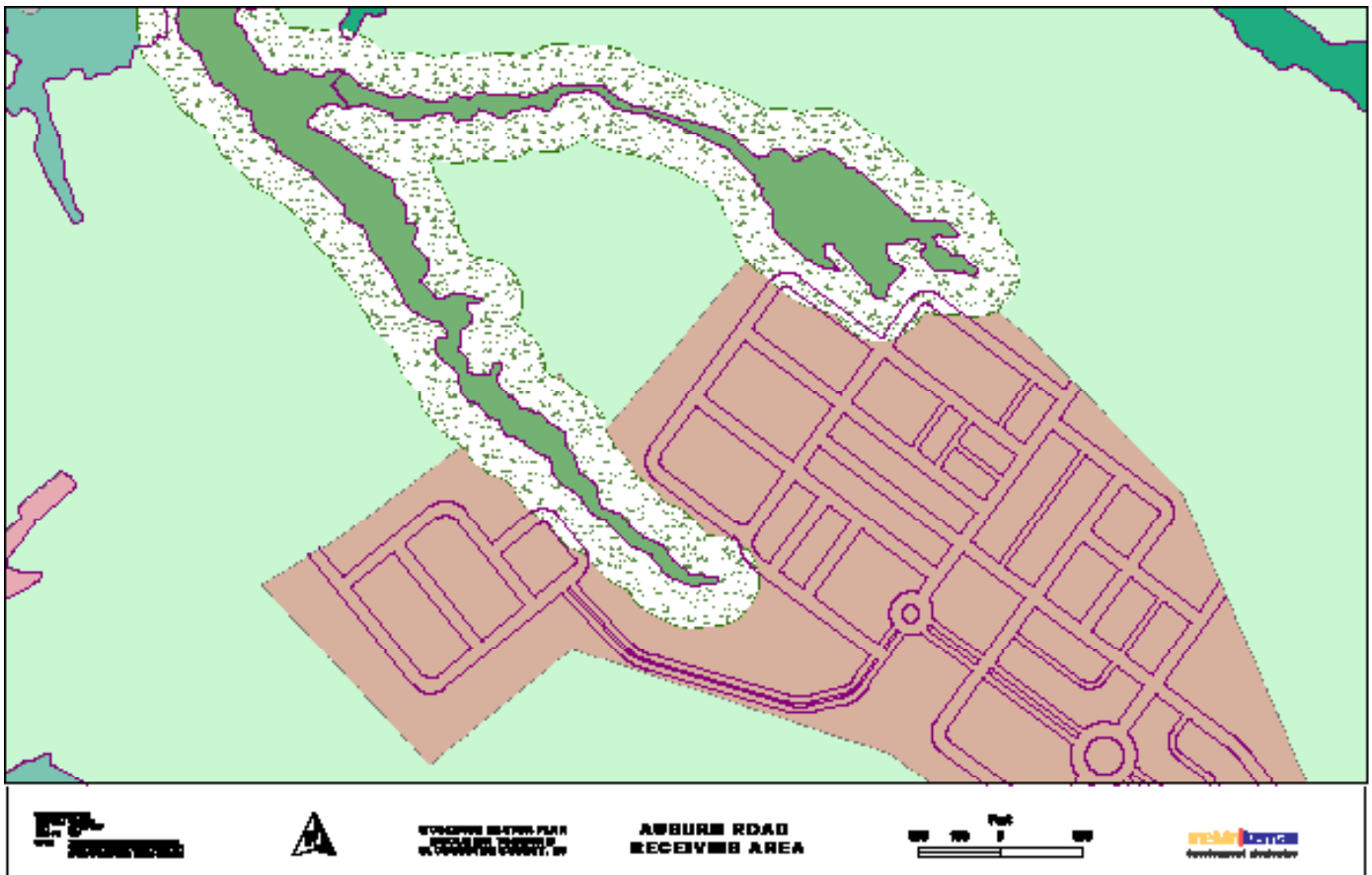
According to the NJDEP Landscape Project Map (version 2.0), wetlands that encroach into Auburn Road Village development grid are habitat for the federally threatened/state endangered Bog Turtle. As such, this wetland feature would almost certainly be deemed of Extraordinary Resource Value, and the outermost 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.

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.



150 foot wetland buffer within Auburn Road Village

SECTION 9: MECHANISMS AND PROCEDURES FOR TRANSFERRING DEVELOPMENT RIGHTS (TDR)

TDR CONCEPT

Transfer of Development Rights (TDR) is a “market driven” land use management and zoning tool. TDR seeks to permanently preserve open space, agricultural land and other important environmentally sensitive and critical lands within certain defined areas of Woolwich 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 and open space is to be preserved. The Township believes that TDR is necessary to maintaining the remaining rural character of the community while spurring economic growth along the US 322 Corridor and Auburn Road. It is recognized that continued development patterns of suburban sprawl are unacceptable and will result in the fragmentation of farmland and threaten the rural character of some portions of the Township.

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's TDR ordinance 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 general requirements and design criteria.

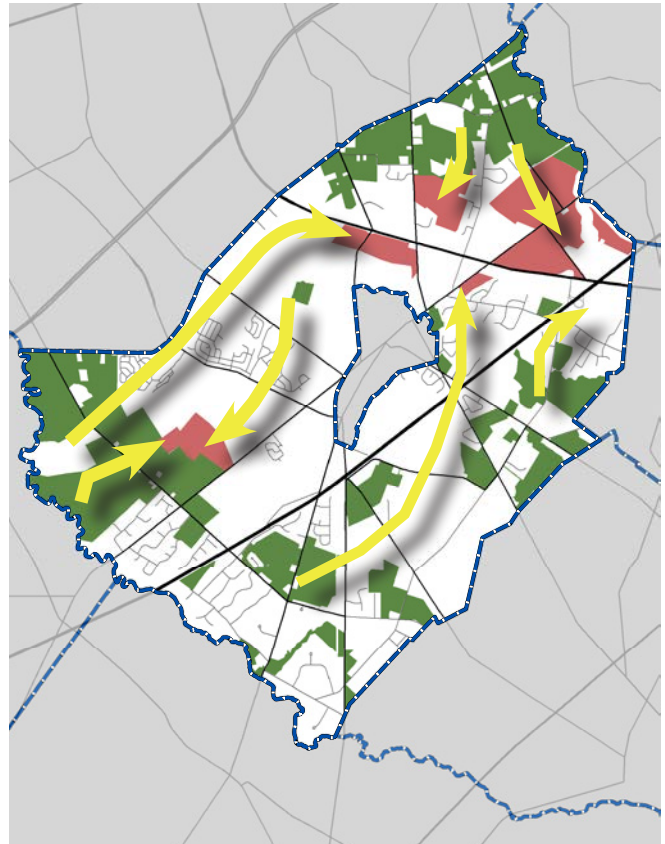
STATE TDR ACT

The State Transfer of Development Rights Act (N.J.S.A. 40:55D-137 et seq.) requires a municipality to prepare the following:

- Amendment to the Township Master Plan to create a Development Transfer Plan Element;
- Township Capital Improvement Program;
- Utility Service Plan Element of the Township Master Plan;
- Real Estate Market Analysis;
- Development 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 State TDR Act requires that a municipality 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.), which Woolwich successfully accomplished in 2008.

In order for land to be permanently preserved, 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. 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 permanent preservation. The development right is gone for good, protecting open space and farmland while giving the landowner a profit. A developer typically receives an allowance of additional dwelling units on the receiving parcel for the purchase of development rights on a sending parcel, and 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 complements the state preservation programs such as Green Acres and the State Agricultural Preservation Program to preserve farmland in that TDR relies on private market transactions to preserve farmland.

TOWNSHIP TDR PROGRAM

The purpose of TDR in Woolwich 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 or corridors with associated floodplains and wetlands; historic, scenic and cultural resources; open space protected for water supply; and 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, County or regional plans.

The Township proposes to utilize TDR to transfer from agricultural lands primarily to areas north of Swedesboro and east of the Turnpike. The predominantly agricultural sending zone includes parts of the Tomlin Station Natural Priority site and the Grand Sprute Run Natural Heritage Priority Site. The community aims to curb development in the sending zone to maintain its rural character, while making accommodation for economic development in more suitable growth areas where infrastructure will be available.

Zoning in receiving zones will be changed to accommodate the Township's anticipated residential growth pressures detailed above and the Township's desire to preserve lands within the sending zone. If the TDR program were not implemented, the total potential buildout of the sending zone was estimated in 2007 at 1,336 single-family units, much of which is likely to be absorbed by 2025. Based on 2016 revisions to the sending zone, there are 1,010.25 development credits available from the sending zone's 3,159.5 acres to be used in the receiving zones. The following details the development potential for the receiving zones under these new zoning regulations:

Kings Landing Receiving Area 1:

As established in 2007 and based on an absorption analysis and assuming current development patterns continue, there appears to be sufficient demand to absorb the following development during the 2012 to 2029 time period:

- ±3,700 units of single-family, twin, townhouse, 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 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 townhouse units
- 50,000 square feet of convenience retail

Before 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, village, 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 centralized water, roadway and intersection capacity, schools, park and recreation, stormwater management and the fulfillment of low/moderate income housing needs.

TOWNSHIP SENDING AND RECEIVING ZONES

The Township TDR program has established a sending zone that includes 3,159.5 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 Master Plan Element further establishes two receiving zones—one of ±700 acres that contributes to the desired Regional Center along the US 322 Corridor and a second, smaller area of 125 acres known as Auburn Road.

Current zoning in the sending zone includes five classifications: R-1, R-2, R-3, 5A, and PAC. The 3,174 acres of the sending zone are divided among these five classifications in the following manner:

- R-1 1,021 acres
- R-2 1,945 acres
- R-3 85.8 acres
- 5A 89.8 acres
- PAC 32 acres

All five zoning classifications limit allowable uses to single family detached dwellings or age restricted housing; agricultural, horticulture, farmhouses, farm buildings, farm markets, and related uses; certain community residences; golf courses; 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
- 5A 0.20 dwelling units per acre
- PAC 4 dwelling units per acre

The parcels zoned R-3 within the sending zone 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.

Although at the time of original TDR adoption the receiving zones were zoned R-2 and FOC, they have been rezoned RR, CC, RR-BD, NC, R-2, BBR, RHO, CON, and MU in order to further the TDR Plan and Regional Center designation. There are over 700 acres in the receiving area divided between these classifications in this manner:

- RR 428 acres
- RR-BD 280 acres

TDR CREDIT CALCULATION FORMULA

All properties considered developable that were analyzed 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 selection criteria are 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 except for a small portion of R-2, which is proposed for removal from the sewer service area in the Township *Utility Services Plan*;
- 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, with the exception of parcels participating in the eight year farmland preservation program;
- Parcel may be subject to a pending or approved development application which compromises the integrity of an Agriculture Development Area;
- 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 zone, current zoning in the sending zone, and a percent deduction representing land needed to accommodate infrastructure. The credit formula was then tested against an inventory of 12 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 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" N.J.A.C. 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 was 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 specified 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, R-2 zones, and R-3 zone and by .97 in the 5A 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, the slight development constraint figure is multiplied by 1, the moderate constraint figure by 1/2.22, and the severe 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. Credit calculations resulting in more than one credit are rounded down to the nearest quarter credit.

An economic 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 zone, the TDR program proposes development credit bonuses. These are additional units that can be built within the receiving zones when credits are bought over and above the allowable number of units under the base zoning code.

Based on the economic analysis, parcels in the Kings Landing Receiving Zone are allocated a certain number of credits by right. Parcels into which residential development is transferred are assigned by-right credits (See Real Estate Market Analysis).

The Auburn Road Receiving Zone site is granted by-right credits equivalent to the number of single family homes permitted by the zoning in place when the TDR ordinance is adopted. However, no more than 130 single family units may be constructed in accordance with the TDR land plan for the Auburn Road Receiving Zone. Therefore, any additional single family units that could otherwise be built on this site must be translated into twins or duplexes at a ratio of 1.6 twins/duplexes for each single family unit.

The proposed bonus ratios for Kings Landing Receiving Zone and Auburn Road Village Receiving Zone are 0.30 for small-lot single-family detached housing; 1.25 for twins; 1.95 for townhomes; and 2.40 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 a receiving zone, the proposed development would receive a bonus of 25 credits (20 purchased times 1.25) and 45 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 39 credits (20 purchased times 1.95) and 59 units could be constructed, in addition to the approximately 3 units which could be constructed by-right.

TDR APPEAL PROCESS

Any landowner eligible for participation in a TDR program who is dissatisfied with his credit allocation may appeal his 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 agricultural or conservation 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 Joint Land Use Board Secretary.

In order to appeal the allocation of credits, the landowner must include the following submissions:

- A NJ-Geoweb map or equivalent showing the Premises boundary and mapped wetlands, streams, and waterbodies.
- An soils map, based on current Natural Resources Conservation Service ("NRCS") Web Soil Survey data, depicting all mapped soil types with name, symbol, and sewage disposal suitability rating (not limited, somewhat limited, or very limited based on the Sewage Disposal (NJ) rating) on the Premises.
- Soil borings or test pits shall be performed. A minimum of two (2) soil borings/test pits shall be performed within each separate soil map unit containing at least one (1) acre and least one (1) soil boring/test pit shall be performed within each separate soil map unit containing less than one (1) acre. Additional soil borings or test pits shall be performed so that the total is at least one (1) per two (2) acres of the total tract. Soil boring/test pit locations shall be distributed evenly throughout the Premises. An explanation of any areas avoided shall be submitted. Where necessary to determine the soil suitability rating, permeability testing shall be performed at each boring/test pit location in accordance with the soil testing procedures as required in NJAC 7:9A, Standards for Individual Subsurface Sewage Disposal Systems. A soil boring/test pit location map, soil logs, and permeability results shall be submitted. If necessary to accurately map the sewage disposal suitability of soils on the Premises, the Joint Land Use Board Planner may request additional soil tests be performed.
- A report and map to summarize the findings of the soil testing and categorize the disposal suitability throughout the Premises. The report and map shall include areas (acreage) of each alternatively proposed sewage disposal rating and an explanation of the rationale for the change in rating.
- A calculation of the Credit allocation pursuant to the Credit allocation formula contained in Section 203-52H for the proposed revised areas

of sewage disposal suitability of soils based on the Sewage Disposal (NJ) rating.

- The Joint Land Use Board Planner shall review the soil tests, report, map and credit allocation calculation to determine what adjustments, if any, should be made to the Credit allocation that was assigned to the Premises pursuant to Section 203-52.

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.

CRITERIA FOR SENDING SITES

- The sending site shall be designated on an inventory contained in the adopted TDR Ordinance
- A sending site must be more than 10 acres in size on the date that the ordinance is adopted, with several exceptions as indicated on the list and meeting the last criterion listed below.
- A parcel located in a sending zone shall not be subject to existing deed restrictions on further development, with the exception of properties participating in the eight year farmland preservation program.
- A sending site shall not be owned by government.
- Properties equal to or less than 10 acres if adjacent to other sending parcels or preserved land, thereby contributing to the preservation of a larger contiguous area of farmland and/or open space.

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 underlying zoning district, which zoning is replaced by the adoption of this section and the environmental constraints present.

- The underlying zoning district 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. The SCS survey characterizes soil based on numerous factors, one of which is the disposal of septic effluent. The combination of the soils' characteristics results 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.

RECEIVING SITES – TDR IMPLEMENTATION

- The use of development credits shall occur as indicated on an approved plan for the receiving zone 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):

Kings Landing Receiving Zone:

- 1.3 Single-Family Detached = 1 credit
- 2.25 Duplex or Twin Unit = 1 credit
- 2.95 Townhouse = 1 credit
- 3.4 Urban Apt/Flat = 1 credit

Auburn Road Receiving Zone:

- 2.25 Duplex or Twin Unit = 1 credit
- 2.95 Townhouse = 1 credit

- 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

district 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 zone(s) prior to final action being taken by the Planning Board.

SENDING ZONE CHARACTERIZATION BY ZONING DISTRICT		
Zoning District	Total Number of Tax Parcels	Total Acres
R-1 – 2 acre density	39	1,021.4
R-2 – 1.5 acre density	53	1,945.5
R-3 – 20,000 s.f. density	3	85.8
5A – 5 acre density	4	89.8
PAC – 4 unit per acre density	1	32.0

Source: Acreage from 2006 Tax Data, Woolwich Township.

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
$3 \div 2 \times 1 = 1.5$ Credits	$3 \div 2 \times 1/2.22 = 0.68$ Credits	$4 \div 2 \times 1/18 = .11$ Credits
Total		
$1.5 + 0.68 + .11 = 2.29$ TDR Credits		

TDR CREATION, TRANSFER AND USE

In order to create credits which may then be sold and transferred to a receiving zone, a sending zone property owner must first enroll his land in the TDR program. To do this, the property owner applies to the Township, following procedures set forth in the TDR ordinance. Once submitted materials are reviewed by the appropriate municipal entities and deemed acceptable based on specified criteria, the easement is recorded.

After the agricultural or conservation easement is recorded on the sending property, the landowner is able to assign the TDR credits by following a set of separate

procedures spelled out in the draft ordinance. The applicant is required to submit to the Township an assignment application and proposed assignment (i.e. to whom the credits are being transferred). The assignment must be recorded.

At the time a final plan for the first section of an approved subdivision plan involving TDR in the receiving zone is signed by representatives of the Township or an approved final site plan involving TDR in the receiving zone is signed by the Township Engineer, the person or entity submitting the development application must record a deed of dedication against the land to be developed on forms approved by the Township. The signed document dedicates the entire site for use in the TDR program. The residual credits existing on the land covered by the development shall be deemed created only upon the filing of the deed of dedication cited. Filing the deed of dedication entitles the land owner to use the credits created on the land affected by the application of development at the density or for the uses permitted by ordinance. Until the deed of dedication is recorded, the land is subject to the density and use restriction otherwise controlling within the district.

USES AND LIMITATIONS ON SENDING ZONE PROPERTIES

Sending zone property owners who choose to participate in TDR are subject to certain limitations on their property. These limitations affect the use of the property. Uses proposed in the draft TDR ordinance include:

- 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 land development ordinance.

Uses are further stipulated in a deed of easement.

Property owners in the sending zone that choose not to participate in TDR but wish to develop their property are subject to 15-acre residential zoning.

USES AND LIMITATIONS ON RECEIVING ZONE PROPERTIES

Receiving zone properties that participate in TDR are subject to the Woolwich Township TDR Building Regulating Plan. The Building Regulating Plan consists of the *Land Use Element, Circulation Element, Public Spaces Element, Stormwater Element* and *Zoning Regulations and Design Standards*.

Receiving zone properties that are eligible to accommodate residential or mixed use development through TDR but do not enter the program are subject to 15-acre zoning in the Kings Landing Receiving Zone. Within the Auburn Road Receiving Zone, development potential without TDR is based on the underlying zoning.

DEVELOPMENT RIGHTS CREATED ON PRESERVED LANDS UNDER THE NJ AGRICULTURAL RETENTION AND DEVELOPMENT ACT

A county that acquires development easements under the Agriculture Retention and Development Act or the Garden State Preservation Trust Act is allowed to sell the development potential associated with the easement under the statewide TDR Act. However, this can only be done subject to the terms and conditions specified in a municipal TDR ordinance. Woolwich Township does not want its sending zone property owners to have to compete with easements purchased by the County on farms preserved through the State Farmland Preservation Program. Therefore, the TDR ordinance contains language specifically prohibiting the sale of development easements by the County for purposes of development in the receiving zones.

REASSIGNMENT AND DISENROLLMENT

The TDR program as proposed reflects a careful balance between the number of credits available in the sending zone and the capacity of the receiving zone to accommodate these credits. Nonetheless, there exists the possibility that some sending zone property owners who are enrolled are unable to utilize credits in the receiving zone. This could be due to the lack of available land in the receiving zone or some other legitimate circumstance. If the credit assignee and sending zone property owner agree, then the assignee may apply to the Township to reassign credits to the sending zone property owner by following procedures set forth in the draft ordinance. Additionally, the sending zone property owner may apply to the Township to disenroll, terminating the restrictions imposed upon the landowner's property.

PERIODIC REVIEW OF TDR ORDINANCE

N.J.S.A. 40:55D-137 et seq. requires a municipality to review the development transfer ordinance and real estate market analysis periodically. This review is designed to ensure the feasibility of the TDR program. Landowner protection is built into this process by mandating that the ordinance be repealed if it is shown that it is not functioning successfully.

The first time Woolwich Township must review the ordinance and real estate market analysis occurs three years following the ordinance's adoption. Based on the review, the Township must take any necessary actions to maintain and strengthen the value of the development transfer potential not yet used, including if need be, amending its capital improvement program and TDR ordinance.

In 2009, Woolwich did a one year examination of the TDR Plan; in 2011 a three-year review was conducted. Five years following adoption of the ordinance, Woolwich Township undertook another, more formal, review, known as "Transfer of Development Rights 5-year Review Report," dated October 18, 2013. This review assessed whether its TDR program remained economically viable, which was determined in the affirmative. At least 25% of the development potential had been transferred by this time.

Thereafter, Woolwich Township will have to conduct similar reviews every five years. If any of the above conditions cannot be met, then the ordinance must be repealed.

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. The New Jersey legislature has provided a tool to help municipalities strive toward this goal - that tool is the Transfer of Development Rights (TDR).

TDR will be instrumental in helping Woolwich Township achieve its ambitious vision – a vision built upon the notion of sustainable growth and preservation. The Township has successfully gone through the steps of approval and authorization to implement the TDR program, and 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

APPENDIX RECEIVING ZONE PARCELS

Block	Lot	Total Parcel Acreage	Address
6	6	96.46	2120 US Route 322
7	4	5.34	2062 US Route 322
7	4.01	25.23	2062 US Route 322
7	4.02	4.40	Locke Avenue
7	5	76.59	2020 US Route 322
14	3	73.49	325 Paulsboro Road
14	3.01	1.09	301 Paulsboro Road
14	3.02	1.25	339 Paulsboro Road
14	17	53.89	155 Rulon Road
18	4	117.17	57 Kings Highway
18	4.01	1.43	48 Asbury Station Road
18	4.02	1.16	38 Asbury Station Road
18	5	1.60	64 Asbury Station Road
18	5.01	2.0	52 Asbury Station Road
18	6	51.66	90 Asbury Station Road
18	6.01	1.05	86 Asbury Station Road
22	2	33.93	81 Asbury Station Road
22	2.01	1.12	69 Asbury Station Road
22	4	53.27	33 Asbury Station Road
22	4.01	2.93	3 Kings Highway
57	3	30.54	380 Kings Highway
60	1	77.00	190 Kings Highway
60	2	43.31	144 Kings Highway
61	1	65.87	32 Pancoast Road
61	2	61.40	24 Kings Highway
61	7	40.09	Along NJ Turnpike
61	8	0.88	East Tomlin Station Road
61	10	0.89	312 Russell Mill Road