The Camden Town history is tied to transportation, transportation technology, and the business of shipping goods. The crossroads of the delivery of goods between Maryland and Philadelphia or Smyrna and Middletown made towns like Camden intersections for commercial and political traffic.

4.8 Infrastructure

A long-range capital improvements plan has been developed that is pairing the physical growth of the Town with sensible expansion of staffing and services. The plan is focused on public safety, streets, drainage, and planning coordination. Design elements for a new Town Hall/Municipal facility have been implemented on the building's plan. This facility will accommodate the Town's management, police and public works departments. A Building Fund was established in order to provide for a new Town Hall/Police Department Building and a Maintenance Building for storage of Town equipment. The Maintenance Building was fabricated in 2004 and is located at 15 North West Street.

The Town's water and sewer systems are provided by Camden-Wyoming Sewer and Water Authority (CWSWA) and Tidewater Utilities, Inc.

The surface waters of Isaac's Branch and shallow dug wells were the initial water sources for the residents of Camden from its establishment until the early twentieth century. The Camden Water Commission was formed in 1930 to provide public water service to the Town. The water service was provided with water mains, the first "in-air" water storage tank, and public water supply wells.

In 1963, the town councils of Camden and of Wyoming transferred water supply responsibilities from their water commissions to the Camden-Wyoming Sewer and Water Authority (CWSWA). This transfer permitted the towns to become eligible

for federal loans from the United States Department of Agriculture (USDA). The CWSWA had been serving both towns for wastewater collection since 1963. The interconnection of the Camden and Wyoming water systems and system upgrades addressed inadequate fire flow pressures. The project included additional water storage with the addition of a 300,000-gallon tank, which provided for the Town's growth through the 1970s and early 1980s. Since that time, the Authority has expanded the system to new developments within its service territory and repaired leaks and replaced mains as needed.

The CWSWA operates solely on the user and impact fees and various loans or grants it may secure for construction projects. Neither town contributes funding to the Authority through tax revenues.

The Camden-Wyoming Sewer and Water Authority Comprehensive Plan was completed in June 1995. The Plan was designed to cover the anticipated needs of the Camden-Wyoming community through 2005. The CWSWA document includes a planning area which extends south to Derby Pond and Tidbury Creek south of Camden. This area is very nearly identical to the potential expansion area used for the Camden 2002 Update. In 2001, the CWSWA constructed a 1-million gallon water elevated tank to provide over one day's peak water demand in storage. CWSWA includes more than 2000 water service connections. The Certificate of Public Necessity and Convenience (a utility's service area) for the CWSWA includes 90 % of the Town of Camden, with the areas to the east of US Route 13 and the subdivision of Tamarac (on the southwest of the Town) included in the service territory of Tidewater Utilities. One recent annexation to the Town included the property owner negotiating the transfer of service rights from Tidewater to the CWSWA.

The CWSWA board oversees the operations, finances and planning for the Authority. The board includes six (6) members (three from Camden and three from

Wyoming.) The Authority has a staff including a full-time superintendent and a contract engineer. The Authority is subject to all the regulations regarding public wells and water supply as administered by DNREC and DHSS. The Authority does not have any jurisdiction regarding land use or zoning. CWSWA relies on regulations promulgated by various State agencies and the federal "Safe Drinking Water Act" to protect its water supply.

The existing water distribution system in Camden includes primarily 2-inch and 12-inch diameter lines. Generally, mains six inches or greater in diameter have been installed since 1955. CWSWA water storage includes two facilities: a 300,000-gallon elevated tank and a 1,000,000-gallon elevated tank. The CWSWA water system is served by two public water supply wells that tap deep, confined, aquifers.

Tidewater Utilities, Inc. also serves the developed southern portion of Camden within the Tamarac subdivision. Tidewater Utilities, Inc. is a subsidiary of Middlesex Water Company, a publicly-traded company located in New Jersey. The Delaware Public Service Commission regulates Tidewater Utilities, Inc. The Town does not have any direct involvement with its operations. The "Camden District" is an interconnected water system that extends from Tamarac in Camden on the southwest to the Generals Green subdivision, four (4) miles to the northeast. The District includes a 300,000 gallon elevated water storage tank at Rising Sun and an 80,000-gallon ground level tank on US Route 13.

Tidewater's "Camden District" is served by wells located across the district. Most are completed at depths greater than 150 feet below the ground surface. The Delaware Geological Survey has documented steady declines in the production rates from the Piney Point aquifer, and DNREC has a moratorium on new allocations of water from the Piney Point. New water resources for the Camden Wyoming Sewer and Water Authority may come from shallower aquifers.

Shallow aquifers generally provide reliable quantities of water because rainfall can quickly recharge the aquifer through infiltration. This positive effect is a cause of concern, however, if land use in the recharge area produces contaminants that might leach into the groundwater near a well site. As part of the community discussion, the Authority suggested that the Town adopt a wellhead protection ordinance to limit certain land uses in the vicinities of public water supply wells. Recharge of water from the land surface to the shallow groundwater table is vital to the sustainability of shallow groundwater resources.

In 2007, new regulations will be in effect requiring the Town to protect recharge areas through amendments to the Town's land use ordinances and through specific elements included in the 2007 Comprehensive Plan Update. Areas of "Excellent Recharge Potential" have been mapped in the Camden area by the Delaware Geological Survey. New security guidelines of the Safe Drinking Water Act recommend that wells, main distribution systems, and water storage facilities not be shown in public documents. For that reason, such information is excluded from this plan.

4.8.1 Sanitary Sewer System

As with much of Kent County, residents of Camden disposed of wastewater initially via outhouses, later using individual septic systems. Public sewage treatment for both Camden and Wyoming began in 1962 with the formation of the CWSWA. The Authority installed sanitary sewers and constructed a sewage treatment plant in Wyoming along Isaac's Branch. Almost all of Camden's wastewater collection system was installed in 1963.

To comply with environmental regulations, the CWSWA closed the plant in 1977 and merged the system with the Kent County Regional Wastewater System at

Pump Station 14, east of Frederica. Currently, wastewater is handled primarily through the CWSWA. In the southern portion of the Town, the initial lots of the Tamarac subdivision utilize individual, on-site septic systems for wastewater disposal.

The gravity collection system installed by the CWSWA is composed of vitrified clay pipe with rubber-gasketed joints, with pipe sizes ranging from six to fifteen inches. Most of the system is 8-inch diameter pipe.

According to DNREC, the Camden-Wyoming Sewer and Water Authority has a Wastewater Facilities Management Plan, which was completed in 1995, on file in the DNREC Financial Assistance Branch.

4.8.2 Water and Sewer Plan

The Town is served by Camden-Wyoming Sewer and Water Authority (CWSWA) formed under Title 16 Chapter 14 of the Delaware Code. The Towns of Camden and Wyoming are represented on the Authority Board by six (6) members, three from each town. Board members are appointed to three-year staggered terms. The Town, working with CWSWA, has adopted a well-head protection ordinance to protect current and future well sites.

The Town of Camden is prepared to cooperate and share maps and data developed under this plan with CWSWA as they update their plans.

The following table illustrates the updated wastewater flow projections for the next five and ten years for the CWSWA service area. The estimates are based on the average wastewater flow rate for 2006: 706,000 gallons per day[9].

[9] Information provided by the Camden-Wyoming Sewer and Water Authority in conjunction with the Kent County Sewer District

Year	2007	2012	2017
Projected wastewater flow rate gallons per day	737,000	893,000	1,490,000

4.9 Stormwater Management and Drainage

4.9.1 Existing Conditions

In general, the topography of the Camden area is very flat. Portions of the Town south of Old North Road have approximately ten (10) feet of relief. From old North Road to Isaacs Branch the land surface falls gently another twenty (20) feet. The natural topography of Camden originally provided stormwater drainage through several waterways and drainage ways including Isaac's Branch, Newell Branch, Gibbs Ditch, and shallow valleys sloping north to Isaac’s Branch in the vicinities of Main, South and West Streets.

Water detention also occurs in broad shallow topographic depressions, including locally along Main Street, and east of the railroad, in the vicinity of Tamarac and Barclay Farms. The Town of Camden and Kent County have taken steps in the past to alleviate inadequate drainage from the central portion of Town. In 1976, the Town and the Kent County Conservation District entered into an agreement to maintain Gibbs Ditch, the primary stormwater drainage outlet for most of the developed part of Town. Stormwater in Camden is collected through a stormwater drainage system consisting of twelve to eighteen (12-18) inch diameter pipes to convey runoff to the outfall points. There is a weekly maintenance schedule for a street sweeper, and a quarterly inspection schedule for the Town owned storm sewer. However, the naturally flat topography creates poor drainage conditions. As a result, storm events result in predictable flooding at a number of locations,

including: Old North Street and Main Street (Caesar Rodney High School), Center Street at West Street, South Street at Main Street. High intensity events can cause severe problems.

Low-intensity rainfall over long duration can produce pools of water along un-curbed roadsides and at the driveways to many homes and businesses. Pooling has been noted along the east side of North Main Street, along West Street, south of Camden-Wyoming Avenue, along the north side of South Street, and along the private roads of Barclay Farms. In general, these pools were not flowing. They dissipate through infiltration and evaporation. New subdivisions and developments are regulated by the Kent Conservation District for stormwater management and by the Town's zoning ordinance. Sidewalk, curb and gutter systems for the Town's roadways, with appropriate stormwater collection and discharge systems, is a long-term goal.

4.9.2 Regulations and Objectives

To address recent flooding and drainage concerns, the Governor issued Executive Order #62 establishing the *Task Force on Surface Water Management*. The Task Force developed thirty (30) recommendations regarding surface water management, which are currently being implemented throughout the State. Camden has adopted the surface water management recommendations and guidance from the State's Department of Natural Resources and Environmental Control's (DNREC) Division of Soil and Water Conservation.

The State has commended the Town for its proactive interest in green technologies. Such technologies include, but are not limited to, stormwater management techniques as they pertain to impervious surfaces. Green technology will be incorporated wherever practicable in future designs.

The Sediment and Stormwater Program identified concerns with the existing stormwater and drainage system. The main concern is that the existing system is undersized and the Town should consider improving and enlarging the existing system.

The County is requesting a meeting with the Kent Conservation District (KCD) to discuss lines and grades requirements for new construction projects. KCD is the delegated agency responsible for reviewing and approving all sediment and stormwater plans for new development within the Town limits and future annexation areas. Sediment and Stormwater Regulations require a Sediment and Stormwater Plan for land disturbing activity 5,000 square feet or greater. According to DNREC, land disturbing activity may be more than the building footprint and is defined as "…a change or construction activity for residential, commercial, industrial, and institutional land use which may result in soil erosion from water or wind or movement of sediments or pollutants into State waters or onto lands in the State which may result in accelerated stormwater runoff, including, but not limited to clearing, grading, excavating, transporting, and filling land."

The majority of the drainage of concerns occurs on the west side of Camden. The Town should use DNREC's Drainage Program, a program that provides technical and funding assistance, as an aid in addressing such drainage problems. Among the services the Drainage Program can provide is the identification of tax ditches and areas with historic drainage issues. The Town should consider ameliorating current and future drainage problems through annexation of land.

4.9.3 DNREC's Recommended Ordinance Additions

The DNREC has proposed that the Town consider developing a Master Drainage Plan and/or Code, and recommended the following additions to the subdivision ordinance:

- A twenty (20) foot drainage easement for storm drains, ten (10) feet per side within subdivisions

- Open channels within subdivision require a minimum twenty (20) foot drainage easement as measured from top of bank to allow maintenance access and/or reconstruction.

- Maintenance access along open channels should be dedicated open space.

- Swales within the subdivision would require a twenty (20) foot drainage easement measured from the centerline of the swale, or width of the swale, whichever is greater.

- Prohibit the routing of major stormwater pipes through yards within a subdivision.

- Encourage the elevation of rear yards within subdivision to direct water towards the streets where storm drains are accessible for maintenance, provided the post-development runoff does not exceed the pre-development runoff.

- The Drainage Program requests a fifteen (15) foot side yard setback on all subdivision lots with a storm drain on the side. A fifteen (15) foot side yard setback will allow room for equipment to utilize the entire ten (10) foot drainage easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction.

- The Drainage Program requests a ten (10) foot drainage easement around all catch basins located on private property to ensure adequate room for maintenance.

- Any catch basin or swale placed in rear and side yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, and kennels can hinder drainage patterns as well as future maintenance to catch basin or swale. Deed restrictions, building setback lines, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.

- Have all drainage easements recorded on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future reconstruction. Future property owners may not be aware of the drainage easement on their property if the easement is only recorded on the record plan.

- Drainage easements should be for the Town, not a homeowner's association, and recorded as such. This gives the Town the ability to hire a contractor for maintenance of the drainage conveyance and the authority to go on the property to address drainage concerns.

This plan recommends that the Town consider the above two recommendations for administering drainage easements, but consider other methods, including alternative ways of recording such and establishing an entity responsible for their maintenance. After consideration of such alternatives, the Town should decide on the best procedure.

4.9.4 Recommendations

- Work with DNREC to develop a Master Drainage Plan.

- Continue to maintain storm sewer facilities to soften the impact of significant storm events, and lessen the need for expensive repairs.

- Continue to support green technology BMP's through localized filtration, ground water recharge and modeling a site's pre-development hydrology.

- Obtain drainage easements for areas within the current Town boundary that have historical drainage problems.

- Identify areas of poor drainage and drainage facilities within future annexation areas, work with the Drainage Program to provide recommendations for obtaining adequate drainage.

5.0 ENVIRONMENTAL PROTECTION

5.1 Environmental Additions to the Land Development Code

DNREC has recommended the following additions to the land development code:

- The Drainage Program recommends adding the definition of maintenance access, buffer, vegetative buffer, riparian buffer, and other such key words to the planning and zoning code.

- The Town of Camden should identify existing open channels within the Town boundary and within future annexation areas as these channels may require maintenance in the future. The riparian buffers along the channels provide a multitude of benefits to water quality and wildlife. Most of the

channels have trees and wetlands adjacent to the channel. There must be a balance between preserving the riparian buffer and having the capability to access the channel to perform maintenance. A recommended easement width of twenty (20) feet from the edge of the existing tree line, wetland, or top of bank, whichever is greater would allow for such access. By identifying such areas now, future development would incorporate the easement into community open space thereby preserving the riparian buffer while allowing for channel maintenance access.

- Water bodies, ponds, intermittent and perennial streams, ditches should be buffered from development. Existing buffers could be enhanced or new buffers planted to obtain one hundred (100) foot buffers on each side of the existing water conveyance. A minimum fifty (50) foot tree and shrub planting on buffers with the tallest trees planted on the south and west side of water conveyance will maximize shading of water. Trees and shrubs should be native species, spaced to allow for mechanized drainage maintenance at maturity. Tree and shrub planting in this manner will provide a shading effect promoting water quality while allowing future drainage maintenance. Trees should not be planted closer than five (5) feet of the top of the bank to avoid future blockages from tree roots.

- Designate all buffers for water bodies, ponds, intermittent and perennial streams, ditches and wetlands in un-subdivided space. No portion of any building lot should be located within the buffer areas.

- Designate all wetland buffers as un-subdivided open space. No portion of any building lot should be located within the buffers. During prolonged wet periods, the wetland buffers may become too wet for normal residential use. Designation as open space will aid in the prevention of decks, sheds,

fences, kennels, and backyards being placed within the buffers thereby reducing the nuisance drainage complaints.

- Existing woodland provides valuable wildlife habitat as well as soil erosion protection and water quality filtering. Existing woodland should be preserved within proposed annexation areas. A tree planting guideline should be developed.

- For new subdivisions, the developer's engineer should check the existing downstream conveyance and pipes for function and blockages prior to annexation. The developer should notify downstream landowners of any change in volume of water released on them. The examination of downstream conveyance and notification to downstream landowners should not stop at the Town boundary.

- Evaluate the existing drainage patterns within future annexation areas to ensure adequate drainage for the cumulative stormwater impact upon full build out of the annexation area. The Town should be mindful of potential stormwater impacts from the Town onto County residents.

5.2 Impervious Cover

Reduction of impervious cover is a concept that can help greatly increase water and watershed quality when implemented on a large enough scale. Development of existing and future Town areas can be required to incorporate as many pervious surface Best Management Practices as practical. Furthermore, pervious surface treatments for driveways, parking areas, walkways, and even buildings often collaterally improve water and watershed quality by treating water and reducing volume and rate of stormwater runoff. Camden will work to improve ordinance

requirements for stormwater management and water quality through reduction of impervious surface in existing and proposed developments.

5.3 Total Maximum Daily Loads (TMDL)

A TMDL defines the amount of a given pollutant that may be discharged to a body of water from point, non-point and background sources, and still allows attainment or maintenance of the applicable narrative and numerical water quality standards. Camden will continue to work with DNREC to monitor and identify impaired waters in accordance with the Federal Clean Water Act. The Town is located within the St. Jones Watershed which has been required to reduce nitrogen and phosphorus by forty percent (40%), and reduce bacteria by ninety percent (90%) from baseline conditions. Camden will work with DNREC in production of a Pollution Control Strategy (PCS) for the Greater St. Jones Watershed.

5.4 Source Water Protection

Title 7, Chapter 60, Section 6082 of the Delaware State Code states that Municipalities with populations of 2,000 persons or more, with the assistance of the Department (DNREC), shall adopt as part of the update and implementation of the 2007 Comprehensive Land Use Plans, the overlay maps delineating, as critical areas, source water assessment, wellhead protection and excellent ground-water recharge potential areas.

5.4.1 Well Head Protection Program

The Well Head Protection Program is a system by which well water source locations are identified, delineated, assessed, monitored and protected from activities or substances that may harm the quality or quantity of water derived from

those wells. The Program works on a seven step process for protecting critical wellhead areas around these wells. These steps include: Identification of duties and responsibilities; Wellhead Protection Area Delineation; Contaminant Source Identification; Management Approaches; Contingency Planning; and Public Participation. Camden will work with DNREC to implement a Wellhead Protection Program. Location mapping for wellhead protection areas in and around Camden has been provided herein.

5.4.2 Excellent Groundwater Recharge Potential Areas

Excellent Groundwater Recharge Potential Areas are defined as those areas with high percentage of sand and gravel that have "excellent" potential for recharge as determined through a Stack Unit Mapping Analysis delineated by the Delaware Geological Survey and presented in the Report of Investigations No. 66, Ground-water Recharge Potential Mapping in Kent and Sussex Counties, Delaware, Geological Survey, 2004. Camden will work with DNREC to identify, protect and utilize Excellent Groundwater Recharge Potential Areas.

5.4.3 DNREC's Recommended Water Quality Related Ordinances

- An ordinance requiring all applicants to submit a United States Army Corps of Engineers (USACE) approved wetlands delineation to the Town as conditional approval for any new commercial and /or residential development. Additionally, this ordinance should also require DNREC approval of all wetlands delineations involving tidally-influenced wetlands (if applicable).

- An ordinance requiring a 100-foot upland buffer (planted in native vegetation) from all wetlands and water bodies.

- An ordinance requiring the calculation for impervious surface for all commercial and residential developments. Calculations must include all constructed forms of surface imperviousness, including all paved surfaces, rooftops, and stormwater management structures.

- An ordinance requiring a Best Management Practice (BMP) implementation plan for all residential and commercial development exceeding 20% imperviousness.

- An ordinance requiring prohibiting the placement of stormwater management ponds within 100-feet of water bodies and wetlands. That is, all "newly-approved" commercial and/or residential projects should contain a vegetated (i.e. native vegetation) 100-foot upland buffer from all stormwater management ponds and water bodies/wetlands.

- An ordinance that prohibits the placement of lot lines within wetlands for all "new" commercial and/or residential developments. Existing or established lots should maximize, to the greatest degree practicable, the distance from building structures and the wetlands line.

- An ordinance that prohibits development on hydric soil mapping units (using the NRCS soil survey or a licensed soil scientist as determinants).

- An ordinance requiring the applicant to use "green-technology" stormwater management in lieu of "open water" stormwater management ponds whenever practicable.

- An ordinance which specifically excludes structural BMP's, community wastewater treatment areas, and wetlands from consideration as open space.

5.5 Erosion and Sediment Control

Erosion and sediment control is a crucial division of environmental protection for protecting waters and lands of the State from soil, sediment and pollutant runoff from earth disturbance. Sediment and Stormwater approvals are required for all Town land changes and construction activities for residential, commercial, silvicultural, industrial, or institutional land use, which are not exempted or waived by regulations, promulgated by DNREC and implemented by Kent Conservation District (KCD). The KCD is responsible for Sediment and Stormwater management plan approval, inspection during construction, post construction inspection, and education and training.

5.6 Forest and Rare Species Preservation

DNREC offers the following recommendations for Forest Preservation

- Provide protection for the existing forested buffers along tributaries of the St. Jones River; especially Red House Branch, Tidbury Creek and Isaac Branch.

- Require developers to leave existing riparian buffers intact.

- Require that buffers be comprised of native vegetation.

- Identify forests within future annexation areas, and take steps to provide for protection and maintenance of those natural resources as open space.

- Monitor impacts to rare species and wildlife habitats when proposing land use changes.

- Work with DNREC to identify sensitive habitats and provide recommendations for reducing impacts to rare species.

5.7 Recommendations

- Consider DNREC's recommended ordinances for land development and water quality, and work with DNREC to develop and implement improved environmental policy.

- Continue to work with DNREC, the Kent County Conservation District, and other state and federal environmental agencies to improve the practice of conserving and protecting natural resources and environmentally sensitive areas.

- Continue to work with DNREC on production of accurate environmental feature overlay mapping.

- Encourage preservation through clustering developments and maintaining green spaces and natural resources.

- Work with the Delaware Forest Service to develop a comprehensive urban forestry plan that would include tree conservation during development, and tree canopy goals.