X. INFRASTRUCTURE

A. TRANSPORTATION

Refer to Map C in Appendix E

Background

Through survey and testimony, Milton's residents have listed connectivity as a very important value. As the Town grows beyond its traditional Town Center through subdivision and annexation, connectivity among the new and the existing neighborhoods and to the Town Center, may become planning and design challenges. Historically, the Town was connected to the surrounding area by the River, later by rail and road, and now by the highway network. Now residents and businesses are looking for more availability of other modes of travel such as bus transit, sidewalks, bike trails and even the use of the Broadkill River and its tributaries.

Beyond connection of neighborhoods, retail/commercial activities, social/recreational pursuits, Milton's residents and businesses need to be connected to other activity areas within Sussex County and the surrounding State of Delaware. As most of the roadways in and around Milton are owned by the Delaware Department of Transportation (DelDOT), the internal connections have to be balanced with regional access. The principal mode of travel will remain the automobile. Thus, the availability of highway capacity, with minimal side street and driveway conflicts, will remain important both in terms of connecting the Town it surroundings as well as travel within the Town.

Highway Network

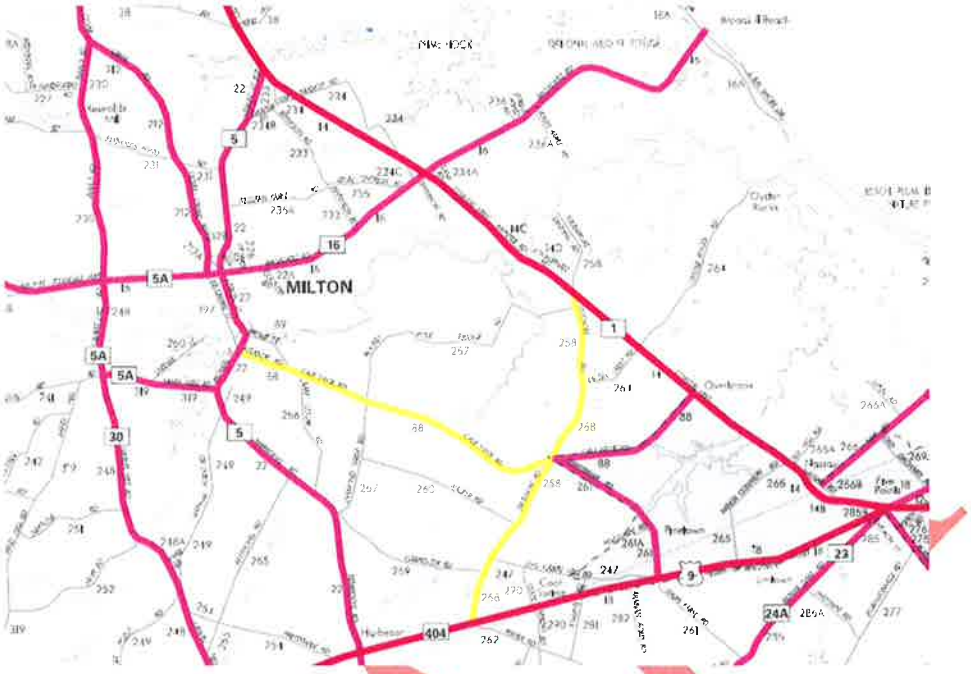
The major roadways in the planning area within and around Milton are primarily owned and maintained by the DelDOT. The major roadway network, further defined below, can be a source of conflicting motorist, pedestrian and bicyclist needs between pass-through higher-speed regional travel and short distance, lower speed local travel which use the network to access businesses and residences situated along the roadways. Since Milton is located between major

north-south arterial facilities such US 113 and State Road 1, the important roadways that connect these facilities carry both regional travel (with no origin or destination in the planning area) with local traffic, that may have either end of the trip situated with in the planning area.

For instance, traffic patterns to and from the William L. Preston, Jr. (Chesapeake Bay) Bridge and Coastal Highway (State Route 1) serving the beach communities and attractions have a significant influence on Milton area roadways and intersections. Connections between Milton and Milford, Dover, and Wilmington via Coastal Highway (State Route 1), DuPont Highway (US 13) and DuPont Boulevard (US 113) are also important. Another major influence on Milton's roads is freight movement via truck (with a major freight hauling company, Reed Trucking, located within the Town) which serves the agricultural processing companies of eastern Sussex County, including those of the poultry industry.

DelDOT, the agency responsible for approximately 90 percent of all lane miles of roadway within the State, is tasked with classifying those roadways based on how they function and how much access is afforded to the road from adjacent land uses. The amount of roadway capacity is a result of a balance between local access which creates conflicting traffic movements (turns, slower operating speeds) and vehicular mobility which operates more efficiently when these conflicts or fluctuations in speed are kept to a minimum. Higher functioning (more capacity) roadways such as freeways (all access at controlled points such as interchanges) and expressways (nearly all significant access is permitted at interchanges, but some access is allowed via signalized intersections) can carry more traffic per lane per hour when access to these roadways is minimized such as only permitting traffic to enter or exit the facility at grade-separated interchanges spaced at distances of a mile or greater. Arterials whose function is to convey larger volumes of traffic over greater distances typically limit access to collector roads or major traffic attractors such as shopping centers. Collectors function to carry more localized traffic shorter distances at lower speeds providing connections between neighborhoods with frequent access and more major roadways such as arterials. Local streets carry traffic into and through neighborhoods providing connections to collector roadways. A snap shot of the DelDOT functional classification map for roadways in and around Milton is provided in the figure below.

Figure 2. DelDOT Functional Classification Map of Sussex County including Milton



While DelDOT owns and maintains the major roadways in and around the Town, the shorter-distance roadways are maintained by the Town of Milton and are reflected in the Municipal Street Aid Fund which identifies approximately 70 facilities totaling nearly 10 centerline miles.

As noted above, within the Town boundary several of the major roadways are owned and maintained by DelDOT. The State-maintained network includes six important, two-lane arterials. They are described below and any planned improvements are also noted in the description. Volume statistics, expressed in Annual Average Daily Trips (AADT) for 2001, 2008 and 2015 are also provided.

Milton Ellendale Highway/Beach Highway/Broadkill Road (State Route 16), the Broadkill Pike, crosses the northern edge of the town and provides a continuous east-west route between the coastal communities along Coastal Highway (Route 1) and, via Seashore Highway (Routes 404) and Ocean Gateway (US 50), to the Chesapeake Bay Bridge. Throughout the Milton Planning Area, Route 16 is designated by DelDOT as a "Major Collector" meaning that its function is to carry longer distance, higher operating speed traffic through the Town while permitting access from minor roadways, commercial and residential driveways, as well. Milton Ellendale Highway/Beach Highway (Route 16) carries high traffic volumes during the peak times of the April-October shore season, especially on summer weekends. Traffic appears to be growing currently by slightly less than 10% per year. Milton Ellendale Highway/Beach Highway (Route 16) along the north side of Milton can expect continuing and increasing pressures for business as well as residential development. The intersection of Coastal Highway (Route 1) and Milton Beach Highway/Broadkill Road (State Route 16) was reconstructed with an extension of the left

turn lanes in the northbound, southbound and eastbound lanes. DelDOT has plans to construct a grade-separated interchange at this location, but this project is not currently scheduled.

SR 16

From/To	2001	2008	2015	Pct Chg
Rd 227-SR 5	4000	5300	7100	34%
SR 5 –SR 1	3500	5300	6200	17%

Federal Street/Union Street (State Route 5) is a north-south route that connects the Indian River area with Coastal Highway (SR 1) at Waples Pond. Within the incorporated limits, SR 5 traverses Federal and Union Streets through the heart of the Milton Historic District. DelDOT classifies this roadway as a "Major Collector", also. However, as Route 5 becomes Federal and Union Streets, this distinction is blurred by its function to carry local traffic through the Town Center and Historic District which limits possibilities to make capacity changes and introduces chances for conflicting needs of motorists. As Coastal Highway (SR 1) in the coastal area experiences increasing congestion during the summer months, an increase in general resort-oriented traffic is also occurring on Union and Federal Streets (SR 5). This seasonal traffic is using Federal Street/Union Street (SR 5) as a bypass between Lewes at Lewes Georgetown Highway (US Route 9) and Seashore Highway (SR 404) and Milton Ellendale Highway/Beach Highway (SR 16), as a way of avoiding delay on Coastal Highway (SR 1) between these points. The Milton truck route (SR 5A) was completed in 2005.

SR 5

From/To	2001	2008	2015	Pct Chg
SR 1 – SR 16	2500	2500	3400	36%
SR 16 –Front ST	3900	4000	5200	30%
Front ST – S Town Limits	4100	3400	5100	50%
S Town Limits-Rd 249-	3700	3700	4700	24%

Gravel Hill Road (State Route 30) is a north-south arterial route approximately 1 mile west of Milton. DelDOT classifies Route 30 as a "Major Collector". Here the classification and its design work to offer by-passing traffic capacity and connectivity with a minimum of conflict. It connects Millsboro at Indian River with Coastal Highway (SR 1) just southeast of Milford. Historically underutilized, Gravel Hill Road (SR 30) has been identified, as discussed above, as

the north-south link in a Federal Street/Union Street (SR 5) Truck Bypass (SR 5A). As part of this effort, improvements include intersection upgrades at Union Street Extended/Union Street/Federal Street/Harbeson Road (SR 5 and Sand Hill Road (County Road or CR 319) and Gravel Hill Road (SR 30) and Sand Hill Road (CR 319). Sand Hill Road (CR 319) is also having its shoulders widened to 8 feet. Bridge 806 has been widened and bridge 918 was replaced to make them adequate for truck traffic.

SR 30

From/To	2001	2008	2015	Pct Chg
CR 212 – SR 16	1700	2800	3200	14%
SR 16 – SR 319	3100	5100	3300	-35%
SR 319 – SR 249	1600	3400	4800	41%

Atlantic Street/Cave Neck Road (County Road 88), comprising Atlantic Street within the Town and Cave Neck Road southeast of the Town, is an important intermediary roadway connecting Federal Street (SR 5) in Milton with Lewes to the southeast. DelDOT classifies this alignment as a "Minor Collector" in the more rural area southeast of the Town. This road is experiencing steady development pressure for new housing development, most intensely near Red Mill Pond at its Coastal Highway (Route1)/Lewes junction. The buildup of housing subdivisions along Cave Neck Road suggests that development pressure will continue along this street. Atlantic Street/Cave Neck Road is also used as a transit route. The Blue Diamond Lines statewide transit service from Wilmington to Rehoboth Beach uses Atlantic Street/Cave Neck Road (CR 88) for the Milton-Lewes leg of its route.

CR 88

From/To	2001	2008	2015	Pct Chg
Federal ST – Chestnut ST	2589	2172	2900	34%
Chestnut ST – Town Limits SE	2430	2739	4400	63%
Front ST – SR 1	2601	2599	4400	69%

Source of traffic volumes is DelDOT website, 2016.

Cedar Creek Road (County Road 212), designated by DelDOT as a Major Collector roadway, runs northwest of Town from Gravel Hill Road (SR 30) northwest of Milton to Milton Ellendale Highway/Beach Highway (SR 16). At Milton Ellendale Highway (Route 16), the road number changes to SR 197 and runs along Mulberry Street within the Town to CR 88 at Atlantic Street. Tractor-trailer trucks sometimes use Mulberry Street (SR 197) within the Town limits.

CR 212

From/To	2001	2008	2015	Pct Chg
SR 16 – SR 230	2347	2364	2900	21%

DelDOT, Sussex County and Town of Milton representatives have identified the following intersection changes and improvements for Milton's roadway system. In carrying out its statewide transportation program, DelDOT is applying a new access management policy to major state-owned arterials. Under this policy, each state owned and maintained roadway is classified by type.

DelDOT follows the project planning and development phased approach whereby facilities are studied to determine feasible alternative designs and strategies based on the problems noted generally involving crash reduction and capacity increase. Once a strategy or design is determined to meet the purpose and need and benefit exceeds the impact and cost, the project is advanced to design which dictates the extent of right-of-way requirement and area impact. Next the right-of-way is acquired and the impact abated. Eventually the project is funded for construction and then made available to traffic for its use. Depending upon the complexity of the project, the period can be many years to even decades between the project's inception and its completion.

1. Coastal Highway (SR 1) and Beach Highway/Broadkill Road (SR 16) intersection. DelDOT undertook a rebuilding of this intersection to increase its capacity. The construction involved extending the left turn lanes in the north and southbound directions. A grade-separated interchange is planned for this intersection; however, the project is currently unfunded for final design and construction.
2. Coastal Highway (SR 1) and Union Street Extended (SR 5) intersection. Once the interchange project is complete at Beach Highway/Broadkill Road (Route 16) and Coastal Highway (Route 1), DelDOT plans to permanently close this intersection to northbound traffic. The intersection will henceforth be limited to "right in, right out" turning movements. This change is part of DelDOT's Coastal Highway (Delaware Route 1) "Corridor Preservation Program." The time table for this project is unknown because it is dependent on the completion of the Coastal Highway (Route 1) and Beach Highway/Broadkill Road (Route 16) interchange, which is currently unfunded for final design and construction.
3. Cedar Creek Road (SR 30) and Coastal Highway (SR 1) intersection. Wilkins Road (County Road 206) provides the connecting link between Cedar Creek Road (Route 30) and Coastal Highway (Route 1) near Milford. Identified in the 2010 Comprehensive Plan, this segment has been constructed and is open to traffic.
4. Sand Hill Road (CR 319) and Gravel Hill Road (SR 30). Turning radius improvements were completed at this intersection to implement the truck bypass plan. Presently, the intersection turning volumes do not warrant removing the beacon and installing a fully-phased traffic signal.

5. Gravel Hill Road (SR 30) and Beach Highway/Broadkill Road (SR 16) intersection. Increasing the length of turning lanes and reducing the skew of the southbound approach at this intersection would reduce crash potential and increase capacity to support probable development occurring along the Town's periphery or growth area.
6. Seashore Highway (US Route 9) and Dairy Farm-Greenbrier Road (CR 261) intersection. Funded for construction in FY 16, this intersection was improved by construction of turn lanes on each approach, plus relocating Log Cabin Road's intersection with Greenbrier further from its intersection with US Route 9. The project is complete and open to traffic.
7. DuPont Boulevard (US Route 113) and Milton-Ellendale Highway (SR 16) intersection. DelDOT will initiate planning and preliminary design studies to ultimately construct an interchange at this location. The project is currently funded only for Planning.
8. Harbeson Road (SR 5) at Seashore Highway (US Route 9) intersection. DelDOT has identified funds to finalize design, acquire right-of-way and to construct intersection improvements at this location with construction funded in FY 19.
9. Coastal Highway (SR 1) and Cave Neck Road (SR 88) intersection. DelDOT has identified funds to initiate planning and preliminary design for an interchange to replace the current unsignalized intersection with planning to begin in FY 19.

Level of Service (LOS)

LOS is the grading scale assigned to traffic operations by transportation agencies to determine how efficiently the roadway operates. In a town such as Milton, roadways in the town area are graded by how efficiently the intersections manage traffic. Presently the Town has one signalized intersection (SR 5/SR 16) and several intersections that are controlled by STOP or YIELD signs on the minor streets. In both instances (controlled by traffic signal or by sign) the method used to "grade" the intersection is the amount of average daily per vehicle at that intersection during a one-hour time span.

As is normal in the traditional school setting, LOS grades are expressed as A through F with A being the condition in which the least delay is experienced by motorists and F being the most delay. As with all public facilities the goal is to design for the typical condition rather than expend public dollars for a brief situation, LOS D is the desired condition. The Table 13 below found in the Highway Capacity Manual (HCM) expresses level of service by average seconds of vehicle delay.

Table 13. Intersection Level of Service

LOS	Signalized Intersection	Unsignalized Intersection
A	≤10 sec	≤10 sec
B	0–20 sec	10–15 sec
C	20–35 sec	15–25 sec
D	**35–55 sec**	**25–35 sec**
E	55–80 sec	35–50 sec
F	≥80 sec	≥50 sec

As there are twenty-four hours in a day, there are 24 separate opportunities to evaluate the intersection's ability to manage the traffic that use it. Normally there are periods (typically less than one hour) when the intersection's ability to manage traffic is challenged by the amount of demand and those periods are commonly called the peak hour. In more urbanized areas, this period of demand can exceed a single hour during the morning and afternoon peaks. The more urbanized the area, typically the longer the duration of the demand or peak period.

Away from the Town Center or neighborhood areas forming the town, or where controlled intersections are greater than one mile apart, the characteristics or attributes of the roadway section such as number of lanes, width of lanes, presence of shoulders, sidewalks, passing areas determine the level of service of that roadway. The desired design standard remains LOS D along the roadway, but rather than being measured in terms of delay (seconds per vehicle), the grade is established based on density of use (numbers of cars in a given distance of the roadway.

LOS A or free flow. Traffic flows at or above the posted speed limit and motorists have complete mobility between lanes. The average spacing between vehicles is about 550 ft. (167 m) or 27 car lengths. Motorists have a high level of physical and psychological comfort. The effects of incidents or point breakdowns are easily absorbed. LOS A generally occurs late at night in urban areas and frequently in rural areas.

LOS B or reasonably free flow. LOS A speeds are maintained, maneuverability within the traffic stream is slightly restricted. The lowest average vehicle spacing is about 330 ft. (100 m) or 16 car lengths. Motorists still have a high level of physical and psychological comfort.

LOS C or stable flow, at or near free flow. Ability to maneuver through lanes is noticeably restricted and lane changes require more driver awareness. Minimum vehicle spacing is about 220 ft. (67 m) or 11 car lengths. Most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity, and posted speed is maintained. Minor incidents may still have no effect but localized service will have noticeable effects and traffic delays will form behind the incident. This is the target LOS for some urban and most rural highways.

LOS D or approaching unstable flow. Speeds slightly decrease as traffic volume slightly increase. Freedom to maneuver within the traffic stream is much more limited and driver comfort levels decrease. Vehicles are spaced about 160 ft. (50m) or 8 car lengths. Minor incidents are expected to create delays. Examples are a busy shopping corridor in the middle of a weekday, or

a functional urban highway during commuting hours. It is a common goal for urban streets during peak hours, as attaining LOS C would require prohibitive cost and societal impact in bypass roads and lane additions.

LOS E or unstable flow. Also known as operating at capacity. Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to maneuver in the traffic stream and speeds rarely reach the posted limit. Vehicle spacing is about 6 car lengths, but speeds are still at or above 50 mi/hr. (80 km/h). Any disruption to traffic flow, such as merging ramp traffic or lane changes, will create a shock wave affecting traffic upstream. Any incident will create serious delays. Drivers' level of comfort become poor. This is a common standard in larger urban areas, where some roadway congestion is inevitable.

LOS F or forced or breakdown flow. Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Travel time cannot be predicted, with generally more demand than capacity. A road in a constant traffic jam is at this LOS, because LOS is an average or typical service rather than a constant state. For example, a highway might be at LOS D for the AM peak hour, but have traffic consistent with LOS C some days, LOS E or F others, and come to a halt once every few weeks.

Multimodal LOS

The 2010 Highway Capacity Manual and National Cooperative Highway Research Program (NCHRP) Report 616 incorporate tools for multimodal analysis of urban streets to encourage users to consider the needs of all travelers. Stand-alone chapters for the bicycle, pedestrian, and transit have been eliminated, and methods applicable to them have been incorporated into the analyses of the various roadway facilities.

Recently, and especially in towns and urbanized areas, there has been a desire by transportation officials to consider all users of the right-of-way of a road. This movement away from a purely highway and suburban analysis is the result of Complete Streets which is a policy that supports the use of the public right-of-way by all users. Typically referred to as Multimodal LOS considers not only the automobile but also the pedestrian, bicyclist and transit user.

Pedestrian LOS is normally measured in terms of amount of area allocated to pedestrian use (sidewalks, crosswalks, etc.) divided the number of potential users. Bicycle LOS is a measure of the bicyclists' comfort in using the facility whereby existence of a separate path or trail, signage, posted vehicle operating speeds, design of storm water drainage, percentage of truck traffic or other heavy vehicles all contribute to the bicyclists sense of personal safety.

Town Center Off-Street Parking

Since the automobile is the paramount choice for travel in and around Milton, the availability of off-street parking becomes an important means of access to areas within the Town. Previous studies of downtown parking (2009) have shown that there are approximately 320 off-street and 50 on-street parking spaces. Combined these spaces amount to one space per 430 square feet of building area. Many of these spaces are located within an area of recurrent flooding. Parking is important to the vitality and revitalization of the traditional downtown of Milton as the businesses rely on access from the major roadways noted above. Therefore, maintaining an

adequate supply of safe and convenient parking is necessary to support the businesses within the Town Center, just as a network of safe and adequately maintained sidewalks connect the Town Center to the surrounding neighborhoods.

As part of the Town Center survey, the following sites were identified as having future parking development potential:

1. The area to the west of the existing parking lot adjacent to the former Chamber of Commerce offices, on the west side of Federal Street (SR 5). There is the potential to reorganize this parking lot and enlarge it to the west.

2. Presently unused land along the north side of Magnolia Street opposite the existing municipal parking lot.

Adding parking to support the downtown uses will require concerted action by both the public and private sectors sharing a mutual interest in the vitality of the downtown area. As space is limited within the Town Center and the emphasis is on developing the area into thriving businesses and services, parking solutions may need to consider structured facilities, such as a parking deck.

In concert with providing additional parking opportunities, the Downtown should become the focus of improved trail, sidewalk and bikeway connectivity including amenities such as secure bicycle parking areas. Improving other mobility options creates an opportunity to reduce the area needed to accommodate automobile parking in the downtown area.

As noted elsewhere in the Plan, the parking facilities serving the Downtown are subject to recurring flooding as identified in the 2015 Coastal Management Assistance Grant Study. Based on the flooding and limited availability of easily accessible land outside the flood-prone area and knowing the demand for parking will increase, securing safe and affordable parking to support Downtown development will be an issue which must be resolved.

Milton Scenic Trail and Bikeway Planning

The Sussex County Convention and Tourism Commission worked with Milton officials and volunteers to develop the "Southern Delaware Heritage Trail" scenic auto and bike tour trail which follows Federal and Union Streets (SR 5) through Milton. The bike route portions of the trail include use of segments of Cave Neck Road/Atlantic Street (CR 88) and Sweetbriar Road (CR 261), Hudson Road (CR 285) and Cedar Creek Road (CR 212) around Milton. Phase I of the Heritage Trail project includes the installation of signs carrying the trail logo, preparation of a brochure, advertising in *Mid-Atlantic Travel Magazine* and numerous media releases. Future phases of the project will include marketing to canoeists interested in the McCabe Preserve-to-Milton canoe trail, to bird watchers and to nature photographers.

As part of Delaware's statewide transportation planning for bikeways, DelDOT has identified Union Street (SR 5), Front Street (SR 89) along the Broadkill River and Cave Neck Road (CR 88) and Cedar Creek Road (CR 212) as segments of Statewide Bike Route One through Milton.

The completion of the truck bypass reduces conflicts between bicyclists and heavy truck traffic within the Historic District.

Milton and its surrounding area is characterized by flat terrain and most of its major roadways include paved shoulders. These characteristics support the use of bicycles as a legitimate mode of transportation rather than their use as a recreation outlet. Using available infrastructure, augmenting what is available with viable and safe connections can lead to an important alternate to automobile use for trips less than five miles among the Town's neighborhoods and its cultural/recreational/commercial activity areas.

Milton Area Greenway and other Bicycle Routes

As part of Delaware's Greenway program, Milton is being marketed as a side-trip destination of the Greenway Auto Tour. In addition, the "American Discovery Trail" (ADT) makes use of portions of Lavinia Street (CR 250), Mulberry Street (CR 197) and Atlantic Street/Cave Neck Road (CR 88) through Milton. The American Discovery Trail is marketed on publicly distributed maps and information as a place for biking, hiking, boating, fishing and scenic auto touring. The Town coordinates with DelDOT to add or improve the bicycle and pedestrian facilities found along the Southern Delaware Heritage Trail and the American Discovery Trail.

The ADT has its eastern terminus at Cape Henlopen State Park in Delaware on the Atlantic Ocean at the mouth of Delaware Bay near the bunker overlook for the World War II coastal battery at Fort Miles, an appropriate trail head in the First State. The route of the ADT through Delaware travels about 44.6 miles of sidewalks and rural roads, most with paved shoulders. The trail passes through the towns of Lewes, Milton, and Bridgeville, but is mostly in open farmland however the trail alignment crosses through areas deemed appropriate for development. Through the State, the trail is approximately 45 miles long between the Cape and the Maryland State Line.

Milton's Governors' Walk has become one of the most successful greenway projects in the State of Delaware. With financial assistance through the Transportation Enhancement Program, the Delaware Land and Water Conservation Trust Fund, and other sources, a segment Governors' Walk has been completed, and it now continues through Milton Memorial Park.

A vacated railroad line crosses the southwestern to Federal Street due south of Wagamans Westshore paralleling Sand Hill Road (SR 5A). Reuse of this alignment as a bicycle-pedestrian route will connect this residential area with the traditional town core and its trail segment. Continuation of this trail segment across Chestnut Street through the Dogfish Head Brewery site could connect this segment with Cave Neck Road (CR 88) further strengthening the route as well as further connecting neighborhoods with an established trail segment.

Milton's Sidewalk Network

Given the relative small and compact area of current Milton along with the potential for development of parcels along the Town's periphery, extensions of the sidewalk network will be an important component to the area's overall mobility. Survey results show that the Town's residents value the current sidewalk network and wish to extend it to connect current, but isolated, residential development, as well as to the growth area developments. Extension and improvement of the Town's sidewalk network strengthens the role of the Town Center while promoting walking as a legitimate form of area transportation and lessens the demand for additional parking within the Town Center.

Building sidewalks or reconstructing older and/or deteriorating sidewalks require right-of-way from, or easements on private property, sometimes utility relocations, and frequently stormwater management requirements. All of these increase the cost and add to the complexity of providing a continuous, safe and adequate network. Fortunately, many streets within the town are very low volume facilities marked with low speeds which could make them useable to safely accommodate pedestrians, bicyclists and motorists, in a complete streets manner.

Bus Transit

Milton is connected to Georgetown, Milford and Dover via the 303 Route operated by DART. This route operates on very long headways (time lapses between buses at a stop) and does not offer traditional suburban 30 or 45-minute service which is the standard needed to support commuter travel. Research shows that 30 to 45-minute service is the basic level of attractiveness

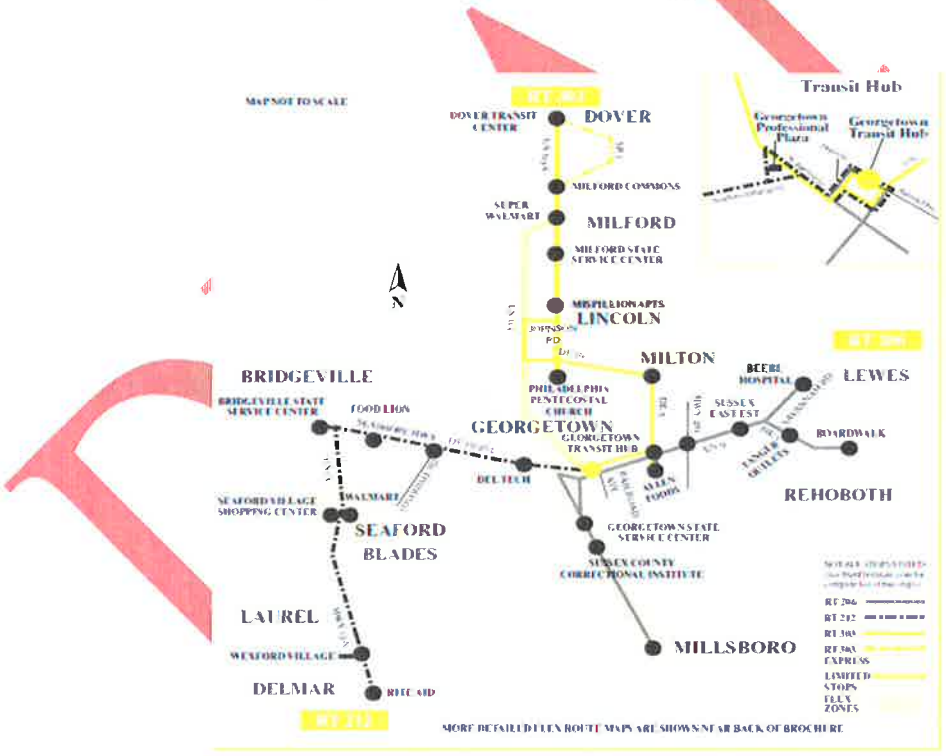
to gain "choice" riders (those who have other mobility options). Thus, this route connection offers little opportunity to connect residents of Milton with job opportunities in Sussex or Kent Counties, and the opposite where those seeking jobs in Milton could rely on transit to meet their commuting needs.

The traditional Town area has transit supportive densities (greater than 5.0 dwelling units per acre), sidewalk infrastructure connecting neighborhoods with the bus route, street lighting to promote use for commuting and designs positioning buildings close to the street, but the supply side (bus service) is very limited.

In accordance with Federal requirements under the Americans with Disabilities Act of 1990, DelDOT provides small buses to carry certified disabled passengers unable to board a traditional bus or unable to walk to the nearest bus stop. The normal radius is three-quarter mile from the route.

The current bus route map showing service in the area is found on Figure 3.

Figure 3. Current DART Bus Route in Milton



As the town continues to grow and a larger percentage of that growth will be composed of a large component of seniors, the demand for transit service will become more important as a mobility option for its residents. Also, growth in younger families, desired as an outcome of this Plan, will also increase the demand for other mobility means beyond use of automobiles. Thus, the Town should focus its efforts to create an environment where transit could become more

effective as a means of moving people and work with DelDOT/DART to increase the availability of service including frequency and destinations.

Water Transportation along the Broadkill River

Historically, water transportation along the Broadkill River played an integral part of Milton's history and local economy. During the 18th and 19th centuries, this meant shipbuilding and shipping using the Broadkill for water access to Lewes and Delaware Bay into the Atlantic Ocean. Presently, the focus has shifted to recreational and educational uses of the river way for fishing, canoeing and boating in the historic Town Center and the near-wilderness recesses of this hidden river corridor. The Town Dock, the Boat Launch, and Milton Memorial Park all serve these needs on the banks of the Broadkill in the Town Center.

The Nature Conservancy and the Town created a canoe trail along the Broadkill River from the Town Limits to the McCabe Preserve natural resource area east of Coastal Highway (SR 1). East of Coastal Highway (SR 1) is the location of the Prime Hook Natural Wildlife Management Refuge, Broadkill Beach and the beginning of the Lewes and Rehoboth Canal. The Broadkill also provides river access to the Delaware Maritime Industrial Park on the canal in Lewes.

With improved public access, landside support facilities and opportunities, waterborne transportation could be worth pursuing both as a mode of transportation as well as an attraction to the Town.

Air Passenger and Freight Service

Air freight and general aviation service for Milton exists at the Delaware Coastal Airport off the Lewes/Georgetown Highway (SR 9) east of Georgetown. Built in 1943 as a US Navy auxiliary air field, the airport has two runways, a 5,500-foot main runway and a 3,100-foot crosswind runway. It presently serves approximately 60-based aircraft and 50,000 annual operations. There are small private airfields on Coastal Highway (SR 1) and in Ellendale. The closest air passenger service, via shuttle, is provided at the Salisbury-Wicomico Regional Airport in Salisbury, Maryland. International flights are available from airports in Philadelphia and Baltimore and can be reached in less than three hours driving time.

Rail Service
A rail spur along the old Queen Anne's Railroad alignment from Ellendale to Lavinia Street (Road 250) is owned and maintained by the Delaware Transit Corporation, a part of DelDOT. The spur is leased to the Delaware Coastline Railroad, in turn contracts to store rail cars there for other railroads.

Comprehensive Plan Goal for Transportation
The goal of the Transportation Plan is to provide convenient and safe access, and circulation within, around or through Milton, while minimizing the impact on adjacent land uses. The goal promotes the expansion of opportunities to use of all modes of travel.

Possible Implementation Strategies
Possible implementation strategies to advance the Goal include:

- Determine the existing level of service at important intersections and gateway intersections in and around the Town of Milton.
- Establish a Level of Service standard within the Town and coordinate that standard with DelDOT and Sussex County within the Growth Area. The LOS standard should not be construed as sacrificing motorist, pedestrian or bicyclist safety.
- Connect existing and planned residential developments with the Town Center and promote the reuse of former rail alignments where available and practical.
- Promote greater use of bicycles and walking for short distance travel.
- Increase parking opportunities in the downtown area as it revitalizes.
- Reduce potential for conflicts between traffic not destined for the Town and local vehicle trips.
- Promote use of and accessibility to the American Discovery Trail (ADT) by connecting the ADT to Town attractions, the Broadkill River and its neighborhoods.
- Review all development regulations to reference that current standards and specifications required by DelDOT and DNREC are incorporated into the codes.
- Work with DelDOT, Sussex County, and related agencies to implement access management, pedestrian and bicycle safety projects, and roadway improvements that will benefit the Milton area. These improvements should address the needs of all modes of transportation including bicycle, trails, transit, paratransit and freight movement.
- Coordinate with DelDOT to provide signage directing interested motorists and bicyclists into the Town Center while also providing signage to guide other motorists and bicyclists around the edges of Town.
- Conduct a Town Center parking needs study to determine the amount of parking supply necessary to support revitalization of the Town Center and potential location(s) for the additional parking.
- Coordinate with DelDOT and Sussex County to identify areas where Transportation Improvement Districts should be established and promote the use of Transportation Improvement Districts to maintain safe and convenient accessibility to the Town Center and its business districts along SR 16.
- Promote the increase of transit service by working with DelDOT/DART to reduce bus transit headways and improve landside facilities (such as sidewalks, lighting and passenger shelters) for transit users.

- Include complete streets/context sensitive design features in any highway improvement project, site plan or subdivision within the Town to promote the safe use of the street network by all users, specifically pedestrians, bicyclists, motorists and freight delivers.
- Require, where feasible and not detrimental to an environmental resource, interconnection of all new developments to reduce impacts on major roadways.
- Support the efforts of County, Regional and State agencies to assure continued air and rail service in the area.
- Evaluate all development proposals for viable connectivity options to the existing neighborhoods and town center to promote safe pedestrian and bicycle mobility.

B. PUBLIC FACILITIES AND SERVICES

Background

The Town of Milton provides municipal water services as well as police protection. The Milton Elementary School on Federal Street (SR 5), Mariner Middle School on Harbeson Road (SR 5) and the H.O. Brittingham Elementary School on Mulberry Street (SR 197) are part of the Cape Henlopen School District. The Town sanitary sewer services are provided by Tidewater Utilities, Inc. Fire protection and emergency medical services for the Town is the responsibility of the Milton Volunteer Fire Department, Company 85. The library, located in the Historic District, is the Milton Branch of the Sussex County Library system. The Town Police Department is located at the corner of Federal (SR 5) and Front (CR 89) Streets. Town Hall is located on Federal Street (SR 5). The Public Works Department, which oversees the water system, and maintains the Town streets and properties, has an office on Front Street.

The Milton Memorial Park between Chandler Street and the Broadkill River is a municipal park which includes a boat launch and dock, miniature railroad track, long-term boat slip rentals, walkways and sections of the Governors' Walk waterfront promenade. In 2007, as a part of preparation for the Town's Bicentennial Celebration, the Town established a new park, named Mill Park, on Mulberry Street across from and overlooking Wagamon's Pond. The park has four pergolas, with park benches beneath them, and is beautifully landscaped. In December 2008, a bronze statue was installed in Mill Park of the poet John Milton seated on one of the benches beneath a pergola.

More information regarding public utilities (Potable Water, Sanitary Sewer, and Natural Gas) are included elsewhere in this Plan.

Public Schools

Milton is served by the Milton Elementary School on Federal Street (SR 5), the H. O. Brittingham Elementary School on Mulberry Street (SR 197), and the Mariner Middle School on Harbeson Road (Route 5). These facilities are under the governance of the Cape Henlopen School District headquartered in Lewes. A comparison of past enrollments at each Milton facility are given in the following table, which shows enrollment growth in each school. Three of the Cape Henlopen School District facilities are located within the Town limits, but the enrollment includes pupils from households not situated within the Town limits.

Table 14. Near-Term Actual School Enrollment in Milton, 2008 - 2015

Year	Milton Elementary	HO Brittingham Elementary	Mariner Middle
2008	516	445	488
2015	555	584	552

Source: Delaware Department of Education website.

The Milton Elementary School, built in 1932, was formerly the Milton High School and then Milton Middle School. It contains 34 classrooms, a gymnasium, library and cafeteria. The H.O. Brittingham Elementary School was built as an elementary school in 1965. It has 32 classrooms, a gymnasium, library and cafeteria. Construction of the new Mariner Middle School was completed and opened in September 2003. Additional classroom space is currently under construction. Now that the new middle school is complete, the old Milton Middle School is used as an elementary school, along with H.O. Brittingham Elementary School. Students attending 9th through 12th grades can be enrolled at Cape Henlopen High School, in Lewes. The 2015-2016 academic year enrollment was 1334 students. H.O. Brittingham will be replaced and expanded on site and the project is fully funded.

Public Parks and Recreation Areas

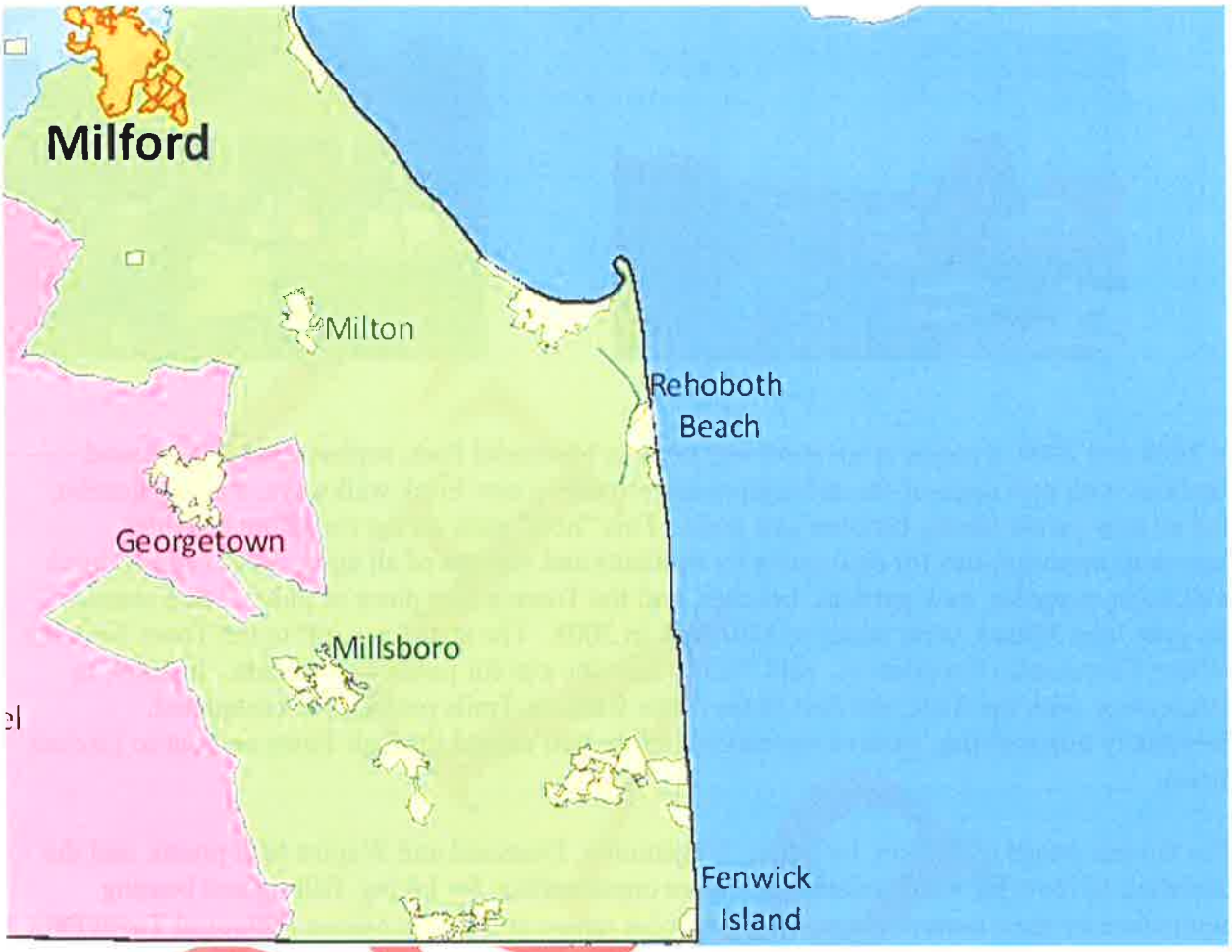
The Town owns the Milton Memorial Town Park on the Broadkill River in the Town Center and Mill Park on Wagamon's Pond. The three school facilities owned by the Cape Henlopen School District all have playgrounds and/or athletic and gymnasium facilities. The Milton Little League ball fields at the east end of Atlantic Avenue are owned by the Broadkill Post of the Veterans of Foreign Wars of the United States. These facilities serve many of the needs of the population, although there is some evidence to support the need for more active recreation for young people, and to the possible long-term need for a swimming pool. In a survey conducted by the Delaware Division of Parks and Recreation in 2002, eighteen residents in the Milton zip code were surveyed. While this does not represent a large enough sample to draw strong conclusions, those

needs that were rated highest among these respondents included playgrounds, walking and biking paths, hiking trails, swimming pools, and indoor recreation facilities.

In 2008 and 2009, a major renovation was done in Memorial Park, replacing all playground facilities with new state-of-the-art equipment, providing new brick walkways, a larger gazebo, and all new picnic tables, benches and grills. This "new" park on the riverfront provides numerous opportunities for enjoyment by residents and visitors of all ages. Renovations, brick walkways, pergolas, new gardens, benches, and the Town's first piece of public art, a statue of the poet John Milton, were added to Mill Park in 2008. The statue is a gift to the Town from the Milton Community Foundation. Mill Park is now the site for passive recreation. In 2009, in conjunction with the State, the first phase of the Rails-to-Trails project was completed. Eventually this walking, passive recreation facility will extend through Town and out to Lavinia Street.

The famous ponds of Milton, including Wagamon's, Diamond and Waples Mill ponds, and the Broadkill River offer water-related recreation opportunities for hiking, fishing and boating unmatched by most communities. There are boat ramps at both the Milton Memorial Town Park and Wagamon's Pond.

Figure 4. Delaware Statewide Comprehensive Outdoor Recreation Plan



The Delaware Department of Natural Resources and Environmental Control (DNREC) prepared the Delaware Statewide Comprehensive Outdoor Recreation Plan (SCORP) which evaluates needs for planning and development of recreational uses throughout the State which segmented into five zones. The Town of Milton is located within Zone 5 which is comprised of eastern Sussex County. As Comprehensive Plans are used by the municipality to determine needs for future outdoor recreational facilities, the SCORP-based data and findings are integral in meeting comprehensive land use plan requirements. More importantly, SCORP data and findings provide information for locally-directed decision making necessary to identify the need and scope of outdoor recreation facilities that keep pace with demographic changes, population growth and annexation.

In 2011, DNREC conducted telephone surveys throughout the State and found that, within Zone 5 (Eastern Sussex) over 65 percent indicated that outdoor recreation was very important to them. While the data collected within this zone included residents of the Town of Milton, there is no way beyond generalization to apply that statistic to the Town. The Town did conduct a survey

during the initial stages of this Plan and those responding to the survey indicated that improvements to the Towns' recreational infrastructure was very important and approximately 67 percent responded that improvements were needed.

Milton Police Department

The Police department is housed in the former Town Hall, and has renovated that space. The Town of Milton budget authorizes a Police Chief and eight full-time police officers. Major roadways such as SR 5 and SR 16 are patrolled by Delaware State Police. The Sussex Correctional Institution in Georgetown is used when detention facilities are needed.

The Town's Police Department has made good use of the Neighborhood Watch program in its newer subdivisions. Signage and local vigilance are keys to the program's success.

As the Town develops and the population and land area increase, the Town's police department must be kept aware of development and should be involved in design of that development as a means of promoting safety and security for the Town's residents and businesses. One such program to promote safety and security, is referred to as Crime Prevention Through Environmental Design (CPTED).

CPTED is action to design the physical environment in ways that reduce or remove identifiable crime risks. This typically requires the formation of a working group composed of persons representing community, business and law enforcement interests who comment on site plan, subdivision, redevelopment and revitalization efforts. To be effective, there must be a partnership among the Town, the development and the local communities. Frequently much of the attention is placed on lighting, security hardware, street and building access control, visibility, and landscaping as components of site design.

Milton Volunteer Fire Company 85

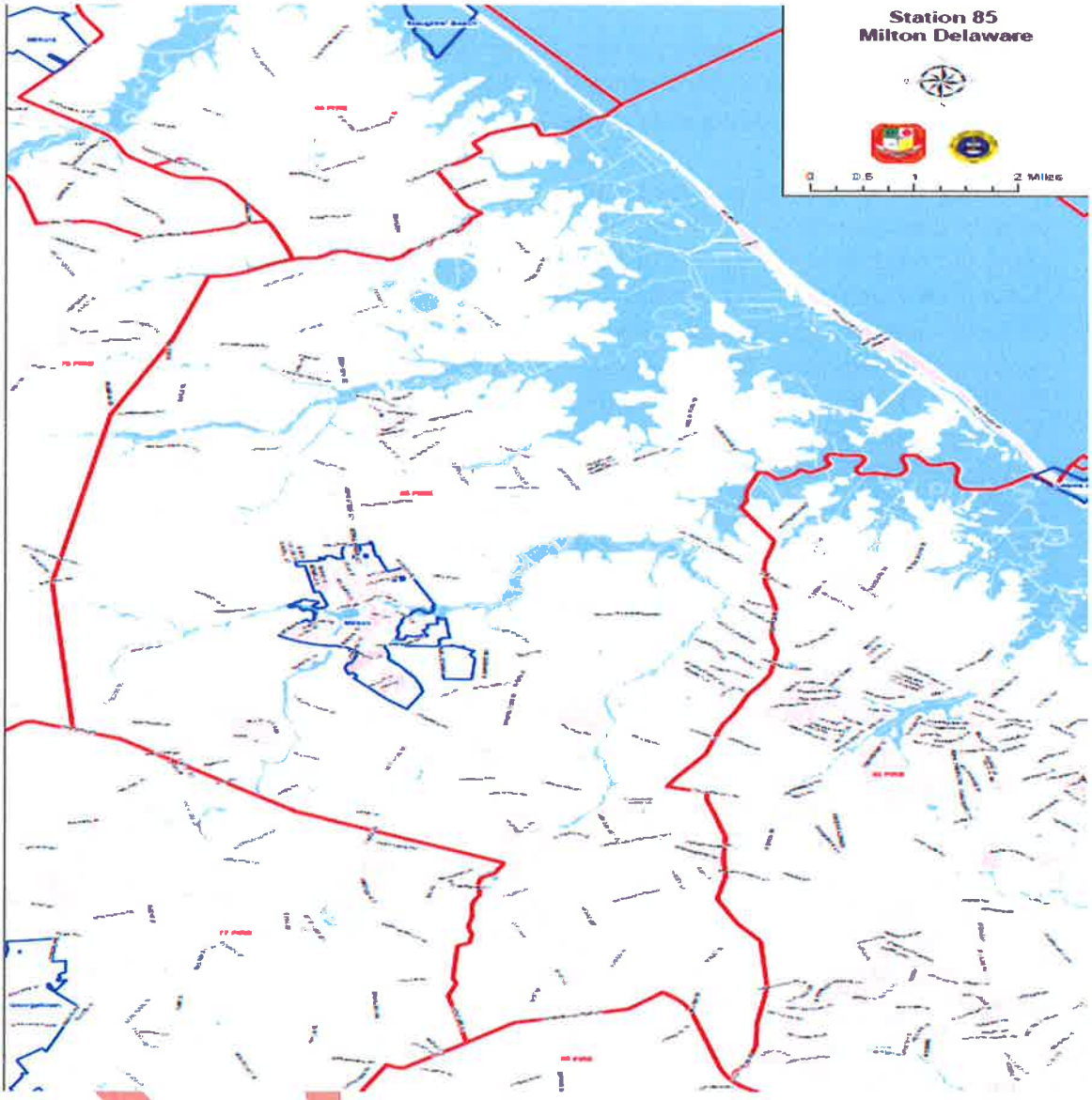
As is true throughout Delaware except for the City of Wilmington, the Town of Milton is served by an all-volunteer fire department (Company 85, Milton Volunteer Fire Department). Operating out of its present station located at 116 Front Street in the Town, Company 85 has a compliment of 75 officers and fire fighters, and as a volunteer entity, is managed by a Board of Directors. The Company can respond with a fleet of eight vehicles (two ambulances, three water pumper trucks, one aerial truck, one water tanker and one brush truck). The Company also has one boat. The emergency medical technicians assigned to the Company are full time and paid.

The Company is one of twenty-one volunteer fire departments located within Sussex County, along with the Emergency Operations Center and Emergency Medical Services units. It maintains mutual aid agreements with each of the companies well as statewide agreements.

The Fire District over which Milton is charged with first due response is larger than the Town's 1.63 square miles as well as the identified Growth Area. The Company's Fire District area is shown in Figure 5. Due to the size of the fire district as well as the increasing population and new development activity, the Company is considering creation of substations at Broadkill and Harbeson which could reduce response times, as well as add expansion capabilities to the Company. Due to hand holdings in the Town, Company 85 also has the ability to expand on its current site by adding two new bays to house fire apparatus and equipment.

The Company has seen a growth in calls predominately for emergency medical services (EMS) as would be expected by both the increase in area population as well as the growth in the older population cohort. Due to improvements in life-safety requirements in building codes, structure fires are not keeping pace with the growth in EMS calls.

Figure 5. Company 85 Fire District



Comprehensive Plan Goal for Public Facilities

The goal for public facilities, services, schools and parks is to provide, sustain and expand current facilities, services, schools and parks to meet the current and future needs of the Town's residents, visitors and businesses when necessary while minimizing public and private costs to do so.

Possible Implementation Strategies

Possible implementation strategies include:

- Improve pedestrian and bicycle connections to the Town's parks and recreation areas connecting the facilities to the communities they serve.
- Evaluate areas along the shore line of the Broadkill River for boat and kayak launching locations.
- Encourage developers to provide small parks, tot lots, sitting areas, trail access, or parcels of open space as part of conditions of development approval. Developments located along the waterfront should follow the natural protection techniques described in the Natural Environment, Environmental Protection Chapter.
- Organize and train a small task force of persons representing the Town, its businesses, economic development, the Development Community and crime prevention to develop the Crime Prevention Through Environmental Design (CPTED) initiative and seek training opportunities for this group.
- Develop a list of CPTED initiatives that would be included in the Town's zoning, site planning, subdivision, redevelopment and economic development activities. At a minimum, these initiatives should address lighting, security hardware, street and building access control, visibility and landscaping.
- Promote the establishment of Neighborhood Watch Programs in each new residential subdivision as it becomes inhabited.
- Keep Company 85 appraised of new development and/or redevelopment proposals so that the Company can maintain an adequate level of service consistent with current levels of fire response and emergency medical service calls.
- Involve Company 85 in review and approval of any variance from current street design standards.
- Conduct a study of park and public open space to develop a ratio between the current population demand and existing supply of services and land. Evaluate that ratio against comparable municipalities and services to determine whether that ratio meets accepted industry standards.
- Conduct public safety requirements study with assistance and guidance from the Police Department and Fire Company to determine ten and twenty-year equipment and staffing requirements based on the Town and its Growth Area. Use the study's results to determine facility needs and location(s). This study should establish a baseline relationship between the size of the agencies and the Town and service area population.
- Use results of Sea Level Rise 2015 Coastal Management Assistance Grant Study as input to location and/or enhancement of emergency service facilities.
- Conduct study of the Broadkill River identifying points of accessibility and potential land side activities to promote the use and protection of the River.
- Conduct a park and recreation facilities and needs study to identify facility needs, ranking those needs based on public input, cost to construct and operate the facilities, and land requirements.
- Evaluate the need to require dedication of public recreation facilities through conditions of development approval or payment of a fee in lieu.

- Evaluate development in the growth area for sites appropriate for new, other or relocated public facility requirements.
- Work with the Cape Henlopen School District to ensure the continued presence of, and access to, school facilities within the Town of Milton.
- Work with the Cape Henlopen School District to continue to provide community recreation at the public schools. Consider the potential for providing a community center for teenagers.

C. UTILITIES

Electricity, Natural Gas and Solid Waste

The planning area receives electrical service from Delmarva Power and Delaware Electric Cooperative. Verizon and Comcast provide telephone service. Natural gas, through Chesapeake Utilities, is available in one new development, Heritage Creek. Other newer developments in Town have contractual relationships with propane providers. The town contracts with M & T trash for garbage and recyclables pickup.

Potable Water

Milton's town-owned municipal water system serves properties within the incorporated limits plus a small number of users outside the limits. The Town adopted a Master Water Plan in 2009 and the information obtained for this section was from that adopted plan.

The Town of Milton is presently served by four water supply wells, designated as Wells No. 2, 3, 4 and 5. Wells No. 2, 3 and 4 are found near the water tower and treatment building at the corner of Behringer Avenue and Chandler Street. Well No. 5 is found at the wastewater treatment facility on Front Street. Each well house contains a well head and controls. Some also house chemicals and chemical feed equipment. Each well is linked to an emergency generator enabling water to be supplied in case of a power outage. Well No. 3, which was originally installed in

1962, was replaced in 2008. The original well screen was corroded and efforts to clean and restore the screen were unsuccessful.

The existing water system controls were updated in 2008 and are in the water treatment building. The controls monitor system pressure at the water treatment building and transmit that value to a small digital pump controller. The pump controller allows the operator to establish high and low alarm set points and lead, and multiple lag pump set points to start and stop the well pumps. The digital pump controller is connected to the original pump controls installed in 1998 to provide alarm capabilities and to physically start and stop pumps.

A schematic diagram of the existing water supply, treatment, storage and distribution systems is included as Exhibit II-1 of the Master Water Plan (a stand-alone document) do as well as the specific location of each well. The depth, diameter, pumping rate, and other information regarding each well are tabulated below:

Table 15. Well Description

	No. 2	No. 7	No. 4	No. 5
Year Constructed	1974	2008	1982	1983
Diameter (in.)	8	8	8	8
Depth (ft.)	80	90	470	460
Screened Interval	47-67	70-90	420-470	420-460
Pump Type	Submersible	Submersible	Submersible	Submersible
Pump HP	10	20	20	20
Capacity (gpm)	225	400	260	235

Wells No. 2 and 3 are shallow wells that draw from the Columbia unconfined aquifer. Wells No. 4 and 5 are deep wells that draw from the Federalsburg confined aquifer. The discharge lines of Wells No. 2, 3 and 4 are interconnected enabling water from the three wells to be blended before entering the distribution system. Well No. 5 enters the distribution system directly.

Overall, water pumping records show typical seasonal variations with highest demands occurring in the summer months of June, July and August with lowest during the winter months. The 28 million gallons pumped during the peak month, July 2015, are equivalent to a consumption of approximately 307,140 gallons per day (GPD). The average demand in 2015 was 242,503 GPD.

Water withdrawals are regulated through the DNREC, Division of Water Resources, Water Allocation Permit Program, and the Delaware River Basin Commission Comprehensive Water Resources Plan. The Town is an active participant of both programs. The current water withdrawal limits are summarized in Table 16 below:

Table 16. Well Water Withdrawal Limits

Well	Allocation No.	Maximum Pumping Rate (GPD)	Expiration Date
2	87-0009A-R2M	360,000	8/14/2017
7	87-0009A-R2M	482,400	8/14/2017
4	87-0009B-R2M	374,400	8/14/2017
5	87-0009B-R2M	374,400	8/14/2017

Maximum pumpage from all wells combined must not exceed 500,000 gallons in any 24-hour period or 10,000,000 gallons in any 30-day period. The Town exceeded its 30-day period water withdrawal limit during August 2006 and the months of June, 2007 through September 2007. Pumping records indicate normally that July is the highest water usage month, exceeding the Town's maximum 30-day period by 1.9 million gallons.

With the growth expected in Sussex County and the planned and potential development within and around the Town, water demands will increase in the next 20 years. Based on projected growth trends for the Milton area, including potential development within the Town, the Water Demand Projection graph is identified in the Town's Master Water Plan. As noted earlier growth is residential demand has moderated to approximately 40 new homes per year. In a study conducted in 2012, the consultant noted that the Town's Water Allocation Permit is not adequate to meet the Town's Water Demand during several days throughout the summer months.

The Master Water Plan shows potential water demand is based on a low growth rate of 50 new homes per year and a high growth rate of 150 (neither of which is currently met based on the present average of 40 new homes per year). There are currently sufficient new homes planned in subdivisions and annexed lands to exceed 1,000,000 GPD water demand within 20 years provided that growth rates around Town continue to rise. Projected twenty-year water demands are shown below:

Table 17. Water Demand Estimates

Year	Demand GPD A	Demand GPD B	Demand Peak B
2008	280,000	280,000	560,000
2009	292,000	316,000	632,000
2010	304,000	352,000	704,000
2011	316,000	388,000	776,000
2012	328,000	424,000	848,000
2013	340,000	460,000	920,000
2018	352,000	640,000	1,280,000
2023	364,000	820,000	1,640,000
2028	376,000	1,000,000	2,000,000

A - Based on 50 homes per year growth rate. B – Based on 150 homes per year growth rate.

Determining water supply needs is normally based upon daily estimated demands. The Recommended Standards for Waterworks (10 States Standards), endorsed by the Delaware Division of Public Health (DDPH), states that the total source capacity should equal or exceed the peak daily demand and should equal or exceed the average daily demand with the largest well out of service.

Water Quality information can be found in the Town's Master Water Plan. Adequate storage is a vital element of any water system. Storing water before actual need allows water supply wells and treatment equipment to be sized for the average daily demand rather than peak hourly demand, and provides reserve supplies for contingencies such as firefighting. The Town's existing storage consists of two elevated storage tanks. Tank No. 1, at the corner of Behringer Avenue and Chandler Street, was built in 1984 and has a capacity of 150,000 gallons. The tank is in good condition, the exterior and interior wet areas were repainted in 2006. The second tank (Tank No. 2), found behind the H.O. Brittingham Elementary School, was built in 1989/90 and has a capacity of 75,000 gallons. The exterior of Tank No. 2 was repainted in 2015, the foundation was replaced and now that tank is in good condition. The total existing storage capacity is presently 225,000 gallons. The Town has entered a multi-ear maintenance contract for the elevated storage tanks.

Domestic demand and fire protection must be considered in the Town's finished water storage needs. Ten States Standards recommends a minimum storage volume equivalent to the average daily consumption, for systems not providing fire protection. Using 2015 well pumping data by the Town, the current average daily domestic demand is approximately 280,000 gallons.

The Delaware State Fire Prevention Regulations require a storage capacity, more than domestic demand, based on the following formula:

Storage Volume = (fire flow x duration) + 2%

A fire flow of 1,500 GPM for two hours is required for industrial areas within the Town. Therefore, storage required for fire protection is equal to approximately 184,000 gallons. Combining both domestic demand storage and fire protection storage, the Town's current total storage should equal or exceed 464,000 gallons. Projected average daily consumption is expected to rise quickly in the next four to five years as shown in Exhibit II-4 of the Water Master Plan. Based on the well pumping data provided by the Town, peak domestic demands are taxing the Town's existing storage capacity. As growth occurs, domestic demands will increase and fire protection will become a smaller portion of finished water storage.

Milton's water system is a typical municipal distribution system that connects all sources, storage, and customers with a continuous system of pipes. The system provides domestic water and fire protection with 110 hydrants found throughout Town. All service connections are metered. The existing system consists of water mains ranging from 4" to 12" in diameter. Many older mains in Town are 6" and 4" diameter cast iron or asbestos concrete pipe, both outdated materials. Newer 8", 10" and 12" mains are constructed of PVC and HDPE pipe. Overall, the system is well looped and dead end mains are primarily found only at the boundaries of the water system. All elevated storage tanks and three water supply wells are on the north side of the river.

The fourth well is on the south side of the river. During the last ten years, the Town has upgraded the distribution system by expanding a large diameter water main loop that has interconnected all elevated storage tanks and water supply wells and replaced older water services in selected areas.

The requirements of a public water distribution system are to provide adequate water for both domestic use and fire defense. This is accomplished by constructing a well interconnected and looped system with few or no dead end mains that is adequately sized to deliver water to users with a minimum loss of pressure.

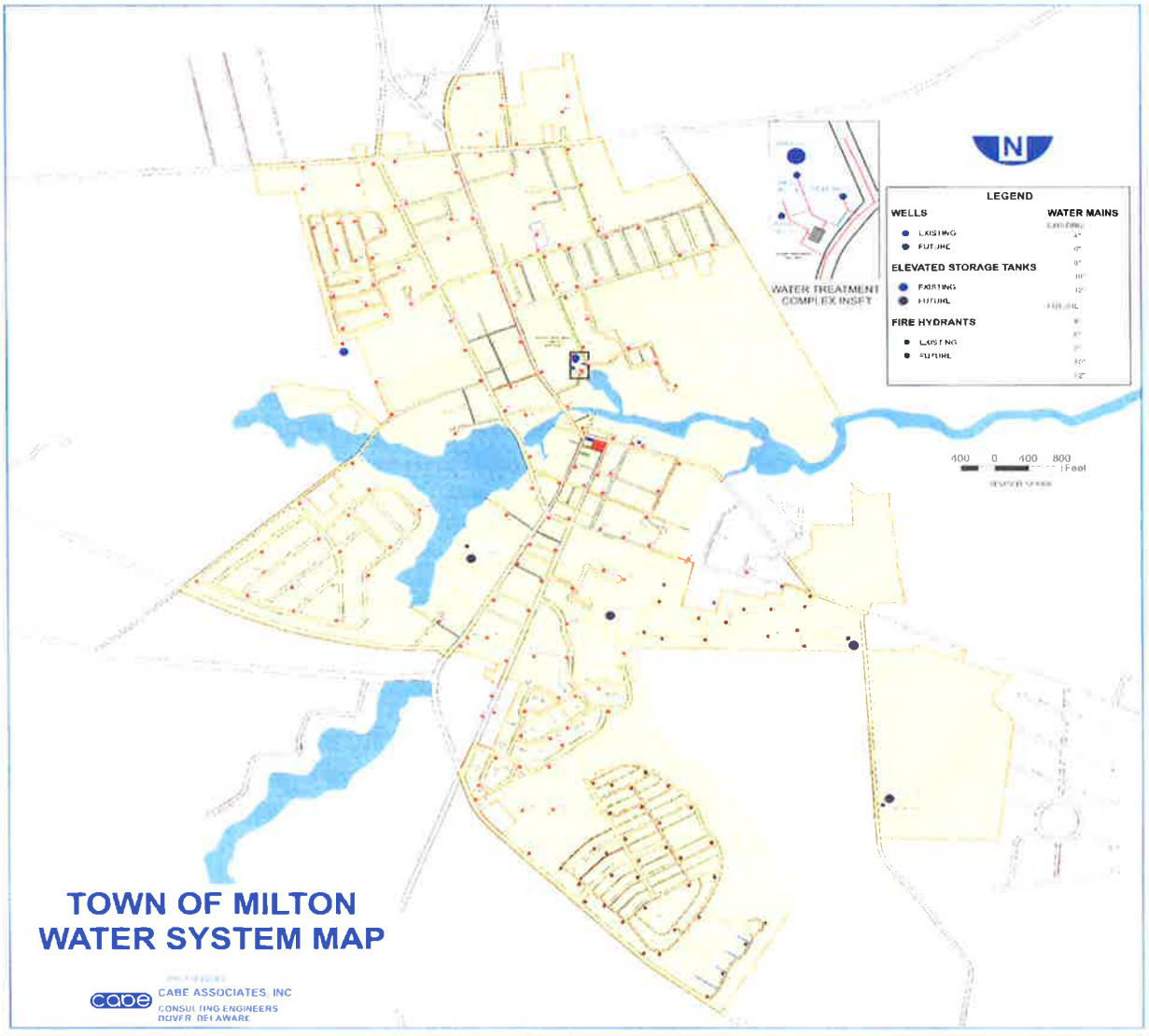
The overall strength of the Town's water system can be evaluated by hydrant testing throughout Town. Town wide testing was previously completed in 2014. Recently, additional testing was completed in new subdivisions and in areas where the water system has been upgraded. A summary of the 2004 and recent hydrant testing results is shown on Exhibit IV-1 in the Water Master Plan (a separate document). During testing any defective hydrants were noted and are summarized on Exhibit IV-2 of that Plan. Hydrant testing results show most hydrants throughout Town can supply 500 GPM at 20 psi residual pressure in accordance with the State Fire Prevention Regulations. However, hydrants at the extreme ends of Chestnut Street, Sussex Street, and Atlantic Street that are located on non-looped 4" mains do not meet those standards. Fire prevention in those areas will require connecting to nearby hydrants on larger or looped water mains that may be further from the fire location. Although this situation provides adequate fire protection, the Town should plan water main upgrades which strengthen those areas to minimize future risks and public safety concerns.

The annexation area represents the area into which the Town will expand and provide service. However, the existing older water mains decrease in size as they approach the Town boundary. These mains will need to be replaced and looped as the Town expands in area and population. Water main improvements should plan for future expansion by extending large diameter mains to boundary areas where annexation is most likely. Within the existing distribution system some older water mains are primarily used to deliver water for domestic demand and do not provide fire protection. Although these older mains can provide adequate water for domestic demand, and over the life of this plan, their age could become a problem. Asbestos cement pipe has been known to become weak with age thus leading to maintenance problems. Older unlined cast iron mains can be affected by tuberculation that reduces their carrying capacity. Determining when these mains will need replacement is impossible without removing some older sections of pipe for examination. However, it is likely if several homes in an area are experiencing low pressures the problem can be traced to water main degradation. Most old lead goose neck water service connections have been systematically replaced.

Proposed water main improvements are shown on the Water Facilities Master Plan Map. The map shows proposed replacement water mains within the existing Town boundaries. These improvements are planned to improve service and fire protection for existing customers. The map also shows proposed water mains in the annexation area. Those mains are planned as a backbone for extending the existing looped system as the Town grows. Additional lines will be installed in individual communities, shopping centers, etc. and are not shown. The improvements are broken into logical segments that could be constructed as individual projects. Exhibit IV-3 in the Master Water Plan lists each project and its associated cost.

The Town can provide water service to customers that are within its Certificate of Public Convenience and Necessity (CPCN) area. The Town's current CPCN, shown on Exhibit IV-4, of the application, was last revised in 2005 through a CPCN application to the Delaware Public Service Commission. By regulation any lands that are annexed should be automatically added to the CPCN area. If the Town would like to expand service to lands that are not annexed or that may be annexed at some future time, a CPCN application and supporting documentation must be submitted to the Public Service Commission for review and approval.

Figure 6. Town of Milton Water System Map



Sanitary Sewer

In July 2007, Tidewater Environmental Services, Inc. (TESI) acquired the Town's waste water treatment plant and collection infrastructure from the Town. Since that time, TESI has spent over $2M in improvements mostly upgrading the transmission and collection infrastructure, plus improvements and refinements to the treatment infrastructure at the plant. The plant is under permit from the US Environmental Protection Agency (EPA) and the Delaware Natural Resources and Environmental Control (DNREC) limiting the discharge via outfall pipe into the Broadkill River of biological oxygen demand (BOD), suspended solids, total nitrogen and total phosphorous, both on a daily and a twelve-month cumulative average basis.

The current waste water treatment plan is located within a flood prone area of the Broadkill River. The long-term plan is to relocate the plant, plus redirect collection infrastructure as well as outfall infrastructure to a 20-acre site located along Sam Lucas Road. The point of discharge into the Broadkill River would remain at the same location, as this location is among forty-five throughout Delaware where outfall discharge permits are authorized by DNREC statewide and one of four permits authorized on the Broadkill River. The Broadkill River is one of twenty watersheds within that State in which DNREC has established Total Maximum Daily Loads (TMDL) requirements. In the interim, the plant's operation relies upon technologies such as Membrane Bio-Reactor (MBR) to improve the quality of the discharge to meet current DNREC requirements.

Comprehensive Plan Goal for Public Utilities

The Goal of the Public Utilities Section of the Comprehensive Plan is to sustain and, where necessary, improve the quality of these services while meeting required public safety and environmental standards.

Possible Implementation Strategies

To meet this goal, the following are possible implementation strategies:

- Complete Water System mapping to identify segments of the network that require upgrades to guarantee consistent water quality and pressure.
- Coordinate system upgrades at the ends of the network to meet pressure and flow standards necessary to support land use recommendations in the growth areas along the current borders of the Town.
- Update the Town's Water Master Plan, evaluating capacities and capabilities of the wells to determine in advance when new facilities will be required to meet quality, capacity and pressure demands.
- Require engineering review of all subdivisions, site plans and annexation proposals highlighting not only the utility needs of the proposed development but also the impact of the Town's current utilities operations and service.
- Evaluate present standards, specifications and design for utilities periodically, and update as necessary and appropriate.
- Promote water conservation awareness among the Town's residents and businesses.
- Work with Tidewater Environmental Services, Inc. to advance the relocation of the current waste water treatment plan away from its current location along the Broadkill River while continuing to use the current outfall location.
- Work with Tidewater Environmental Services, Inc. to meet required Total Maximum Daily Load (TMDL) standards while making sure the waste water treatment plant has the available treatment capacity to meet increased demands through infill, revitalization and new development opportunities within the Town and those areas which are annexed to the Town.

XI. NATURAL ENVIRONMENT, ENVIRONMENTAL PROTECTION AND OPEN SPACE

Refer to Maps D1 Natural Environmental Lands, D2 Agricultural Lands and K Source Water in Appendix E

Background

Milton's location at the head of navigation on the Broadkill emphasizes the River's importance and its influence. The River offers a unique natural environment with excellent plant, fish and wildlife habitats and special educational and recreational potentials.

The Broadkill gathers waters flowing toward Delaware Bay from a line of divide east of the Redden State Forest on DuPont Boulevard (US Route 113). Waters west of that divide are part of the Nanticoke River system. In the Broadkill tributary system, the Pemberton, Brittingham, Ingram, Waples and Round Pole Branches flow east into Lavinia, Wagamons and Diamond Ponds along the west and south edges of Milton, or directly into the river between the Town Center and Rattlesnake Hill. The Pemberton and Brittingham Branches west of Milton are characterized by significant woodlands and unique wetland habitats. East of the Town Center there is a woodland in the area identified on the USGS map as "Rattlesnake Hill."

Elsewhere in this Comprehensive Plan, there is an extensive discussion of the Broadkill River, its historic and physical connection to the Town of Milton and its impact on the Downtown area. The River coupled with sea level rise and increasing storm severity both in terms of hurricanes and "Nor'easters" has an impact on downtown development as well as several public facilities including potable water and sanitary sewer. The Town has conducted a study of sea level rise impacts and risk to public facilities assets. This study, funded through the Department of Natural Resources and Environmental Control (DNREC), will be used to guide planning and funding decisions regarding public facilities and utility placement.

Milton's ponds were created as millponds in the 18th century by impounding their tributaries. They are now important visual and environmental assets in Milton. The river is tidal as far as the Town Center. Its waters change from brackish freshwater to salt water approximately ½ mile upstream of the Coastal Highway (Route 1) bridge.

The Town Center area between Magnolia and Front Streets lies at an elevation of between 5 and 10 feet above sea level, while the remainder of the Town is typically at 15-25 feet or above. During Nor'easter storms like the storm experienced in March 2015 where the winds push the tide into the Broadkill through the Roosevelt Inlet at Lewes and may cause flooding up to elevation 8 or 9 in Milton. Flood-prone areas within the 100-year floodplain (typically at elevation 10 and below) are shown on the Federal Emergency Management Agency (FEMA) Maps of Milton. Flood-prone areas include much of Milton Memorial Park, much of the downtown center, potable water wells, as well as the sewage treatment plant on Front Street.

From the Town Center, the Broadkill winds its way some 15 miles eastward through a watery natural environment with several unique habitat and conservation areas. The Nature Conservancy's 143-acre Edward H. McCabe Preserve is located on the south bank two miles downstream of Milton. The Smith Farm Landing is two miles further downstream on the north side; the adjacent Smith farmlands are now under easement to the Delaware Agricultural Lands Foundation. The river then passes beneath a low bridge at Coastal Highway (Route 1) and the nearby Steamboat Landing site and then meanders through the marshy Prime Hook National Wildlife Refuge area to join the Lewes Channel and flow into the Delaware Bay and Atlantic Ocean via the man-made Roosevelt Inlet. Here the channel also merges with that of the Lewes and Rehoboth Canal.

Under Section 303(d) of the 1972 Federal Clean Water Act (CWA), states are required to identify all impaired waters and establish total maximum daily loads to restore their beneficial uses (e.g., swimming, fishing, and drinking water). Total Maximum Daily Load or TMDL defines the amount of a given pollutant that may be discharged to a water body from point, nonpoint, and natural background sources and still allows attainment or maintenance of the applicable narrative and numerical water quality standards. A TMDL is the sum of the individual Waste Load Applications (WLAs) for point sources and Load Allocations (LA's) for nonpoint sources and natural background sources of pollution. A TMDL may include a reasonable margin of safety (MOS) to account for uncertainties regarding the relationship between mass loading and resulting water quality. In simplistic terms, a TMDL matches the strength, location and timing of pollution sources within a watershed with the inherent ability of the receiving water to assimilate the pollutant without adverse impact.

A Pollution Control Strategy (PCS) specifies actions necessary to systematically reduce nutrient and bacterial pollutant loading to the level(s) specified by the TMDL; and must reduce pollutants to level specified by the State Water Quality Standards. A variety of site-specific best management practices (BMPs) will be the primary actions required by the PCS to reduce pollutant loading(s).

The Town of Milton is located within the greater Delaware River and Bay Drainage; specifically, within the Broadkill watershed. The pollutants targeted for reduction in the Broadkill watershed are nutrients (e.g., nitrogen and phosphorus) and bacteria are shown below in Table 18. As mentioned previously, the PCS will require specific actions that reduce nutrient and bacterial loads to level consistent with the goals and criteria specified in the State Water Quality Standards. The PCS for the Broadkill is pending review and has no projected completion/approval date.

Table 18. Pollution Control Strategy

Delaware River And Bay Drainage	Nitrogen Reduction Requirements	Phosphorus Reduction Requirements	Bacteria Reduction Requirements
Broadkill watershed	40%	40%	75%

In 2001, the General Assembly passed a law requiring that, beginning in 2007, municipalities and counties with populations greater than 2,000 persons, adopt as a part of their comprehensive plans overlay maps delineating, as critical areas, source water assessment, wellhead protection, and excellent ground-water recharge potential areas. The Town of Milton adopted Ordinance No. 2015-009 which amended Chapter 220 of the Town Code creating a new chapter 181 entitled Source Water Protection Areas, Wellhead Protection Zones with requirements and Excellent Ground-water Recharge Potential Areas.

The Nature Conservancy and the Town of Milton have worked together to establish the Milton-McCabe Preserve Canoe Trail. This links the Town Center and its boat launch with a new canoe dock, kiosk and hiking trail at the McCabe Preserve. The McCabe Preserve improvements include a small parking area, benches along an interpreted hiking trail and resting area with a river view. The Milton-McCabe Preserve Greenways Trail, built with a grant obtained by the Town, was formally dedicated by the Town and the Conservancy on June 6, 1998. Many State and non-profit groups are now working together to preserve the unique environment of the Broadkill.

Milton and the farmlands surrounding it are located on the flat coastal terrain of eastern Sussex County, on lands first cleared for agriculture in the 17th century, with sporadic woodlands and gentle slopes along the waterways. Soil classifications within the study area are based on information obtained from Department of Natural Resources (NRCS). The ramifications for development of the involved soil types are given in Table 19 provided on the following page. The relative suitability of study area agricultural lands for long-term agricultural preservation is shown on Exhibit D2 in the Appendix, drawn from statewide mapping prepared for the Delaware Agricultural Lands Preservation Foundation.

Figure 7.
Edward H. McCabe Preserve

Table 19. Milton Area Soil Characteristics

Soil Map Unit	Surface Texture	Slope	Limitations for: sm commercial buildings	Basements	Roads/Parking	Note
Downer						
DnA	loamy sand	0-2%	Not limited	Not limited	Not limited	(4)
DnB	loamy sand	2-5%	Not limited	Not limited	Not limited	(4)
DuB	loamy sand	0-5%	Not limited	Not limited	Not limited	(4)(7)
Downer						
DoB	sandy loam	2-5%	Not limited	Not limited	Not limited	(4)
Evesboro						
EvD	loamy sand	5-15%	Somewhat lmtd(5)	Somewhat lmtd(5)	Somewhat lmtd(5)	(1)
Fort Mott						
FmB	loamy sand	2-5%	Not limited	Not limited	Not limited	(4)
Fort Mott-Henlopen						
FhB-Fort Mott	loamy sand	2-5%	Not limited	Not limited	Not limited	(4)
FhB-Henlopen	loamy sand	2-5%	Not limited	Not limited	Not limited	(4)
Hambrook-Urban land						
HkB	sandy loam	0-5%	Not limited	Somewhat lmtd(3)	Somewhat lmtd(2)	(4)(7)
Henlopen-Rosedale						
HrA, HsA-Henlopen	loamy sand	0-2%	Not limited	Not limited	Not limited	(4)(7)
HrA, HsA-Rosedale	loamy sand	0-2%	Not limited	Somewhat lmtd(3)	Not limited	(4)(7)
Ingleside						
IeA	loamy sand	0-2%	Not limited	Somewhat lmtd(3)	Not limited	(4)
Ingleside						
IgA	sandy loam	0-2%	Not limited	Somewhat lmtd(3)	Not limited	(4)
IgB	sandy loam	2-5%	Not limited	Somewhat lmtd(3)	Not limited	(4)
IuB	sandy loam	0-5%	Not limited	Somewhat lmtd 3)	Not limited	(4)(7)
Longmarsh & Indiantown						
LO-Longmarsh	mucky loam	0-1%	Very limited	Very limited	Very limited	(6)
LO-Indiantown	mucky loam	0-1%	Very limited	Very limited	Very limited	(6)
Manahawkin						
Ma	muck	0-1%	Very limited	Very limited	Very limited	(6)
Rosedale						
RoA	loamy sand	0-2%	Not limited	Somewhat lmtd(3)	Not limited	(4)
Udorthents						
UzC	sandy loam	0-10%	Not limited	Somewhat lmtd(3)	Somewhat lmtd(2)	(7)

Notes:
(1) rapid permeability, moderate moisture capacity, low fertility
2) potential frost action
(3) seasonally wet w/in 4-6 ft.
(4) excellent agricultural soil, may need irrigation
(5) slope creates some limitation for development
(6) flooding, ponding
(7) a significant portion of map unit is 'urban land' (already developed, impervious)

Source: Sussex Co, SSURGO v9 (10/16/2006)

Sussex County, the State of Delaware and the Nature Conservancy are endeavoring to protect the natural environment of the Broadkill River. The entire length of the river from Prime Hook to

Milton has been designated by the State of Delaware as one of twenty "State Resource Areas" within where the State may acquire property to conserve an irreplaceable natural environment. Scientists have identified portions of the Broadkill River tidal river system as unique Atlantic White Cedar bogs and swamps. In addition, the Broadkill from Lewes to Milton is viewed as a part of Delaware's Greenway program. The 470-acre Smith Farm site, with the sole exception of its Broadkill Landing edge, has been enrolled in Delaware's Agricultural Lands Preservation (DALP) program; its development rights have been purchased by the DALP Foundation and the land placed under permanent protective easement. There is every reason to believe that the conservation partnership for the Broadkill will strengthen in the years to come.

Comprehensive Plan Goal for Natural Environment, Environmental Protection and Open Space

The goal of the Town's Natural Environment, Environmental Protection, and Open Space Plan is to promote, preserve and protect the natural environmental assets and open space that contribute to the Town and provide much of the Town's identify.

Possible Implementation Strategies

Possible implementation strategies to meet this goal are the following:

- Continue to strengthen its partnership with land owners to preserve and protect the Broadkill River and its tributaries as an important natural resource.
- Cooperate with the State of Delaware in extending its Agricultural Lands Protection Plan to appropriate farm property in the Milton area.
- Promote pollution control strategies using best management practices to reduce nutrient and bacterial pollutant runoff loadings into the Broadkill River and its tributaries.
- Evaluate and as appropriate incorporate best management practices into the development regulations of the Town.
- Coordinate with the Department of Resources and Environmental Control to protect sensitive wetlands including tidal shrub wetlands, forested areas, rare-threatened-endangered wildlife and floral species within the Town, and those areas which annex into the Town.
- Prepare and complete a study of the buffer area along the Broadkill and its tributaries to identify the extent of a defendable buffer, upon adoption of the study map the buffer.
- Recognize, where practical, forested areas as open space and protect forested areas.
- Evaluate areas within the Town, and as annexed areas adjacent to the current town boundaries to establish greenways, green infrastructure network and promote their preservation through coordination with property owners and developers.
- Educate the Town's residents and businesses that air quality is a health and quality of life issue.
- Continue to enforce and when appropriate re-evaluate the Town's source water protection ordinance.
- Prepare and adopt a Parks/Open Space, zoning district to protect lands that identify those lands acquire through the Delaware Land and Water Conservation Trust Fund and parcels which could be eligible for acquisition.

XII. ANNEXATION AND GROWTH

Refer to Map G Growth Area in Appendix E

Background

The Town is situated along major transportation corridors of Sussex County and is surrounded by parcels currently and generally in low density residential and agricultural uses in the unincorporated area the County. Some of these parcels are presently identified in the State's Agricultural Preservation Program. As such these parcels are subject to County development regulations and, as they develop, will have an impact of the character of the Town. For these reasons, the Town has drawn Growth Boundaries based on the Certificate of Public Conveyance and Necessity (CPCN) areas of utilities and geographic relationship to the Broadkill River.

The Growth Area is shown in Exhibit G of the Plan and reflects changes since the adoption of the 2010 Comprehensive Plan. The Town has updated all mapping tools throughout the Comprehensive Plan to note all changes since the last update in 2010. Exhibit F shows the Town limit boundary and existing zoning classification from previous annexations. Exhibit G shows the Future Land Use/Potential Expansion area for future annexations. It is noted that the enabling zoning districts must be drafted and adopted to implement the recommended Land Use Designations.

The Town has identified Land Use Designations for each parcel and proposes to work with parcel owners to create a master development plan for parcels along SR 16, SR 5A, SR 30 and along the Broadkill River. These Land Use Designations will be implemented through the drafting and adoption of new zoning districts to permit mixed use commercial/residential development along the highway corridors, a new light industrial district compatible with neighboring residential, and new marine resource district to promote sensitive development along the Broadkill River. The goal of these master planned areas is to provide interconnections to reduce the short distance travel demand along these major transportation corridors; to create the opportunities for partnering with the County, the parcel developers and DelDOT to establish Transportation Improvement Districts to offset the development impacts to the highway and pedestrian/bicycle networks; and to identify land for the relocation or expansion of necessary public facilities.

As the Town considers future growth beyond the current Town boundaries, it is necessary to note that current growth has been at a slow, but steady pace over the past decade and that this growth has generally been supportive of the Town's historic character. The outcome of the annexation of the approximately 3,600-acre growth area will alter the Town's character and place demands of the Town's available services.

Annexation of the parcels along the Broadkill River offer the Town the opportunity to protect its natural environment. Annexation of parcels, that would be developed in a mixed-use setting, create opportunities to sustain the historic character of the downtown, and offer space to relocate uses away from flood prone areas noted in the Sea Level Rise and Sustainability study discussed elsewhere in this Comprehensive Plan. Annexation of industrial lands expand the Town's

revenue base, create job opportunities for its residents, promote the location of firms to increase base industries in the Town, and offer a range of industrial/commercial activities in and around the Town.

To ensure that new growth pays for itself, the Town will consider future annexations based upon adequacy and cost of the services which the Town would provide to the newly annexed area. Once these factors have been considered then the Town will seek to enter into annexation agreements for areas that are contiguous with Town boundaries and connected to its street system. By continuing to adopt progressive zoning, generally demonstrating good positive government, and implementing selected public improvements along the edges of Town, the voluntary process of annexation may be encouraged.

Comprehensive Plan Goal of Annexation and Growth
The Goal of annexation in the Comprehensive Plan is to identify areas that meet State Code and Town Charter requirements for mutually beneficial incorporation into the Town of Milton which do not prove to be detrimental to the Town's fiscal or service capabilities.

Possible Implementation Strategies
To accomplish the Goal, the following are possible implementation strategies:

- Focus on greater direct connection to SR 16, SR 30 and SR 5A by annexation and by planning utility extensions to selected intersections, and corridors where there are interests in annexation and where significant parcels for redevelopment are located.
- Conduct necessary fiscal and service impact studies to determine costs and benefits of annexation proposals.
- Promote annexation along the Broadkill River where parcels could help protect the natural resource of the River.
- Prepare master plans for large parcels that are being annexed to provide for interconnectivity with adjacent parcels, to reduce demand for multiple access points along major transportation facilities adjacent to the Town.
- Partner with Sussex County, annexing parcel developers and DelDOT to identify, design and construct necessary transportation network improvements (highway, pedestrian and bicycle) to offset the impact of the developments on the present infrastructure using the Transportation Improvement District (TID) approach.
- Evaluate annexing parcels for public facility needs, especially in terms of relocation of existing facilities from the Downtown which could be vulnerable to recurring flooding.
- Identify Gateway locations to be considered during the design of transportation infrastructure improvements as the Town expands through annexation.
- Consider appropriate incentives for annexation in cases where incentives are desirable, assistance in paying for advertisement costs or assistance in paying a portion of the water and sewer connection and assessment costs when the property owner requests connection to the water and sewer systems