DNREC comments on City of Seaford Comprehensive Plan

DNREC is concerned about significant weaknesses with the City's Source Water Protection ordinance, passed in November 2007. Similar concerns have been raised with other local governments during DNREC's review of their comprehensive plans.

The issues are listed in detail farther below, but the most notable concerns are:

- There is no apparent upward limit on impervious cover as Seaford's ordinance is written, affording no meaningful protection of the resource;
- The ordinance adopts wellhead protection area maps but not excellent recharge maps as required by State law; and
- The ordinance allows licensed surveyors or the City's Building Official to change source water protection boundaries, when the law states only DNREC can revise the overlay maps "based on sound science and factual information."

Before Seaford's plan is certified, DNREC requests a meeting to discuss provisions in the ordinance that are contrary to the state Source Water Protection law (Delaware Code Title 7, Chapter 60, Subchapter VI).

Fish and Wildlife

There are large areas that the City plans to annex and for which development is anticipated; however, there are few action items in the plan that address how the city will protect sensitive natural resources. Goals are unclear for ensuring that developments are designed in an environmentally sensitive manner, and there are no action items pertaining to forest protection or protection of habitat that supports rare, threatened or endangered species.

<u>Wetland Protection</u>

On page 12, 'Environmental Concerns" preservation of existing wetlands is mentioned and federal and state regulations are described. Upland buffers that border wetlands are essential for protecting the function and integrity of those wetlands; however, buffers are not mentioned anywhere in the plan. Existing buffer requirements are not ecologically adequate for protecting water quality. Efforts by the State to implement more stringent buffer requirements have been mostly unsuccessful in Sussex County. Therefore, the City of Seaford should take the lead to ensure that wetlands and waterways are protected within their boundaries as well as those lands they plan to annex.

On page 38, Chapter 8, a recommendation is made to 'monitor the task force developing a strategy to implement the TMDL regulations for the Nanticoke River'. There aren't any specific action items in the comprehensive plan so currently it is unknown what actions will be taken *by the City* as a result of this plan to ensure that the water quality in the Nanticoke Watershed is protected. The City's follow-through on recommendations made by the Task Force will be key.

Land-use decisions that impact water quality could also impact fisheries that occur within the Nanticoke River. The Nanticoke River/Broad Creek complex is the most heavily fished stream in Delaware by licensed anglers, constituting nearly 20% of stream angling overall. Statewide, the most sought-after

fish by Delaware-licensed anglers is the largemouth bass, and the Nanticoke River bass fishery has been the most popular fishery in the state. The Nanticoke River fishery also supports the majority of the largemouth bass tournament angling in Delaware and has been the single most popular tournament site for 15 consecutive years. Largemouth bass spawning occurs in both the Nanticoke River and Broad Creek, with the most consistent spawning/nursery area on the Nanticoke River located between Rt. 13 and the Seaford public boat ramp.

Recommendations:

1) The City should require developments to have adequate wetland and riparian buffers as established by scientific research (buffers should be no less than 100 feet in width and in the case of sensitive habitat or the presence of rare species, the buffer zone may need to be 300 feet).

2) The City should consider protecting areas within the Nanticoke River system that have been identified as important habitat for freshwater mussels, and as spawning and nursery habitat for fish. Some activities that impact habitat are: a) tree removal along the shoreline. Shade is important for maintaining water temperature conducive to spawning, and b) replacement of natural habitat by docks, piers, bulkheads, and rip-rap. Replacing natural habitat with man-made materials can affect the distribution of benthic and macro-invertebrates which serve as the forage base for many fish species, and replaces natural nursery habitat.

<u>Forest Preservation/Wildlife Habitat Protection</u>

The plan does not mention forested resources or action items that will aide in preservation of those resources. Fairly large connected blocks of forest are associated with Chapel Branch, an area proposed for annexation and potential residential development. There is undeveloped forested land along the Nanticoke River and along Chapel Branch, Butler Mill Branch, Bucks Branch and Clear Brook.

Cumulative forest loss and fragmentation throughout the State is of utmost concern to the Division of Fish and Wildlife which is responsible for conserving and managing the State's wildlife (see www.fw.delaware.gov and the Delaware Code, Title 7). There is an overall lack of forest protection on the State and County level.

On page 33, a recommendation states "Incorporate natural areas designated by the state in the planning of large developments." What exactly does that mean? Will the city strive to protect these areas or allow them to become open space within a development? Habitat isn't protected if it is reduced to narrow perimeter strips of land around a development or exists as small, disconnected spaces within a development.

On Page 40, 'Protection of Sensitive Areas' there is brief mention of protecting valuable resources such as State Natural Areas, water quality of the Nanticoke River, and Barnes Woods, but the recommendations that follow that mention do not include any action items for protecting those resources.

Recommendations:

1) The City should make an effort to implement measures that will aide in forest protection on land currently within the City's jurisdiction as well as land proposed for annexation.

2) We recommend the Town refer to the Delaware Wildlife Action Plan (DEWAP) when making land-use decisions. Some of the land proposed for annexation is mapped as key wildlife habitat in the plan. DEWAP is a comprehensive strategy for conserving the full array of native wildlife and habitats-common and uncommon- as vital components of the state's natural resources. This document can be viewed via DNREC's Natural Heritage and Endangered Species Program website at http://www.dnrec.state.de.us/nhp. This document also contains a list of species of greatest conservation need (SGCN[1]) as well as species-habitat associations.

Rare, Threatened and Endangered Species

There is no mention in the plan of protection of state-rare or federally listed plants, animals and natural communities. Division scientists have not surveyed most of the area to be annexed, however, rare species occur within forested and wetland habitat along with Chapel Branch, Butler Mill Branch and Clear Brook.

Recommendation:

We highly recommend that the Town require developers, or applicants of development projects, to contact the Natural Heritage and Endangered Species Program (NHESP) of DNREC's Division of Fish and Wildlife to determine if their project activities will impact a state-rare or federally listed species. In some cases a site visit may be requested in order to provide the necessary information. The Town should then consider requiring implementation of recommendations provided by the NHESP before approving site plans.

Contact information:

Environmental Review Coordinator
Natural Heritage and Endangered Species Program
DNREC-Division of Fish and Wildlife
4876 Hay Point Landing Rd
Smyrna, DE 19977

State-owned Ponds

Hearns Mill Pond, Craigs Pond and tributaries that flow into these ponds occur within areas proposed for future annexation and potential residential development. Both of these ponds are owned by State. The State expends funding in an on-going effort to protect the water quality of public ponds for water based recreation and use by all citizens of Delaware. The counties and/or municipalities make land use decisions which impact State ponds. The State continues to request adequate buffers be left in place by developers, however, often developers are still permitted to leave inadequate buffers that only exacerbate existing water quality problems.

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[1] Species of greatest conservation need (SGCN) are identified in the Delaware Wildlife Action Plan (DEWAP). In a broad sense, SGCN, as defined for DEWAP, are indicative of the overall diversity and health of the State's wildlife resources. Some may be rare or declining, others may be vital components of certain habitats, and still others may have a significant portion of their population in Delaware.

Recommendation:

We recommend a minimum of 100 feet of existing vegetation be left intact along all State-owned Ponds and tributaries that flow into the ponds. Lot lines and infrastructure should not occur within this buffer zone. The City should make this a requirement in their comprehensive land use plan.

Parks and Recreation

In May and June 2008, the Delaware Division of Parks and Recreation conducted a telephone survey of Delaware residents to gather information and trends on outdoor recreation patterns and preferences as well as other information on their landscape perception. These findings are the foundation of the 2008-2011 Statewide Comprehensive Outdoor Recreation Plan (SCORP) providing guidance for investments in needed outdoor recreation facilities. This year, the Division of Parks and Recreation has collaborated with the Nemours Foundation, through its Division of Health and Prevention Services, to oversample five municipalities within the state. The City of Seaford was one of these five oversampled municipalities. The SCORP can be a useful document when addressing parks and recreation facilities and needs within county and municipal comprehensive plans.

Importance of Outdoor Recreation

When looking at the findings from the 2008 telephone survey, it is apparent that Delawareans place a high importance on outdoor recreation. Statewide, 91% of Delaware residents indicated that outdoor recreation had some importance in their lives, while 64% said it was very important to them personally. These findings are very close to the results of the same question asked in the 2002 public opinion telephone survey, indicating a continued demand for outdoor recreation opportunities throughout the state.

At the municipal level, 85 percent of residents in the City of Seaford indicated that outdoor recreation had some importance in their lives. Although Seaford residents appear to place less importance on outdoor recreation than any other municipality sampled, Seaford had the second highest response (60%) for outdoor recreation being VERY important to them personally.

Participation in Outdoor Recreation

In Seaford, walking or jogging (81% have participated) was the most participated in household activity followed by picnicking (68%), passive recreation in the outdoors (63%), and visiting historic sites (62%). In Seaford, hiking, more than any other activity falls below residents' expectations. Only 18% of Seaford residents rated hiking facilities in their community as good while 54% rate facilities in their community for hiking as fair or poor.

Thirty-five percent of Seaford residents, more than all other oversampled municipalities, do not agree with the statement, "There are parks and/or outdoor recreation areas in or near my neighborhood that are easy to get to." When asked which of the following would encourage more active participation in outdoor activities, 59% in Seaford indicate more close to home facilities would encourage them to participate in outdoor recreation more actively.

Reasons for Participating in Outdoor Recreation

Similar to the 2002 telephone survey, the top reasons for participating in outdoor recreation statewide include; for physical fitness, to be with family and friends, and both for relaxation and to be close to nature. According to the 2008 telephone survey responses, physical fitness is, by far, the number one reason given for participating in outdoor recreation. This response to this same question increased statewide from 2002 to 2008 from 49.7% to 59% respectively.

More than half (53%) of the residents surveyed in Seaford said they participate in outdoor recreation for their physical fitness. Other top reasons for participating in outdoor recreation in Seaford include; to be with family and friends (20%), for relaxation (19%) and to be close to nature (19%).

Outdoor Recreation Needs/Priorities

During the telephone survey, respondents were asked if they would like to see facilities added to their community park. When the respondent's answer was yes, they were given the opportunity to identify specific facilities they would like to have available. Results from questions identifying household participation, personal participation, and added facilities were combined to demonstrate demand for specific outdoor recreation opportunities/facilities. Once ranked, this list was broken down three ways to identify high, medium, and low priorities for outdoor recreation facilities. Because Delaware is such a small state, much of the public preference and attitude survey findings are meaningful statewide. However, variations in development density and population composition make it important to examine survey findings at the regional level. The process of ranking facilities was repeated at the municipal level. The following are the high and moderate outdoor recreation facility priorities for Seaford.

High facility needs:	Moderate facility needs:
Walking/Jogging Paths	Nature Programs
Picnic Areas	Boating Access
Passive Recreation Areas	Campgrounds
Bicycle Paths	Horseshoes
Public Swimming Pools	Soccer Fields
Playgrounds	Public Golf Courses
Fishing Access	Softball/Baseball Fields
Hiking Trails	Basketball Courts

The City of Seaford is encouraged to work toward incorporating and/or continuing to offer some of these opportunities in the development of their Comprehensive Plan.

Seaford Outdoor Recreation Inventory

There are 15 parks and/or recreational facilities that are currently within Seaford's municipal boundaries:

- Seaford Community Pool- This facility is located on Virginia Avenue and includes an Olympic sized pool, a kiddie pool, shower facilities, snack bar, picnic tables, a pavilion and shuffleboard. The pool is open from Memorial Day to Labor Day.

- Williams Pond- the City's local ballpark that is operated by the Nanticoke Little League.
- Nutter Park- Located in east Seaford and was named in honor of Henry E Nutter Jr. who served on the City Council for 32 years. The park's facilities include playground equipment and basketball courts.
- Kiwanis Park- A Memorial Park located on Stein Highway that consists of a Veterans Wall and walk.
- Riverview Park- A passive recreational park that is also located on the Nanticoke River at the food of Nanticoke Street. It features a pavilion for picnics.
- Seaford Regional Boat Ramp- Located on the Nanticoke River on the southern edge of the City. It provides boat launching and parking facilities and is actively used.
- Soroptimist Park- Located on Williams Pond and contains a playground, a picnic pavilion, and camping facilities.
- Seaford Gateway Park- A small park located at the intersection of Front Street and High Street. This park serves as the gateway to Seaford's historic downtown district.
- Seaford Tennis Courts- This property is a public park that is also used by the schools for their team sports. It has 10 lighted tennis courts.
- Seaford Community Track Complex- Like the tennis courts, this public park is also used by the schools for team sports. It has a state of the art field, track and soccer field.
- Seaford Sports Complex- This facility is located in Ross Business Park off Market Street Extended. The park contains a softball field and the Jay's Nest, a community playground.
- Western Sussex Boys and Girls Club- approximately 22 acres with active recreation amenities including soccer Fields and baseball fields.
- Seaford River Walk- A walking path that extends along the Nanticoke River east of Market Street.
- Seaford Canoe Launch- located at the end of Water Street.
- Seaford Ball Fields**-** Active recreation site located along Nanticoke Avenue next to Central Elementary School and the Seaford School District Central Offices.

Delaware Land and Water Conservation Trust Fund (DTF)

The Division of Parks and Recreation provides matching grant assistance through the Delaware Land and Water Conservation Trust Fund (DTF) to local governments for land acquisition and for park development. Lands that have received DTF assistance must remain as open space for conservation or recreation purposes in perpetuity. Ten of the recreational sites within the City of Seaford have received funding through the DTF program. They include: Seaford Community Pool, Williams Pond Park, Riverview Park, Soroptomist Park, Seaford Gateway Park, Seaford Tennis Courts, Seaford Community Track Complex, Western Sussex Boys and Girls Club, Seaford River Walk, and the Seaford Sports Complex. The City of Seaford could further benefit from this program when incorporating new outdoor recreational facilities or adding amenities to existing parks. For more information on the Delaware Land and Water Conservation Trust Fund, please contact: Robert Ehemann @ 302.739.9235.

Nanticoke River Captain John Smith Water Trail

The Captain John Smith Chesapeake National Historic Trail was authorized by Congress in 2006 so that visitors to the Chesapeake Bay can understand the significance of John Smith's explorations, and his interaction with and impact upon the rich Native American cultures. Moreover, visitors can come to appreciate and care for the life and landscape of this national treasure, America's largest estuary. The

Trail follows Captain John Smith's voyages up the Nanticoke River. The Trail is a work in progress and comes as a result of the diligent work of many public and private partners. More information on the Captain John Smith National Historic Trail can be found at www.nps.gov/cajo/

This information was compiled by the Delaware Division of Parks and Recreation, Parks Resource Office. For more information on the Statewide Comprehensive Outdoor Recreation Plan and public opinion survey results please contact Kendall Sommers at Kendall.Sommers@state.de.us or 302.739.9235.

Potential Brownfield Sites

DNREC's Site Investigation and Restoration Branch (SIRB) encourages the development of Brownfields and can provide assistance when investigating and remediating Brownfield sites. Although SIRB has no specific comments regarding the proposed comprehensive plan at this time, if any future development occurs on sites with previous manufacturing, industrial, or agricultural use, SIRB recommends that a Phase I Environmental Site Assessment be conducted prior to development, due to the potential for a release of hazardous substances. If a release or imminent threat of a release of hazardous substances is discovered during the course of future development (e.g., contaminated water or soil); construction activities should be discontinued immediately, and DNREC should be notified at the 24-hour emergency number (800-662-8802). In addition, SIRB should be contacted as soon as possible at 302-395-2600 for further instructions.

Water Resources Comments

Page 12, Environmental Concerns, 1st paragraph: The Plan should eliminate the first paragraph under the Environmental Concerns section pertaining to wetland issues, and replace with a new subsection (entitled "Wetlands or Wetland Issues") along with the following narrative. Please consider the following:

"Regulatory protection of wetlands is mandated under Section 404 provisions of the Federal Clean Water Act. Certain other wetlands (mainly in tidal areas) are accorded additional regulatory protection under Title 7 Chapter 66 provisions of the State of Delaware's Code. Compliance with these statutes may require an Army Corps of Engineers approved wetlands delineation and/or official DNREC wetland jurisdictional determination."

Page 12, Environmental Concerns, 2nd paragraph: The Plan should eliminate most of the second paragraph under the Environmental Concerns section pertaining to water quality issues, and replace with a new subsection (entitled "TMDLs") along with the following narrative. Please consider the following:

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). A 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 (WLA's) 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 Total Maximum Daily Load; 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 City of Seaford is located within the greater Chesapeake Bay Drainage; specifically within the Nanticoke River watershed. The pollutants targeted for reduction in the Nanticoke River watershed are nutrients (e.g., nitrogen and phosphorus) and bacteria (See table 1). As mentioned previously, the PCS will require specific actions that reduce nutrient and bacterial loads to levels consistent with the goals and criteria specified in the State Water Quality Standards. The PCS for the Nanticoke watershed is projected for completion/approval by 2010.

Chesapeake Bay drainage	**N- reduction requirements**	**P-reduction requirements**	**Bacteria-reduction requirements**
Nanticoke watershed	30%	50%	2%

Table 1: TMDL Nutrient (Nitrogen and Phosphorus) and Bacteria reduction requirements for the Nanticoke watershed.

Page 13, Soils: The plan should reference the recently completed soil survey update rather than the old soil survey. Please contact Diane Shields at the Natural Resources Conservation Service, 678-4172, for additional information.

<u>Source Water Protection Areas</u>

DNREC Water Supply Section, Ground-Water Protection Branch (GPB) has reviewed the Draft Comprehensive Plan for the City of Seaford. We have referred to the 2007 Plan Update (PLUS 2007-11-12). In addition, GPB reviewed the City's source water protection ordinance, Chapter 15 Article 4B *Well Head Protection Overlay District* as part of this review. We recognize the City of Seaford's efforts in developing the 2008 Comprehensive Plan. However, we strongly urge the City to strengthen references to source water protection in its plan, as well as strengthen its existing ordinance.

1) There is brief discussion in the section entitled *Water* on page 21. The text notes the adoption of the City's Well Head Protection Overlay Zoning District. There is also a sentence stating that the overlay district references wellhead maps 'maintained' by DNREC. As GPB recommended in PLUS 2007-11-12 the Comprehensive Plan needs to formally state adoption of source water protection areas as critical areas in compliance with Title 7 Chapter 60 Subchapter VI, § 6082 (b).

- GPB recommends:

Formally state the adoption of source water protection areas as critical areas in compliance with Title 7 Chapter 60 Subchapter VI, § 6082 (b).

2) GPB found a reference to the Source Water Assessment for the City of Seaford's well field on page 21 of the Comprehensive Plan. GPB could not find any references to excellent ground-water recharge areas in the Comprehensive Plan. In addition, the City is to afford protection to all public water systems within the municipal boundaries not just those owned and operated by City.

- GPB recommends:

  It is strongly suggested in Title 22, Section 702 Del C and it would benefit the City if the 2009 Plan had a separate section for source water protection. This section needs to express an understanding of the concepts of wellhead protection areas and excellent ground-water recharge potential areas. It needs to cite the significance and content of Delaware's Source Water Protection Law. The Plan should express an understanding of the purpose and need for protection. It should also express the intent and implementation of the City's plan to protect the public drinking water supply.

3) The Wellhead Protection Map submitted with the Plan shows both wellhead and excellent ground-water protection areas. The map did not georeference into the ESRI computer program ArcMap without distortion (see map). The map may be suitable for display purposes but should not be used as a reference.

- GPB recommends:

  The City contact DNREC Source Water Protection Program for an updated map showing all the public water systems and areas of excellent recharge.

4) The Comprehensive Plan contains sections on Geology and the Topography and Hydrology of the area as strongly suggested under Title 22, Section 702 Del C. These sections lack literature citations to support the text. The characterization of the Seaford area as having three layers of silts separated by two layers of sand is highly simplistic and is not an accurate depiction. In addition, the author uses the nomenclature of formations when referring to aquifers.

- GPB recommends:

  Correcting these inaccuracies and using citations for the source of the information to support the statements

In addition, the Ground-Water Protection Branch would like to offer several suggestions for strengthening the City's existing ordinance:

1) Sec. 15-62L (6) of the Ordinance states the purpose of protecting Groundwater Recharge Areas (GRA) but does not define the area.

- GPB recommends inclusion of the following language

Those areas with high percentages 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.

2) The term Site Coverage in Sec. 15-62L (7) is confusing. The intent of the ordinance is to apply to the portion of the parcel that lies within the source water protection area.

- GPB recommends

  Clarify the term *Site Coverage*

3) Sec. 15-62N Adoption of Maps only adopts WHPA maps. The statement must include the maps showing excellent ground-water recharge potential area maps.

- GPB recommends formally adopting excellent ground-water recharge potential area maps delineated by DNREC as required by Title 7 Chapter 60 Subchapter VI, § 6082 (b).

4) Sec. 15-62O states in part that if a location of a WHPA or an area of excellent ground-water recharge area is disputed, a survey by a licensed surveyor can serve as the basis to change the boundary. In addition, the City of Seaford Building Official can make the final determination. This statement does not appear to recognize that only DNREC can change the boundary of a wellhead or recharge area. Title 7 Chapter 60 Subchapter VI, § 6082 (e) states "The Department may, when based on sound science and factual information, revise and update the overlay maps of source water assessment areas."

- GPB recommends adopting language from the *Draft Model Ordinance for Smaller Municipalities of Kent and Sussex Counties, Section XXX6 Boundary Determination for SWPA.* This publication can be downloaded from the SWAPP website at

http://www.wr.udel.edu/swaphome/Publications/SWPOrdinances/FinalDraftModelOrdinance_KnS_041408.pdf

5) The ordinance does not differentiate between wellhead protection areas (WHPA) or excellent recharge potential areas in protection. The ordinance must provide for a recommended 150-foot radius around the well annulus that in afforded a higher level of protection.

- GPB recommends that parcels of land within 150-feet of the well annulus should be preserved in a natural condition with the exception of impervious surface limited to building and access associated with the well and distribution and treatment facilities and their maintenance. Please refer to Section XXX4 A) of the *Draft Model Ordinance for Smaller Municipalities of Kent and Sussex Counties*, for additional language.

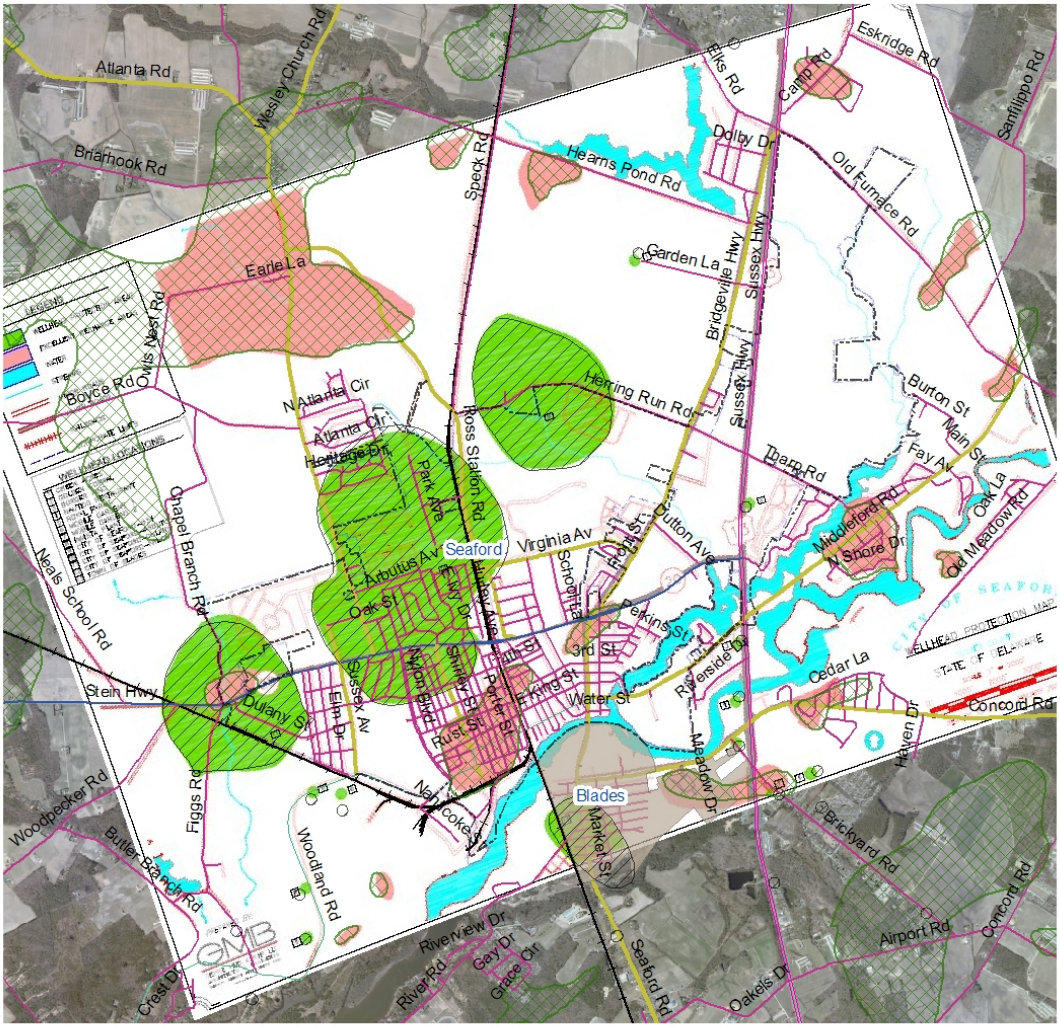
6) Sec. 15-62P (2) allows development to exceed 35% impervious cover without an upper limit. It does not provide for a procedure to quantify the calculation of ground-water recharge. In addition, it does not have an upper limit.

- GPB recommends allowing impervious cover to exceed 35% but under no circumstances allow it to exceed 50%. Please refer to Section XXX4 B) and Section XXX5 A) of the *Draft Model Ordinance for Smaller Municipalities of Kent and Sussex Counties*, for additional language.

DNREC GPB Source Water Assessment and Protection Program staff is available to assist the City in developing these changes.

City of Seaford, DE (PLUS 2009-04-04)

The Wellhead Protection Map submitted in Chapter Three of the Comprehensive Plan is shown georeferenced on the 2007 Aerial Photos of the State. Two symbols for wellhead protection areas and excellent ground-water recharge are shown. these elements are out of alignment and may not accurately depict the location of these elements.



Legend

- Welhead Protection Area
- Excellent Ground-Water Recharge Potential Area
- Water
- DNREC - Excellent Ground-Water Recharge Potential Areas
- DNREC - Wellhead Protection Areas
- DNREC - Seaford Municipal Boundaries

0 0.25 0.5 1 Miles

1:48,000

N

Stormwater/Drainage comments

Page 12, Topography and Hydrology

- Surface water management and the development of a master drainage plan are key elements that are missing in the comprehensive plan. Tax Ditch Organizations within the proposed annexation area for the City are the Bucks Branch Tax Ditch, Herring Run Tax Ditch, Middleford Tax Ditch, Atlanta Devonshire Tax Ditch, and the Priestly Tax Ditch. Along with tax ditches that have an established right-of-way within the Tax Ditch Organizations are a network of private ditches, without right-of-way, that convey surface water to existing tax ditches. Well organized and maintained tax ditches provide the drainage conveyance framework that enables the area to have productive farmland and desirable residences.

- Existing tax ditch rights-of-way should be protected from development encroachment to allow for routine maintenance and periodic reconstruction. Routine maintenance primarily consists of mowing ditch bank vegetation and the removal of small blockages. Periodic tax ditch reconstruction involves the removal of sediment from the ditch bottom to reestablish the original design grade. The removed sediment, referred to as spoil, is typically disposed of by spreading within the tax ditch right-of-way. The placement of permanent obstructions within tax ditch rights-of-way is prohibited. Any change to the location of the tax ditch, or the existing tax ditch rights-of-way, will require a change to the tax ditch court order.

- The City should pursue drainage easements along waterways, ditches, and storm drains where currently there is none. The Drainage Program is aware the City does not want the responsibility of routine maintenance on the conveyances. However the City should have the ability to remove blockages either natural or manmade.

- Be advised the Sediment and Stormwater Program is currently undergoing revisions to the sediment and stormwater regulations. It is unclear at this time when the new regulations will be promulgated.

- The Division of Soil and Water Conservation is requesting that the City incorporate a requirement for a stormwater and drainage review into the City's preapproval requirements for new development requests. Proposed development projects should hold a pre-application meeting with the delegated agency, the Sussex Conservation District, to discuss stormwater and drainage prior to the town reviewing and/or approving plans or issuing building permits. The Sediment and Stormwater Program is set to begin requiring a pre-application meeting for all proposed land disturbing activities that require a detailed Sediment and Stormwater Plan within the coming year. These meetings are structured to assist developers in the design process and for early notification of approval requirements. In order to schedule a pre-application meeting, the applicant must forward a completed Stormwater Impact Study (SIS) to the appropriate Delegated Agency. Please contact Elaine Webb with the DNREC Sediment and Stormwater Program if you have any questions regarding this new process. Please note that this process does not replace the State's PLUS process. The SIS Findings report will also be provided through that process.

- Lines and grades: If the City does not have a lines and grades requirement for new construction, the Division recommends this be considered to help resolve drainage issues arising from new construction during and post construction. County/municipal building inspectors would be able to use approved lines and grades requirement to field verify prior to issuance of Certificate of Occupancy or building permit, as appropriate.

- Explore the feasibility of a stormwater utility to fund upgrades to existing stormwater infrastructure. Upgrades to the stormwater system may reduce pollutant loads and help reach the established total maximum daily load for nitrogen, phosphorus, and bacteria. Reach out to the Sussex Conservation District, Sussex County and the Delaware Clean Water Advisory Council as partners in funding stormwater retrofits.

Page 12, Environmental Concerns

- The Drainage Program recommends including wetlands setbacks as part of the ordinances to protect environmental resources. Wetlands should be protected and a setback of un-subdivided open space should surround them. No portion of any building lot should be within the setback. During prolonged wet periods, the area within the wetland setback 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 setback thereby reducing nuisance drainage complaints.

Page 31, Community Facilities

- Explore the use of drainage ways and other open space set aside for drainage maintenance for bicycle and pedestrian interconnections in new developments. For developments on waterways that are of sufficient size to kayak consider an unimproved launch area in the recreation open space plan. This would allow more residents to access the waterways, in a non-mechanized manner, while keeping the cost of operations and maintenance down.

Page 33, Recommendations

- The Drainage Program recommends each parcel have a tax ditch right-of-way review conducted on the parcel prior to annexation by the Town. Please contact our Georgetown office at (302) 855-1930 to request a review tax ditch rights-of-way on a parcel. When a development project involves a tax ditch, or tax ditch right-of-way, include the Drainage Program in the pre-application meeting with the Sussex Conservation District to discuss drainage, stormwater management, tax ditch maintenance, and the release of stormwater into the tax ditch.

- The Drainage Program recommends existing drainage ways be incorporated into open space plan. However, a maintenance plan needs to be in place should blockages from storm debris, beaver, or other sources occur. The City should identify existing open channels within the City boundary, along with potential annexation sites, as these channels may require maintenance in the future. Most of the channels have trees and wetlands adjacent to the channel and the riparian area provide a multitude of benefits for water quality and wildlife. There must be a balance between preserving the riparian area and having the capability to access the channel to perform maintenance. By identifying such areas now, future development would incorporate

the areas into community open space thereby preserving the riparian area while allowing for channel maintenance access.

Chapter 9, Land Use Plan and Annexation

- The Drainage and Stormwater Section recommends sub watershed planning within the future annexation areas to the west of the City. By utilizing the drainage pattern, the City may be able to combine tax ditch protection, habitat creation, recreation, and stormwater management. The City would need to partner with Sussex County, as the watersheds extend out of the proposed annexation area identified by the City.

- The Drainage Program recommends each parcel have a tax ditch right-of-way review conducted on the parcel prior to annexation by the Town. Please contact our Georgetown office at (302) 855-1930 to request a review tax ditch rights-of-way on a parcel. When a development project involves a tax ditch, or tax ditch right-of-way, include the Drainage Program in the pre-application meeting with the Sussex Conservation District to discuss drainage, stormwater management, tax ditch maintenance, and the release of stormwater into the tax ditch.

- 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 city should be mindful of potential stormwater impacts from the City onto county residents.

- Existing woodland provides valuable wildlife habitat as well as soil erosion protection and water quality filtering. Preserve existing woodland within proposed annexation areas. Do not allow the clearing of woodland to create stormwater management areas. Develop a tree planting guideline, a tree mitigation planting guideline and woodland preservation language to protect the existing woodland from harvest prior to and after annexation.

Plan Implementation

The Plan should offer more specific "actionable" environmental protection strategies than currently offered. Within the Environmental Concerns section, we strongly recommend proposing an ordinance or ordinances which would:

a) Require all applicants to submit to the City a copy of the development site plan showing the extent of State-regulated wetlands (as depicted by the State Wetland Regulatory Maps), and a United States Army Corps of Engineers (USACE) approved wetlands delineation as conditional approval for any new commercial and/or residential development. Additionally, the site plan should depict all streams and ditches which are jurisdictional pursuant to the Subaqueous Act (7 Del. C., Chapter 72) as determined by DNREC.

b) Help protect freshwater wetlands where regulatory gaps exist between federal and state jurisdictions (i.e., isolated wetlands and headwater wetlands).

c) Require a 100-foot upland buffer width from all wetlands or water bodies (including ditches).

Based on a review of existing buffer research by Castelle et al. (1994), an adequately-sized buffer that effectively protects wetlands and streams - in most circumstances - is about 100-foot in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from the landward edge of all wetlands and water bodies (including all ditches).

d) Require an impervious surface mitigation plan for all residential and commercial developments exceeding 20% imperviousness. In commercial developments, it is strongly recommended that pervious paving materials be required on at least 50% of the total paved surface area(s).

e) Require the calculation for surface imperviousness (for both commercial and residential development) take in to account all constructed forms of surface imperviousness - including all paved surfaces (roads, parking lots, and sidewalks), rooftops, and open-water stormwater management structures.

f) Require the assessment of a project's TMDL nutrient loading rate through use of the Department's nutrient budget protocol. The applicant should be further required to use any combination of approved Best Management Practices (BMPs) to meet the required TMDLs for the affected watershed(s) in question.

g) Exclude structural Best Management Practices (BMPs) such as community wastewater treatment areas, open-water stormwater treatment structures and natural areas containing regulated wetlands from consideration as open space.

h) Prohibit development on hydric soil mapping units. Proof or evidence of hydric soil mapping units should be provided through the submission of the most recent Natural Resources Conservation Service soil survey mapping of the parcel, or through the submission of a field soil survey of the parcel by a licensed soil scientist.

i) Require the applicant to use "green-technology" stormwater management in lieu of "open-water" stormwater management ponds whenever practicable.

Literature Cited

Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review.* J. Environ. Qual. 23: 878

Stormwater/Drainage Suggested Additions to a Land Development Code:

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

- As the City of Seaford updates any land use or subdivision codes, the Sediment and Stormwater Program requests the town make a note of the Sediment and Stormwater requirements on any construction-related project application checklists, etc.