SPECIAL UTILITY COMMITTEE

A G E N D A

November 27, 2007 - 4:30 P.M. - **Council Chambers** - City Hall - City of Dover

Public comments are welcomed on any item and will be permitted at appropriate times. When possible, please notify the City Clerk *(736-7008 or e-mail at Tmcdowell@dover.de.us)* ***should you wish to be recognized.***

AGENDA ADDITIONS/DELETIONS

1. Appendix B - Zoning Ordinance, Article 3 - District Regulations, Section 29 - Source Water Protection Overlay Zone (SWPOZ), Section 29.7 - Tier III *(Referred by City Council on October 22, 2007)*

2. Adjournment by 5:45 P.M.

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THE AGENDA ITEMS AS LISTED MAY NOT BE CONSIDERED IN SEQUENCE. THIS AGENDA IS SUBJECT TO CHANGE TO INCLUDE THE ADDITION OR THE DELETION OF ITEMS, INCLUDING EXECUTIVE SESSIONS.

Section 29 Source Water Protection Overlay Zone (SWPOZ)

29.1 Purpose. The purpose of this Source Water Protection Overlay Zone is to provide a safe drinking water supply and to ensure that groundwater is adequately protected and maintained. The Overlay Zone's purpose is to protect public health and safety by minimizing contamination of the aquifer and to ensure that the aquifer is property maintained and supplied with clean water through the reduction of impervious surfaces.

29.2 Definitions.

Aboveground Storage Tank (AST). An AST is a single containment vessel greater than 250 gallons as defined in the Delaware *Regulations Governing Aboveground Storage Tanks*. ASTs with a storage capacity greater than 12,499 gallons containing petroleum or hazardous substances, and ASTs with a storage capacity greater than 39,999 gallons containing diesel, heating fuel or kerosene are subject to the design, construction, operation and maintenance requirements of the Delaware AST regulations.

Hazardous Material. A material which is defined in one or more of the following categories:

> *Ignitable:* A gas, liquid or solid which may cause fires through friction, absorption of moisture, or which has low flash points. Examples: white phosphorous and gasoline. Carcinogenic: A gas, liquid, or solid which is normally considered to be cancer causing or mutagenic. Examples: PCB's in some waste oils.
> *Explosive:* A reactive gas, liquid or solid which will vigorously and energetically react uncontrollably if exposed to heat, shock, pressure or combinations thereof. Examples: dynamite, organic peroxides and ammonium nitrate.
> *Highly Toxic:* A gas, liquid, or solid so dangerous to man as to afford an unusual hazard to life. Example: chlorine gas. Moderately Toxic: A gas, liquid or solid which through repeated exposure or in a single large dose can be hazardous to man. Corrosive: Any material, whether acid or alkaline, which will cause severe damage to human tissue, or in case of leakage might damage or destroy other containers of hazardous materials and cause the release of their contents. Examples: battery acid and phosphoric acid.

Underground Storage Tank (UST). An UST is one or a combination of Tanks including underground Pipes, the volume of which is 10% or more belowground, as defined in the Delaware *Regulations Governing Underground Storage Tank Systems*. The following USTs are not subject to the design, construction, operation and maintenance requirements of the Delaware UST Regulations: Residential Heating Fuel, Agricultural and Residential Motor Fuel USTs less than 1,100 gallons and any UST less than 110 gallons.

29.3 Use and Bulk Requirements. The uses and bulk standards which govern the underlying zoning designations attached to the properties within the Source Water Protection Overlay Zone shall apply in all instances except where uses are specifically prohibited by this section and except pertaining to Impervious Surface, Ground Cover, and Floor Area Ratio. Where issues of Impervious Surface, Ground Cover, and Floor Area Ratio are concerned, the provisions of the Source Water Protection Overlay Zone are the governing provisions, overriding the existing zoning for the property.

29.4 Zone Boundaries. This section of the *Zoning Ordinance* encompasses the lands demarcated on the City of Dover Zoning Map as set forth in Article 2 §2 of this Ordinance, as the Source Water Protection Overlay Zone.

29.5 Uses Prohibited. The following uses are specifically prohibited throughout the Source Water Protection Overlay Zone:

29.51 Uses Prohibited

a) Automobile body/repair shop, motor vehicle, boat or farm equipment service
b) Gas stations and motor vehicle service stations
c) Fleet/trucking/bus terminal
d) Dry cleaner
e) Electrical/electronic manufacturing facility
f) Machine shop
g) Metal plating/finishing/fabricating facility
h) Chemical processing/storage facility
i) Wood preserving/treating facility
j) Junk yard/scrap yard/salvage yard
k) Mines/gravel pit
l) Land divisions resulting in high density (>1 unit/acre) septic systems
m) Equipment maintenance/fueling areas
n) Injection wells/dry wells/sumps, except for single-family residences directing gutter downspouts to a drywell
o) Underground storage tanks
p) All other facilities involving the collection, handling, manufacture, use, storage, transfer or disposal of any solid or liquid material or waste having potentially harmful impact on groundwater quality
q) All uses not permitted in the underlying zone district

29.6 Geothermal Wells. Geothermal wells are permitted uses within the Source Water Protection Overlay Zone in accordance with other City and State regulations.

29.7 Tier 3: Excellent Recharge Areas. Lands defined as Tier 3 lands, are areas which have been identified as 'Excellent Recharge Areas'. Recharge Areas are defined as land with high percentages of sand and gravel that have "excellent" potential for recharge as determined through a Stack Unit Mapping Analysis performed originally by the Delaware Geological Survey.

29.71 Impervious Surfaces. Impervious Surfaces within Tier 3 lands of the Source Water Protection Overlay Zone is limited to a maximum of ~~20%~~ 30%. Limits upon impervious surface apply to portions of a site which is within Tier 3 lands.

29.72 Direct Rooftop Infiltration. Land within Tier 3 of the Source Water Protection Overlay Zone may increase their permitted impervious surface to ~~50%~~ 60% with the implementation of recharge facilities which directly infiltrate rooftop runoff. Where the base zoning permits less than ~~50%~~ 60% impervious surface area, the impervious surface restrictions of the base zone apply when direct rooftop infiltration is applied. Runoff managed in this way must still be treated to improve the quality of the water and remove nutrients and pollutants prior to infiltration.

29.73 Parking Discharge. Stormwater discharge from parking and drive isles is prohibited from crossing or entering land within the Tier 3 area unless it has been treated for quality, in accordance with Delaware Sediment and Stormwater Regulations or is entering a stormwater management facility designed to remove contaminants.

29.74 Redevelopment. Site Modification which requires Site Development Plan Approval must create a 15% reduction in the amount of impervious surface on the site when compared to pre-redevelopment conditions.

(a) If the 15% reduction would require a site to go below the ~~20%~~ 30% maximum impervious surface provision of Section 29.61, then the maximum impervious surface cover for the site is ~~20%~~ 30%.

(b) If direct rooftop infiltration is being employed as per Section 29.72 then only an amount of reduction in impervious surface which is necessary to meet the ~~50%~~ 60% maximum will be required.

(c) In instances where redevelopment of the site is unable to accommodate a 15% reduction in impervious surface, the developer may instead create a 5% reduction in impervious surface with the following conditions:

I. Rooftop stormwater is retained on site for up to a 10-year storm event and is infiltrated on site.
II. Parking lot stormwater runoff is retained on site for up to a 10-year storm event and is treated for quality prior to infiltration.

29.75 Storage Tanks. Underground Storage Tanks are prohibited ~~without exception~~ within Tier 3 lands. Aboveground Storage Tanks which use, store, transfer, or dispose of any solid or liquid material or waste having potentially harmful impact on groundwater quality are prohibited ~~without exception~~ within Tier 3 Lands.

29.76 Site Design. All reasonable efforts must be undertaken to position permanent structures on the portions of the property which are not subject to the Tier 3: Excellent Recharge Area. The particular desires of personal or corporate entities shall not constitute reasonable efforts.

29.77 Alternative Design Standards. It is the intent of this Ordinance to protect, conserve, and improve the available supply of potable water while still maintaining property rights. As such, where the restrictions of this Ordinance prevent development that would otherwise be reasonable and proper according to the base zoning, the applicant may suggest alternative design standards as part of their application and development plan. The Planning Commission may waive specific design standards when in the opinion of the Commission, it has been demonstrated that the use of alternative design standards is desirable and consistent with the protection of water resources. This section does not permit the applicant to propose a use which is specifically prohibited by section.

29.78 Alternative design standards include, but are not limited to changes in building height/stories, floor area ratio, building setbacks, or density.

29.79 Master Plans. Site development which occurs as part of a Site Development Master Plan as specified in the *Zoning Ordinance,* Article 10 §2.58 may consider the area of the entire Tier 3 portion of the master plan area when developing individual phases. This will allow for higher than prescribed amounts of impervious cover on specific portions of the Master Plan so long as the overall impervious surface for the entire Tier 3 Lands in the Plan remains in compliance with this section.

29.8 Tier 2: Primary Wellhead Protection Areas. Lands defined as Tier 2 lands, are areas which have been identified as Primary Wellhead Protection Areas.

29.81 Purpose and Intent. The purpose of the Primary Wellhead Protection Areas is to safeguard the potable water resources of Dover and Kent County and to safeguard the public health, safety, and resources through regulation of land use and development within zones of protection surrounding potable water supply well fields.

29.82 Areas within three hundred (300) feet of the well shall be one hundred (100) percent open space.

29.83 New development within five hundred (500) feet of the well must demonstrate that the new development will not produce, store, transfer or otherwise handle hazardous materials or substances.

29.84 The Primary Wellhead Protection area around the well may be reduced to a one hundred and fifty (150) foot radius provided a hydrogeological report, prepared by a Delaware Registered Geologist and submitted to the satisfaction of the Delaware Geological Survey and the DNREC, is prepared. The report must certify that (1) the minimum 60-day time of-travel from a point to the public water supply well is

maintained and (2) the well draws from a confined aquifer. Upon completion of such a report, the regulations governing Tier 1 lands within the Source Water Protection Overlay Zone will apply.

29.85 Runoff. The natural runoff flowing into wellhead areas shall be allowed and all new stormwater run-off shall be diverted around the wellhead protection areas wherever practical.

29.86 The stormwater system's discharge to Tier 2: Primary Wellhead Protection Areas land shall be by sheet flow through a grassland or discharge from a stormwater management facility having a wetland or aquatic bench. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into a Primary Wellhead Protection Area.

29.87 Boundary Disputes. For primary wellhead protection area boundary determinations, a site-specific geological and hydro-geological analysis shall be performed by a State-registered professional geologist and shall be based upon thorough site investigation, subsurface testing and other testing as may be determined appropriate by the City of Dover.

29.9 Tier 1: Secondary Wellhead Protection Areas. Lands defined as Tier 1 lands, are areas which have been identified as Secondary Wellhead Protection Areas. Secondary Wellhead Areas extend a buffer of 150 feet radius from the well point located in an area of the confined aquifer.

29.91 Purpose and Intent. The purpose of this Secondary Wellhead Protection Areas is to safeguard the potable water resources of Dover and Kent County and to safeguard the public health, safety, and resources through regulation of land use and development within zones of protection surrounding potable water supply well fields.

29.92 Open Space. Areas within fifty (50) feet of the well shall be one hundred (100) percent open space.

29.93 New development within seventy-five (75) feet of the well must demonstrate that the new development will not produce, store, transfer or otherwise handle hazardous materials or substances.

29.94 The natural runoff flowing into wellhead areas shall be allowed and all new stormwater run-off shall be diverted around the wellhead protection areas wherever practical.

29.10 Intergovernmental Coordination

29.101 Review. The City of Dover, through the Development Advisory Committee, will coordinate with the Kent Conservation District and DNREC as necessary to ensure compliance with the Source Water Protection Overlay Zone.

29.102 Memorandum of Understanding. A Memorandum of Understanding must be kept and maintained between the City and any review agencies which evaluate the implementation of the required elements of the Source Water Protection Overlay Zone through the Development Advisory Committee process.

29.11 Data Distribution

29.141 The digital delineation of this overlay zone will be provided upon written request. Distribution of this information will be governed by the City of Dover's Geographic Data Use and Distribution Policy.

29.12 Existing Development. Existing developed land which is located within the Source Water Protection Overlay Zone will be treated as a non-conforming use, subject to the provisions of Article 7.

29.13 Effective Date. The requirements of the Source Water Protection Overlay Zone shall apply to all site plan and subdivision applications filed after adoption of these requirements by City Council.

Other issues:

Existing Residential Lots

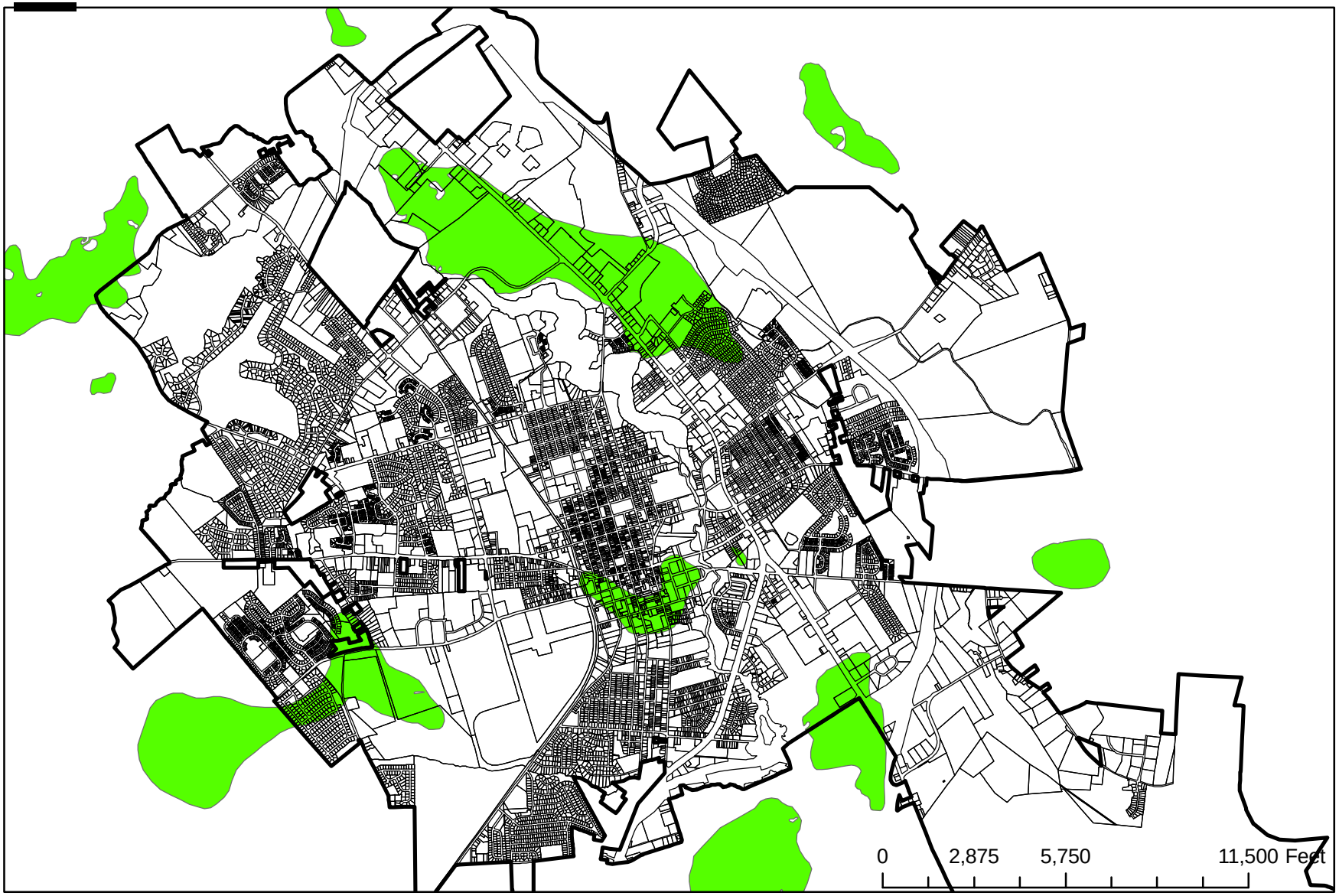
Improvements to Existing Single Family Residential Lots. Additions to existing one-family dwellings, the placement of sheds, and fences are exempt from Section 29.7 and may be permitted when all other applicable zoning district bulk requirements are met.

Procedure for Contesting the delineation of the Source Water Protection Overlay Zone

Data used to define these zones was generated in a report from the Delaware Geological Survey entitled, "Report of Investigations NO.66, Ground-Water Recharge Potential Mapping in Kent and Sussex Counties, Delaware". Any challenges to the delineation of the Source Water Protection Overlay Zone must follow the methods provided in the above sited report to contest the delineation.

Downtown

How do we deal with the downtown area?



Source Water Protection Overlay Zone

Legend

- City of Dover Boundary
- Dover Parcels
- Tier 3

November 27, 2007 Utility Committee

SPECIAL UTILITY COMMITTEE

A Special Utility Committee meeting was held on November 6, 2007 at 5:00 p.m. with Chairman Ruane presiding. Members present were Mr. McGiffin, Mr. Cregar, and Mr. Snaman. Members of Council present were Mr. Salters (arrived at 5:25 p.m.) and Mayor Carey.

AGENDA ADDITIONS/DELETIONS

Mr. Snaman moved for approval of the agenda, seconded by Mr. McGiffin and unanimously carried.

Appendix B - Zoning Ordinance, Article 3 - District Regulations, Section 29 - Source Water Protection Overlay Zone (SWPOZ) ***(Referred by City Council on October 22, 2007)***

During the Regular Council Meeting of October 22, 2007, a public hearing was scheduled to consider the adoption of proposed zoning text amendments that would establish a Source Water Protection Overlay Zone (SWPOZ), which affects over 500 parcels within the City. It was noted that the proposed ordinance was reviewed by the Parks, Recreation, and Community Enhancement Committee during their meeting of October 9, 2007. Based on several comments and other discussions that occurred since the Planning Commission meeting on October 15, 2007, it was staff's opinion that providing for an exemption may not be the best alternative to address impervious cover limitations, and suggested the possibility of balancing important economic development factors with the protection of the recharge areas. Staff recommended that the proposed ordinance be referred to the Utility Committee and that a Public Hearing be rescheduled for January 14, 2008, to allow staff and the Utility Committee to work through these issues to bring forward an ordinance that addresses the concerns realistically. Members of City Council, during their meeting of October 22, 2007, deferred the public hearing for the proposed zoning text amendment and referred the ordinance amending Article 3 - District Regulations, Section 29 - Source Water Protection Overlay Zone (SWPOZ), of the Zoning Ordinance, to the Utility Committee in order to reconsider protective land use policies to protect Dover's excellent water recharge areas and its well-heads and to present a revised ordinance to City Council for public hearing on January 14, 2008.

Members were provided a draft ordinance that depicted changes recommended by the Planning Commission (red text) and Parks, Recreation, and Community Enhancement Committee (blue text).

Mr. Koenig, Public Services Manager, reviewed a presentation of the Dover's Source Water Protection Overlay Zone (***Attachment #1***).

Mrs. Townshend distributed an alternative draft ordinance entitled "Wellhead Protection Only" (***Attachment #2***), and explained that if members are not able to come to a consensus regarding the excellent recharge areas at this time, the alternative could be considered. She explained that the State is requiring the City to adopt the Overlay Zone prior to the end of the year and felt that the alternative may satisfy the requirement at this time.

Responding to Mr. McGiffin, Mr. Barndt, Program Manager for Source Water and Wellhead Protection Programs for the Department of Natural Resources and Environmental Control (DNREC), explained that the definitions for hazardous substances were derived from the record program which is defined by the federal government and includes certain quantities. If there are quantities below a certain threshold, they would not be reportable. He stated that there are specific citations that could be included to clarify hazardous substances.

Mr. McGiffin moved to recommend that staff clarify the application of the phrase "hazardous materials and substances". The motion was seconded by Mr. Snaman and unanimously carried.

Mrs. Townshend assured members that staff will use the definitions provided by the State that references the proper amounts.

In response to Mr. Scott Kidner, representing local realtors, Mrs. Townshend explained that any property owners that would be affected by either the excellent recharge area or the wellhead protection area have been notified by mail twice to date. Although comments have not been received from the property owners within the wellhead protection areas, staff has received comments from the property owners within the excellent recharge area.

Responding to Mr. Ruane's concern for clarification of Subsection 29.87, Boundary Disputes, Mrs. Townshend suggested that "within primary wellhead protection areas" could be added.

Mr. Snaman moved to recommend that staff clarify Subsection 29.87, Boundary Disputes, by including language that specifies that the boundary disputes were specific to the primary wellhead protection areas. The motion was seconded by Mr. McGiffin and unanimously carried.

Mr. Phil McGinnis, McGinnis Commercial Real Estate Company, noted that the "blue" area on the map overlaps the Garrison Property and questioned if the blue area represents the area of the set back from the wells. Responding, Mr. Koenig explained that the blue areas represent the wellheads and from there, you begin to measure your protective measures.

For further explanation, Mr. Barndt stated that the blue area is what is regarded as the entire wellhead protection area for those shallow unconfined wells, which have a much larger wellhead protection area than the confined wells since the confined wells are regarded as naturally protected by overlaying confining layers. He indicated that the setbacks are less than the official wellhead protection area that DNREC delineated for the City.

Mr. Michael Albert, City Planner, advised members that with the Tier 2 areas, what should be kept in mind is that they pertain to the 300-500 foot radius buffered areas around the wells. Everything in Section 29.8 is specific to that radius. The blue and green areas from the recharge all count as the overlay zone; therefore, the areas mentioned in Sections 29.1, 29.2,29.3, 29.4,29.5, and 29.6, pertain to both the green and blue areas. The Tier 1 section is a breakdown of more specific matters around the wells; however, the use restrictions apply to the mile radius around the wells.

Responding to Mr. Moore, Becker Morgan Group, Mrs. Townshend explained that the alternative proposed ordinance, if forwarded for adoption, would require the green areas to be removed from the map and the excellent recharge areas text removed from the ordinance. She noted that the alternative proposed ordinance reserves Section 29.7 for the excellent recharge areas and that when it is adopted, the green areas would be added to the map.

Mr. Moore explained his interpretation of Subsection 29.81(a) that the tier 2 areas (blue areas) will be designated as open space and would, therefore, be unbuildable, and that the government plans to purchase these areas. He questioned if the City of Dover, Kent County, or DNREC intends to purchase these properties. Responding, Mrs. Townshend stated that Subsection 29.81(a) is a policy statement

indicating the City's desire for these areas to be preserved. Developers would be permitted to develop these areas as long as they are in compliance with Subsections 29.82, 29.83, 29.84, 29.85, 29.86, and 29.87.

Mr. Paradee, Attorney with the law firm Pricket, Jones, and Elliott, stated that he represents clients that own property in the tier 2 areas and relayed concern with reference to the areas being designated as open space, as specified in Subsection 29.81(a). If this concept is a policy statement, he suggested that members eliminate it from the ordinance and adopt a resolution, since an ordinance has a force and effect of law. Mr. Paradee suggested the deletion of 29.81(a) in its entirety. With reference to the language regarding hazardous waste, he noted that there are other areas within the ordinance where similar language has been used. He suggested that staff review the proposed ordinance to assure the language is uniform throughout.

Mr. Paradee noted a recent decision by Chancellor Chandler relative to overlay zones being in violation of the uniformity requirements in Title 9 and Title 22 of the Delaware Code. Responding, Mrs. Townshend stated that the City Solicitor has reviewed the proposed ordinance and, since the State Code is requiring the City to adopt the overlay zones, it was the City Solicitor's opinion that there would be no issues. She stated that this is an area where there is conflict within the Delaware Code. She assured members that it is the opinion of the City Solicitor that the City should move forward with the consideration of the proposed ordinance.

Responding to Mr. McGiffin, Mrs. Townshend stated that Subsection 29.81(a) does not provide the City with any additional regulatory authority; however, it does provide a statement of policy. She noted that staff is beginning to work on the Comprehensive Plan and suggested that if this statement is eliminated from the proposed ordinance, staff will include it in the Comprehensive Plan.

Mrs. Townshend stated that if the committee recommends that Council move forward with the alternative ordinance, Wellhead Protection Only, then staff would revise the map by eliminating the green areas.

Ms. Casey, Treasurer for the State Home Builders Association, concurred that Subsection 29.81(a) should be eliminated from the proposed ordinance and that such a policy statement should be included in the Comprehensive Plan.

Mr. Snaman moved to recommend that Subsection 29.81(a) be deleted, seconded by Mr. McGiffin and unanimously carried.

Mr. McGiffin moved to recommend adoption of the alternative proposed ordinance, as amended (*Attachment #3*), and that a public hearing be scheduled accordingly *(It is recommended that a public hearing be set for November 26, 2007, at 7:30 p.m.)* The motion was seconded by Mr. Snaman and unanimously carried.

Mr. Ruane announced that members will further consider the Tier 3, Excellent Recharge Areas (Section 29.7 of the proposed ordinance amendment) during the Utility Committee Meeting on November 27, 2007 at 4:30 p.m.

Mr. Snaman moved for adjournment, seconded by Mr. McGiffin and unanimously carried.

Meeting Adjourned at 6:34 P.M.

Respectfully submitted,

Eugene B. Ruane
Chairman

EBR/TM/jg
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Attachments
Attachment #1 - Presentation of the Dover's Source Water Protection Overlay Zone
Attachment #2 - Alternative Draft Ordinance, entitled "Wellhead Protection Only"
Attachment #3 - Proposed Ordinance (without Section 29.7, Tier 3 - Excellent Recharge Areas)

Dover's Source Water Protection Overlay Zone

Special Utility Committee Meeting

November 6, 2007

ATTACHMENT #1
Special Utility Committee Meeting of 11/06/2007

What Is Source Water Protection?

- Protection of the Public Drinking Water Supply
  - Focus is on both quality and quantity
  - Protection of wellhead areas
  - Protection of excellent recharge areas

Why Is This Important to Dover?

- In Delaware, Dover is a large public water supplier (Regional Supplier – Our position)
- Ground water is the sole source of Dover's water (Three Separate Aquifers)

Water Is an Economic Engine

- Critical Resource Management Issue
- No water = No growth & No economic development
- We have an obligation to our rate payers and bond holders to protect our investment

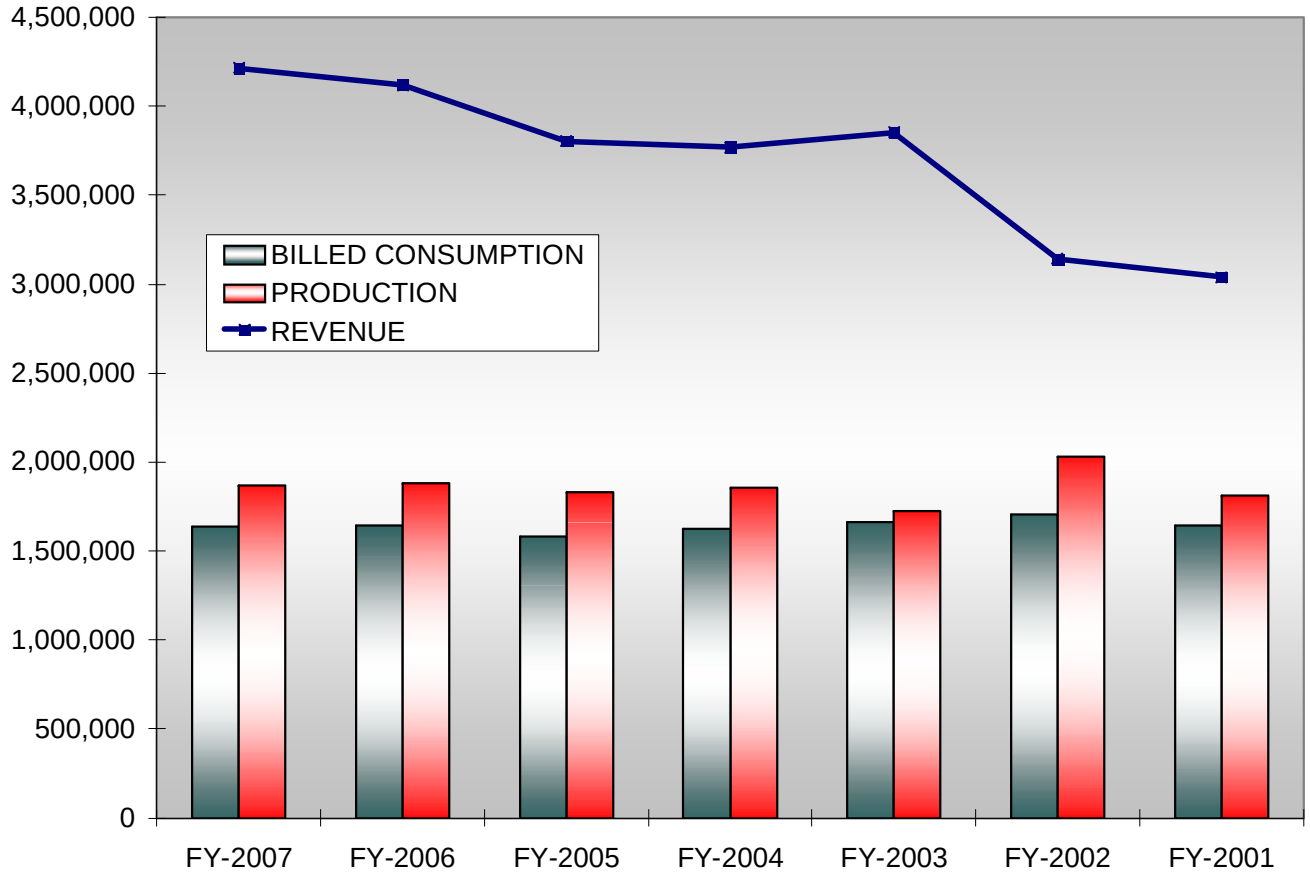
Water System Facts

- Began operations in October 1882
- Initial system, 13,000 lf +/- ($21,000), 1 Well
- Current System, 200 miles, 22 Wells
- Over 12,200 metered connections
- Certificate of Public Convenience & Necessity (CPCN)
- Average daily flow = 5.12 MGD
- Peak summer flow = 9.28 MGD
- Dover is a regional supplier

Who Are Our Largest Customers?

- Delaware State University
- Dover Downs
- Procter & Gamble
- Capitol Cleaners
- Kent General Hospital
- Tidewater Utilities
- Kraft Foods
- Sheraton Hotel
- City of Dover Power Plant
- Playtex Products
- Dover Mall
- Dover Budget Inn
- Kings Cliff Trailer Park
- Olive Garden
- Red Lobster
- Other Hotels

Production / Consumption = $$$$$

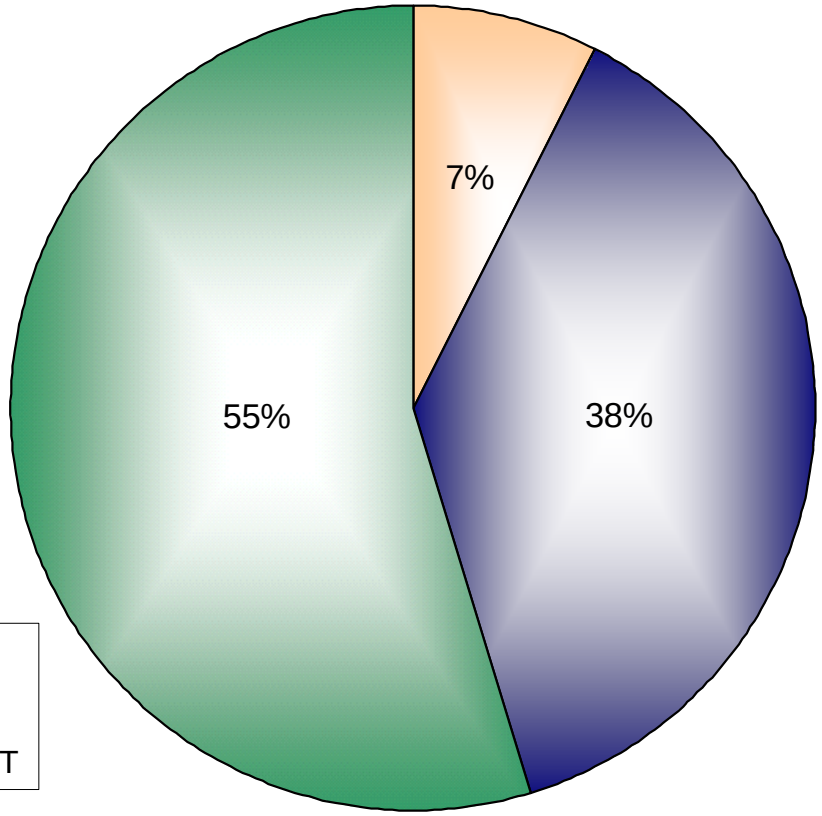


What Is Our Responsibility?

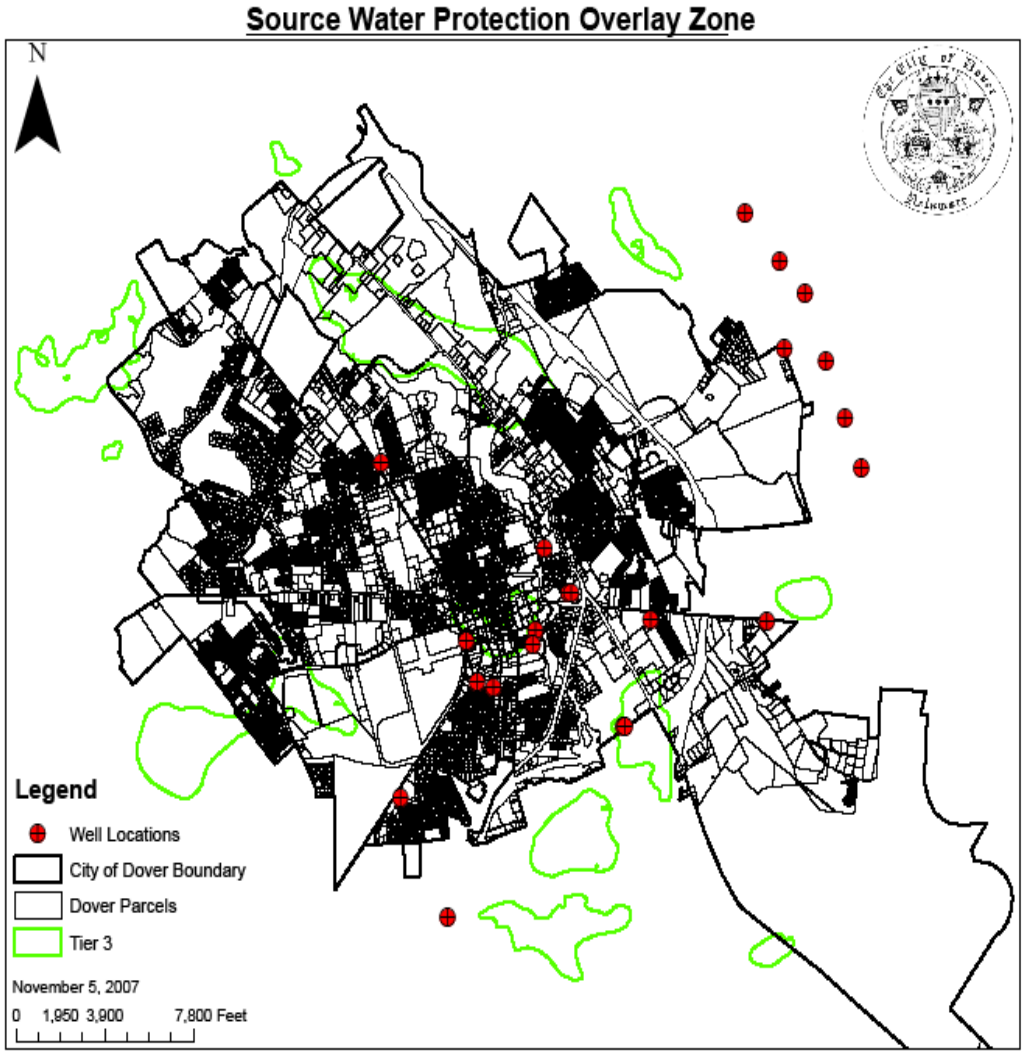
- Source Water Protection Act of 2001
- Dover must adopt maps which delineate:
  - Wellhead Protection Areas (Confined & Unconfined)
  - Excellent Recharge Areas
- Dover must adopt ordinances which regulate land use in these areas to protect our regional supply position and this critical resource.

What Is Our Production Profile?

- Columbia Aquifer
  - Unconfined
  - 7 Wells
- Cheswold Aquifer
  - Confined
  - 9 Wells
- Piney Point Aquifer
  - Confined
  - 6 Wells



Well Locations



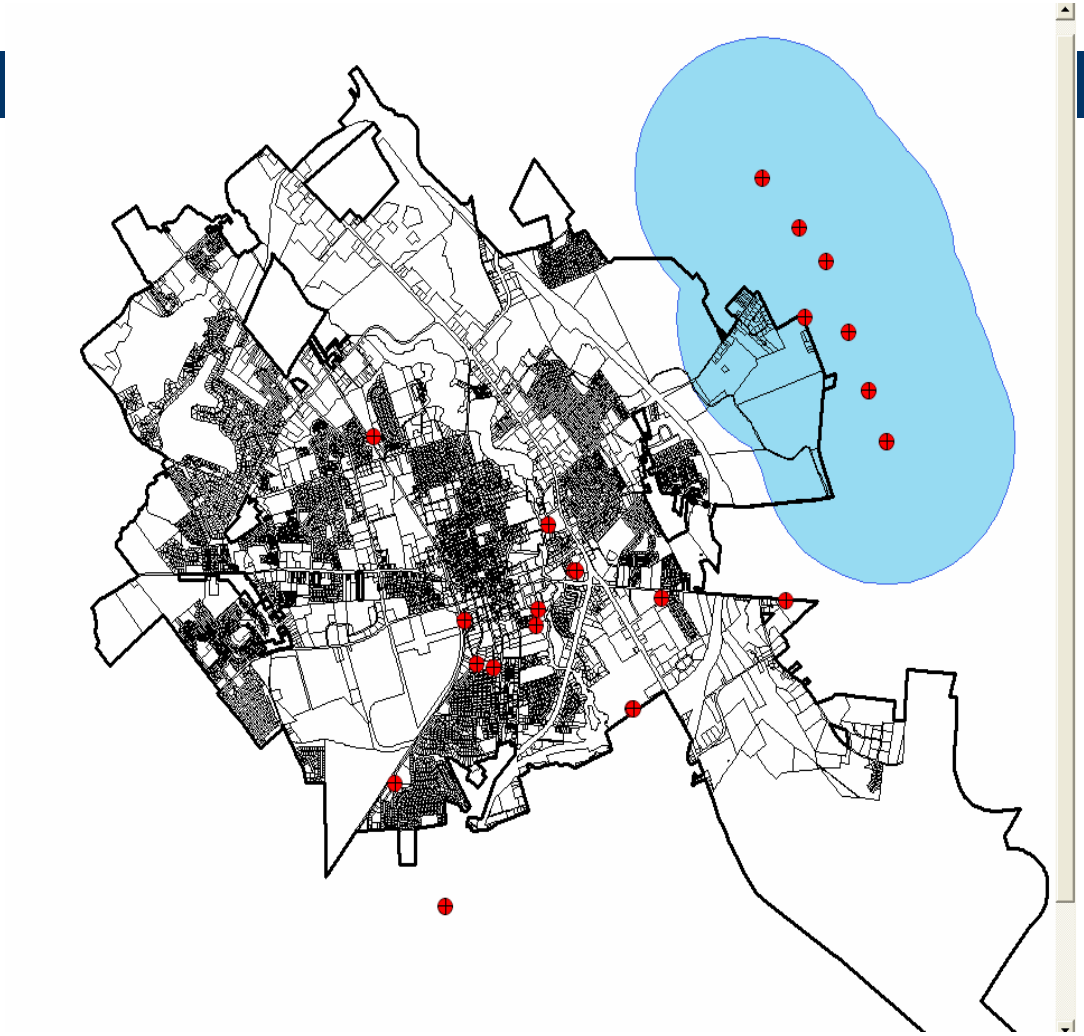
Important Details

- Dover has wellhead areas within our municipal boundaries that we must manage and protect.
- Dover owns wellhead areas outside of our municipal boundaries that must also be protected.
- Dover sits overtop underground aquifers that supply drinking water regionally and also provide base flows for various surface waters.

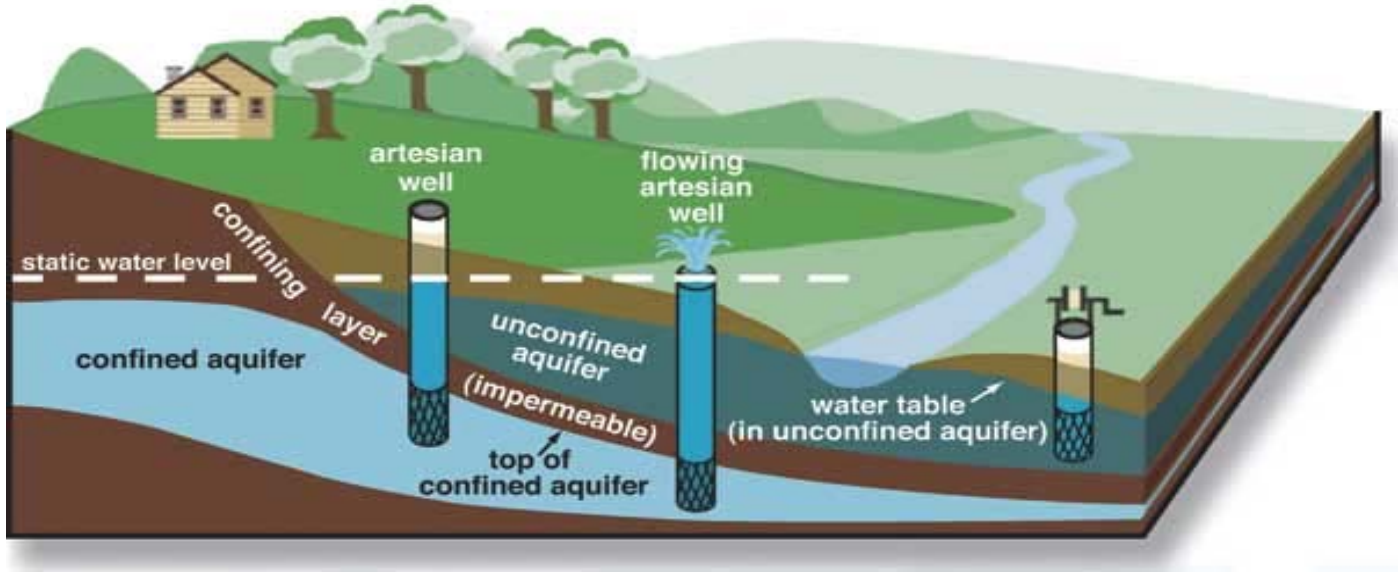
Two Components

- Protect the immediate areas surrounding wells
- Protect the ability of the various aquifers to recharge

Wellhead Protection Areas



Underground Visualization



Source: http://www.kgs.ku.edu/Publications/PIC/23figures/Fig2.jpg

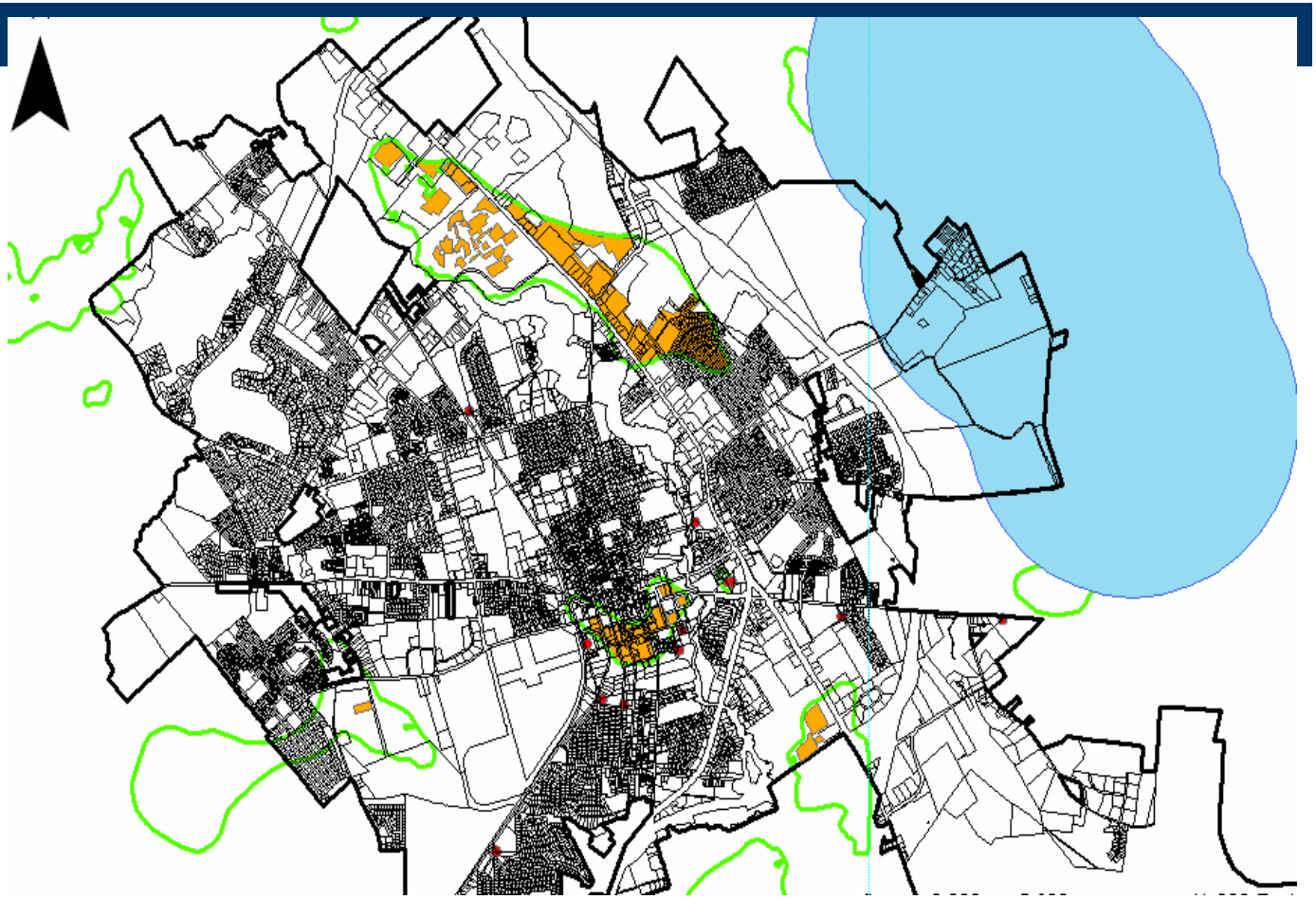
Regulating Wellhead Areas

- Differentiate between wells in the ‘confined’ and ‘unconfined’ aquifers
- Create protective land use policies
- Preserve “critical” open space
- Encourage natural stormwater runoff and redirect impervious cover runoff

Identifying Excellent Recharge Areas



Recharge & Coverage



Recharge

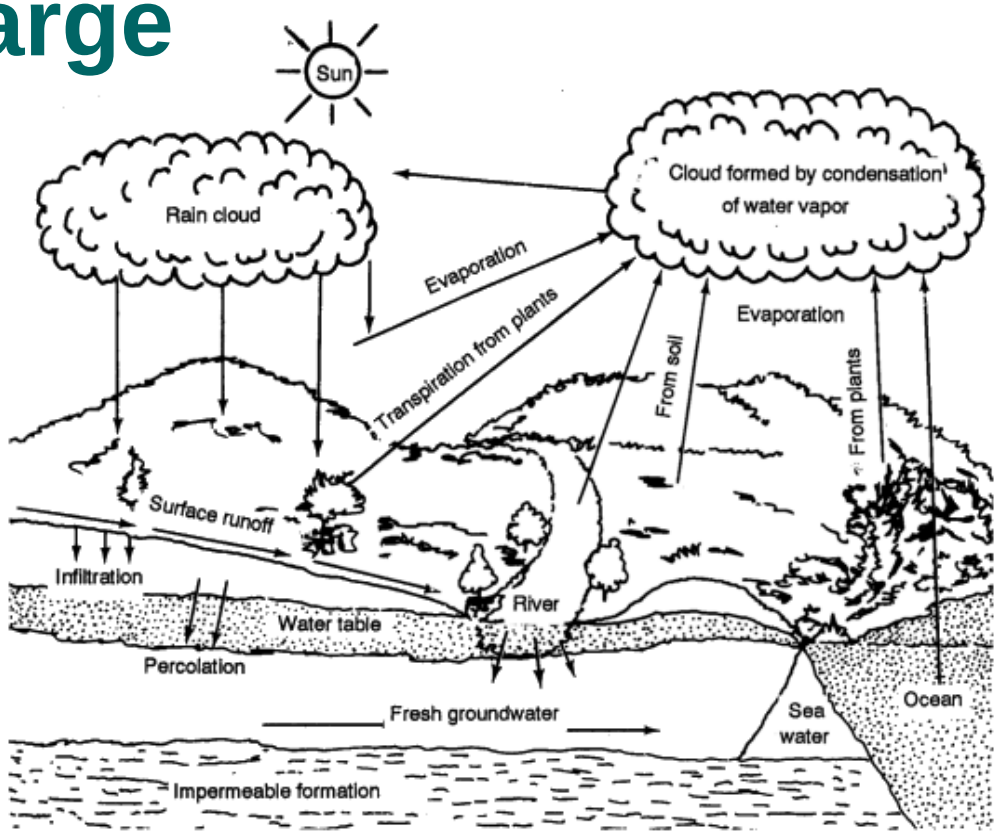


Figure 2-1. Hydrologic cycle

Source: http://www.globalsecurity.org/military/library/policy/army/fm/5-484/fig2-1.gif

Can the Science behind the Mapping Be Challenged?

- Yes
- State law requires use of data developed by DNREC
- Ordinance provides for a procedure to challenge the mapping
- Challenge similar to flood plain and/or wetland delineation

What Is the Value of an Excellent Recharge Area?

1 acre of Excellent Recharge Area =

1.39 acres of Good Recharge Area

6.45 acres of Fair Recharge Area

142 acres of Poor Recharge Area

Source: Andres, A. Scott, 2004, Ground-water recharge potential mapping of Kent and Sussex counties, Delaware: Delaware Geological Survey Report of Investigations No. 66, 20 p. http://www.udel.edu/dgs/Publications/pubsonline/RI66.pdf

Regulating Excellent Recharge Areas

- Create protective land use policies
- Limit impervious cover via best management practices
- Implement 15% impervious cover reduction rule for redevelopment
- Allow for and encourage ‘green design’

The Process

- Staff researched and consulted experts – Draft ordinance
- August 9 - Public Workshop
  - Notified all affected property owners
  - Revised ordinance
- October 9 – Park, Recreation & Community Enhancement Committee
- October 15 – Public Hearing before Planning Commission
  - Notified all affected property owners
  - October 22 – Public Hearing before City Council, Issued referred to the Utility Committee
- December 31 – Deadline for Adoption of the Ordinance
- January 2008 – Public Hearing & Action – City Council

Leadership Issue

- Focus is on the City of Dover
- Current & Future CIP
  - FY 2008 – Well #8 Replacement (Cheswold)
  - FY 2008, FY 2009 & FY 2010 – 1MG Elevated Storage, Piney Point Well
  - FY 2013 – Additional Columbia Well
- Permitting & Funding (State Revolving Fund)
- Regional Position

Path Forward….

Utility Committee
(November 6, 2007)
Wellhead Protection Only

BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF DOVER, IN COUNCIL MET:

That Appendix B - Zoning Ordinance, Article 3 – District Regulations be amended by inserting the a new section as follows:

Section 29 Source Water Protection Overlay Zone (SWPOZ)

29.1 Purpose. The purpose of this Source Water Protection Overlay Zone is to provide a safe drinking water supply and to ensure that groundwater is adequately protected and maintained. The Overlay Zone's purpose is to protect public health and safety by minimizing contamination of the aquifer and to ensure that the aquifer is property maintained and supplied with clean water through the reduction of impervious surfaces.

29.2 Definitions.

Aboveground Storage Tank (AST). An AST is a single containment vessel greater than 250 gallons as defined in the Delaware *Regulations Governing Aboveground Storage Tanks*. ASTs with a storage capacity greater than 12,499 gallons containing petroleum or hazardous substances, and ASTs with a storage capacity greater than 39,999 gallons containing diesel, heating fuel or kerosene are subject to the design, construction, operation and maintenance requirements of the Delaware AST regulations.

Underground Storage Tank (UST). An UST is one or a combination of Tanks including underground Pipes, the volume of which is 10% or more belowground, as defined in the Delaware *Regulations Governing Underground Storage Tank Systems*. The following USTs are not subject to the design, construction, operation and maintenance requirements of the Delaware UST Regulations: Residential Heating Fuel, Agricultural and Residential Motor Fuel USTs less than 1,100 gallons and any UST less than 110 gallons.

29.3 Use and Bulk Requirements. The uses and bulk standards which govern the underlying zoning designations attached to the properties within the Source Water Protection Overlay Zone shall apply in all instances except where uses are specifically prohibited by this section and except pertaining to Impervious Surface, Ground Cover, and Floor Area Ratio. Where issues of Impervious Surface, Ground Cover, and Floor Area Ratio are concerned, the provisions of the Source Water Protection Overlay Zone are the governing provisions, overriding the existing zoning for the property.

29.4 Zone Boundaries. This section of the *Zoning Ordinance* encompasses the lands demarcated on the City of Dover Zoning Map as set forth in Article 2 §2 of this Ordinance, as the Source Water Protection Overlay Zone.

29.5 Uses Prohibited. The following uses are specifically prohibited throughout the Source Water Protection Overlay Zone:

29.51 Uses Prohibited

a) Automobile body/repair shop, motor vehicle, boat or farm equipment service
b) Gas stations and motor vehicle service stations
c) Fleet/trucking/bus terminal
d) Dry cleaner
e) Electrical/electronic manufacturing facility
f) Machine shop
g) Metal plating/finishing/fabricating facility
h) Chemical processing/storage facility
i) Wood preserving/treating facility
j) Junk yard/scrap yard/salvage yard
k) Mines/gravel pit
~~l) Irrigated nursery/greenhouse stock~~
~~m) Confined animal feeding operations~~
n) Land divisions resulting in high density (>1 unit/acre) septic systems
o) Equipment maintenance/fueling areas
p) Injection wells/dry wells/sumps, except for single-family residences directing gutter downspouts to a drywell
q) Underground storage tanks
r) All other facilities involving the collection, handling, manufacture, use, storage, transfer or disposal of any solid or liquid material or waste having potentially harmful impact on groundwater quality
s) All uses not permitted in the underlying zone district

29.6 Geothermal Wells. Geothermal wells are permitted uses within the Source Water Protection Overlay Zone in accordance with other City and State regulations.

29.7

Reserved

29.8 Tier 2: Primary Wellhead Protection Areas. Lands defined as Tier 2 lands, are areas which have been identified as Primary Wellhead Protection Areas.

29.81 Purpose and Intent. The purpose of the Primary Wellhead Protection Areas is to safeguard the potable water resources of Dover and Kent County and to safeguard the public health, safety, and resources through regulation of land use and development within zones of protection surrounding potable water supply well fields.

29.81(a) Future Land Use. The preferred Future Land Use for all property within Tier 2 lands is Open Space. Where possible, land in Tier 2 should be acquired and reserved for permanent Open Space either through purchase or through the use of Transfer of Development Rights.

29.82 Areas within three hundred (300) feet of the well shall be one hundred (100) percent open space.

29.83 New development within five hundred (500) feet of the well must demonstrate that the new development will not produce, store, transfer or otherwise handle hazardous materials or substances.

29.84 The Primary Wellhead Protection area around the well may be reduced to a one hundred and fifty (150) foot radius provided a hydrogeological report, prepared by a Delaware Registered Geologist and submitted to the satisfaction of the Delaware Geological Survey and the DNREC, is prepared. The report must certify that (1) the minimum 60-day time of-travel from a point to the public water supply well is maintained and (2) the well draws from a confined aquifer. Upon completion of such a report, the regulations governing Tier 1 lands within the Source Water Protection Overlay Zone will apply.

29.85 Runoff. The natural runoff flowing into wellhead areas shall be allowed and all new stormwater run-off shall be diverted around the wellhead protection areas wherever practical.

29.86 The stormwater system's discharge to Tier 2: Primary Wellhead Protection Areas land shall be by sheet flow through a grassland or discharge from a stormwater management facility having a wetland or aquatic bench. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into a Primary Wellhead Protection Area.

29.87 Boundary Disputes. For wellhead protection area boundary determinations, a site-specific geological and hydro-geological analysis shall be performed by a State-registered professional geologist and shall be based upon thorough site investigation, subsurface testing and other testing as may be determined appropriate by the City of Dover.

29.9 Tier 1: Secondary Wellhead Protection Areas. Lands defined as Tier 1 lands, are areas which have been identified as Secondary Wellhead Protection Areas. Secondary Wellhead Areas extend a buffer of 150 feet radius from the well point located in an area of the confined aquifer.

29.91 Purpose and Intent. The purpose of this Secondary Wellhead Protection Areas is to safeguard the potable water resources of Dover and Kent County and to safeguard the public health, safety, and resources through regulation of land use and development within zones of protection surrounding potable water supply well fields.

29.92 Open Space. Areas within fifty (50) feet of the well shall be one hundred (100) percent open space.

29.93 New development within seventy-five (75) feet of the well must demonstrate that the new development will not produce, store, transfer or otherwise handle hazardous materials or substances.

29.94 The natural runoff flowing into wellhead areas shall be allowed and all new stormwater run-off shall be diverted around the wellhead protection areas wherever practical.

29.10 Intergovernmental Coordination

29.101 Review. The City of Dover, through the Development Advisory Committee, will coordinate with the Kent Conservation District and DNREC as necessary to ensure compliance with the Source Water Protection Overlay Zone.

29.102 Memorandum of Understanding. A Memorandum of Understanding must be kept and maintained between the City and any review agencies which evaluate the implementation of the required elements of the Source Water Protection Overlay Zone through the Development Advisory Committee process.

29.11 Data Distribution

29.141 The digital delineation of this overlay zone will be provided upon written request. Distribution of this information will be governed by the City of Dover's Geographic Data Use and Distribution Policy.

29.12 Existing Development. Existing developed land which is located within the Source Water Protection Overlay Zone will be treated as a non-conforming use, subject to the provisions of Article 7.

29.13 Effective Date. ~~The effective date for the Source Water Protection Overlay Zone shall be January 1, 2008.~~ The requirements of the Source Water Protection Overlay Zone shall apply to all site plan and subdivision applications filed after adoption of these requirements by City Council.

Utility Committee
(November 6, 2007)
Wellhead Protection Only

BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF DOVER, IN COUNCIL MET:

That Appendix B - Zoning Ordinance, Article 3 – District Regulations be amended by inserting the a new section as follows:

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Hazardous Material. A material which is defined in one or more of the following categories:

> *Ignitable:* A gas, liquid or solid which may cause fires through friction, absorption of moisture, or which has low flash points. Examples: white phosphorous and gasoline. Carcinogenic: A gas, liquid, or solid which is normally considered to be cancer causing or mutagenic. Examples: PCB's in some waste oils.
> *Explosive:* A reactive gas, liquid or solid which will vigorously and energetically react uncontrollably if exposed to heat, shock, pressure or combinations thereof. Examples: dynamite, organic peroxides and ammonium nitrate.
> *Highly Toxic:* A gas, liquid, or solid so dangerous to man as to afford an unusual hazard to life. Example: chlorine gas. Moderately Toxic: A gas, liquid or solid which through repeated exposure or in a single large dose can be hazardous to man. Corrosive: Any material, whether acid or alkaline, which will cause severe damage to human tissue, or in case of leakage might damage or destroy other containers of hazardous materials and cause the release of their contents. Examples: battery acid and phosphoric acid.

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Source Water Protection Overlay Zone

Legend

- City of Dover Boundary
- Dover Parcels
- Tier 1
- Tier 2

Special Utility Committee Meeting
of November 6, 2007