

MODEL MUNICIPAL WELL HEAD PROTECTION ORDINANCE¹
Prepared by Hunterdon Environmental Toolbox Committee
Water Resources Subcommittee, WHP Work Group
2005

Completed reviews:
Water Resources Subcommittee
Joseph Novak, Esq.
Hunterdon County Environmental Toolbox Committee

SUMMARY OF ORDINANCE REGARDING WELL HEAD PROTECTION	2
SECTION I. STATEMENT OF FINDINGS.....	3
SECTION II. PURPOSE.....	3
SECTION III. STATUTORY AUTHORITY	4
SECTION IV. DEFINITIONS	4
SECTION V. ESTABLISHMENT OF WELL HEAD PROTECTION AREAS AND MAPS	10
SECTION VI. REGULATION OF WELL HEAD PROTECTION AREAS.....	11
SECTION VII. BEST MANAGEMENT PRACTICE PERFORMANCE STANDARD.....	13
SECTION VIII. OPERATIONS AND CONTINGENCY PLAN	15
SECTION IX. INSPECTIONS AND ENFORCEMENT.....	17
SECTION X. SEVERABILITY	18
SECTION XI. EFFECTIVE DATE.....	18
Appendix A	19
Appendix B	21

¹ This model ordinance is based in part on a model developed by the Passaic Valley Ground Water Protection Committee, using funding from a Section 319 (h) Grant by the New Jersey Department of Environmental Protection, Division of Watershed Management. The Hunterdon County Environmental Toolbox Committee wishes to thank the PVGWPC for their permission to use and revise their model ordinance.

MODEL MUNICIPAL WELL HEAD PROTECTION ORDINANCE
Prepared by Hunterdon Environmental Toolbox Committee
Ground Water Subcommittee, WHP Work Group

Ordinance Text	Commentary
SUMMARY OF ORDINANCE REGARDING WELL HEAD PROTECTION	
<p>The purpose of this Ordinance is to protect the public health, safety and welfare through the protection of the ground water resources underlying the municipality, and to ensure a supply of safe and healthful drinking water for the present and future generations of local residents, employees and the general public in this municipality, as well as users of these water supplies outside this municipality. Areas of land surrounding each public community water supply well, public noncommunity water supply well, or cluster of domestic wells, known as Well Head Protection Areas (hereinafter “WHPA”), from which contaminants may move through the ground to be withdrawn in water taken from the well, have been delineated. Through regulation of land use, physical facilities and other activities within these areas, the potential for ground water contamination can be reduced. The purpose of the regulations contained in this ordinance is to prevent the migration of potential pollutants from areas within a WHPA into ground water that is withdrawn from a public well or cluster of domestic wells.</p>	<p>This model ordinance provides municipalities with the option of protecting three types of water supply wells:</p> <ul style="list-style-type: none"> • Public community water supply wells • Public noncommunity water supply wells • Clusters of domestic wells <p>Each municipality should identify the wells or well clusters of concern and decided which of the three types should be subject to the protections in this ordinance. The Toolbox Committee does not recommend applying this model ordinance to isolated domestic or nonpublic water supply wells.</p>
<p>Any applicant for a permit requesting a change in land use or any “development” as defined under the provisions of the Municipal Land Use Law and other pertinent regulations, which is located within a delineated WHPA, and which involves a Potential Pollutant Source (hereinafter “PPS”) shall comply with the requirements of this ordinance. This ordinance requires the following:</p> <ul style="list-style-type: none"> ➤ Any change in land use or activity that introduces a Major or Minor PPS shall be prohibited within a Tier 1 WHPA. ➤ Any change in land use or activity that introduces a Major PPS shall be prohibited within a Tier 2 WHPA. ➤ Any change in land use or activity that involves any PPS within any WHPA, that is not prohibited, shall comply with Best Management Practice Standards. ➤ Existing land use activities that pose significant potential threats within a WHPA must be properly managed and monitored. 	<p>The ordinance can be written to focus just on new and modified land uses, or may also focus on improved management of existing land uses that pose potential threats to water supply wells.</p> <p>The ordinance has functions for both the Planning Board/Board of Adjustment (regarding regulation of new land uses – Section VI) and for the municipal Board of Health (regarding ongoing efforts to ensure that land uses are managed properly once they exist – Section VIII).</p>

Ordinance Text	Commentary
SECTION I. STATEMENT OF FINDINGS	
The governing body of [municipality] finds that:	
A. The ground water underlying this municipality is [the sole] [the primary] [the major] source of existing and future water supplies, including drinking water.	Choose one description based on the level of ground water reliance in the municipality.
B. The ground water aquifers are integrally connected with the surface waters, lakes and streams, which also constitute a major source of water for human and ecosystem needs.	
C. Accidental spills and discharges of toxic and hazardous substances may threaten the quality of these ground water supplies and related water sources.	
D. Contaminated water from any source is a detriment to the health, welfare and comfort of the residents of this municipality, and other users of these water resources.	
E. Spills or discharges of hazardous substances or hazardous wastes may contaminate or pollute water. As a preventive measure, the proximity of such materials to sources of water supplies, such as public community wells[, public noncommunity well and cluster of domestic wells], should be restricted so that there will be sufficient time to find and clean up such spills or discharges before water supplies become contaminated.	Include well types as appropriate for the specific municipal needs.
SECTION II. PURPOSE	
The purpose of this Ordinance is to protect the public health, safety and welfare through the protection of the ground water resources underlying the municipality to ensure a supply of safe and healthful drinking water for the present and future generations of local residents, employees and the general public in this municipality, as well as users of these water supplies outside this municipality. Areas of land surrounding each public community well [, public noncommunity well and cluster of domestic wells], known as Well Head Protection Areas (WHPAs), from which contaminants may move through the ground to be withdrawn in water taken from the well, have been delineated. Through orderly regulation of land use, physical facilities and other activities within these areas, the potential for ground water contamination can be reduced. The purpose of the regulations contained in this ordinance is to prevent the migration of potential pollutants to water supply wells.	Include well types as appropriate for the specific municipal needs.

Ordinance Text	Commentary
SECTION III. STATUTORY AUTHORITY	
<p>The municipality of [municipality] is empowered to regulate these activities under the provisions of the New Jersey Municipal Land Use Law, N.J.S.A 40:55D-1 et seq., which authorizes each municipality to plan and regulate land use to secure a safe and adequate drinking water supply for its residents. The Board of Health of this municipality has autonomous power granted by the State Legislature to develop this Ordinance to protect public health, safety and welfare, as set forth in the New Jersey Local Boards of Health Law, N.J.S.A. 26:3-1 et seq.</p>	<p>N.J.S.A. 26:3-31(a) provides that municipal board of health is empowered "To protect the public water supply and prevent the pollution of any stream of water or well, the water of which is used for domestic purposes, and to prevent the use of or to close any well, the water of which is polluted or detrimental to the public health."</p> <p>Each municipality should modify the language regarding its contract to the County Health Department as appropriate.</p> <p>Note: For Counties with a County Board of Health, the New Jersey County Environmental Health Act, N.J.S.A. 26:3A2-21 et seq. also provides authority to the County Board of Health where the municipal Board of Health has delegated enforcement of its regulations to the County Board of Health.</p>
SECTION IV. DEFINITIONS	
<p>Administrative Authority – The Planning Board or Board of Adjustment and the Board of Health, acting jointly and/or in consultation, with all of the powers delegated to, assigned to, or assumed by them according to statute or ordinance.</p>	
<p>Applicant – Person applying to the Board of Health, Planning Board, Board of Adjustment or the Construction Office proposing to engage in an activity that is regulated by the provisions of this ordinance, or that owns or operates an existing Major Potential Contaminant Source (hereinafter “PCS”), and that would be located within a regulated Well Head Protection Area.</p>	

Ordinance Text	Commentary
<p>Aquifer – A formation, group of formations, or part of a formation that contains sufficient saturated permeable rock, sand, or gravel that is capable of storing and transmitting usable quantities of water to wells and springs.</p>	
<p>Best Management Practices (hereinafter “BMP”) – Performance or design standards established to minimize the risk of contaminating ground water or surface waters while managing the use, manufacture, handling or storage of hazardous substances or hazardous wastes.</p>	
<p>Cluster of Domestic Wells – a grouping of wells providing potable water supplies to individual homes, with either: (1) 5 homes on lots that cumulatively are less than or equal to 2.5 acres; or (2) 25 homes on lots that cumulatively are less than or equal to 25 acres. Groups of domestic wells that otherwise meet the thresholds but have a linear configuration (e.g., stretched along a road, not in a cluster) shall not constitute a Cluster of Domestic Wells.</p>	<p>Definition is based on having a dense enough grouping of wells that they create a potential to affect ground water flow and contaminant migration in aquifers typical of Hunterdon County. Different geology and soils may be of interest in other counties, leading to different thresholds for a cluster of domestic wells.</p>
<p>Contaminant – a substance capable of causing contamination of a water supply.</p>	
<p>Contamination – The presence of any harmful or deleterious substances in the water supply, including but not limited to hazardous substances, hazardous wastes, and substances listed in the NJ Administrative Code at NJAC 7:6-6 (Ground Water Quality Standards), NJAC 7:9B (Surface Water Quality Standards) and NJAC 7:10 (NJ Safe Drinking Water Act Regulations), and as these regulations may be, from time to time, amended.</p>	<p>These lists contain many of the same substances, but are not mutually inclusive. Having the definition contain the references provides the greatest level of coverage and allows for changes over time.</p>
<p>Development – The division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any building or other structure, or of any mining, excavation of landfill, and any use or changing use of any building or other structure, or land or extension of use of land, or for which permission may be required pursuant to the Municipal Land Use Law. N.J.S.A. 40:55D-1, et. seq. (hereinafter “MLUL”)</p>	<p>This definition is direct from the MLUL. It is worth noting that, according to the MLUL: "Subdivision means the division of a lot, tract or parcel of land into two or more lots, tracts, parcels or other divisions of land for sale or development. The following shall not be considered subdivisions within the meaning of this act, if no new streets are created: (1) divisions of land found by the planning board or subdivision committee thereof appointed by the chairman to be for agricultural purposes where all resulting parcels are 5 acres or larger in size, (2) divisions of property by testamentary or intestate provisions, (3) divisions of property upon court order, including but not limited to</p>

Ordinance Text	Commentary
	<p>judgments of foreclosure, (4) consolidation of existing lots by deed or other recorded instrument and (5) the conveyance of one or more adjoining lots, tracts or parcels of land, owned by the same person or persons and all of which are found and certified by the administrative officer to conform to the requirements of the municipal development regulations and are shown and designated as separate lots, tracts or parcels on the tax map or atlas of the municipality. The term 'subdivision' shall also include the term 'resubdivision.'"</p>
<p>Discharge – Any intentional or unintentional action or omission, unless pursuant to and in compliance with the conditions of a valid and effective Federal or State Permit, resulting in the releasing, spilling, pumping, pouring, emitting, emptying or dumping of a hazardous substance into the waters or lands of the State or into waters outside the jurisdiction of the State when damage may result to the lands, waters or natural resources within the jurisdiction of the State.</p>	
<p>Ground Water – Water contained in interconnected voids of a saturated zone in the ground. A saturated zone is a volume of ground in which the voids in the rock or soil are filled with water greater than or equal to atmospheric pressure.</p>	
<p>Hazardous Substance – Any substance designated under 40 CFR 116 pursuant to Section 311 of the Federal Water Pollution Control Act Amendments of 1972 [Clean Water Act] (Public Law 92-500; 33 U.S.C. 1251 et seq.), the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq., or Section 4 of the New Jersey Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and as these regulations may, from time to time, be amended. Substances listed include petroleum, petroleum products, pesticides, solvents and other substances.</p>	<p>The intent of this definition is to provide an inclusive list of substances that have been found to be hazardous under at least one major statute, federal or state.</p>
<p>Hazardous Waste – Any solid waste that is defined or identified as a hazardous waste pursuant to the Solid Waste Management Act, N.J.S.A. 13:1E et seq., N.J.A.C. 7:26-8, or 40 CFR Part 261.</p>	
<p>Major Potential Contaminant Sources (PCS) – include the following, consistent with the New Jersey Safe Drinking Water Act regulations, N.J.A.C. 7:10-11.7 through 12.12: 1) Permanent storage or disposal of hazardous wastes, industrial or</p>	<p>NOTE: Some dry cleaning facilities (#10) are just drop off/pick up sites, where no actual dry cleaning is performed and therefore no chemicals are stored or used. Such drop</p>

Ordinance Text	Commentary
<p>municipal sludge or radioactive materials, including solid waste landfills.</p> <p>2) Collection and transfer facilities for hazardous wastes, solid wastes that contain hazardous materials, and radioactive materials.</p> <p>3) Any use or activity requiring the underground storage of a hazardous substance or waste in excess of an aggregate total of 50 gallons.</p> <p>4) Underground fuel and chemical storage and oil tanks regulated by NJDEP under provisions of the Underground Storage of Hazardous Substances Act (N.J.S.A. 58:10A-21 et seq.).</p> <p>5) Above-ground storage facility for a hazardous substance or waste with a cumulative capacity greater than 2,000 gallons.</p> <p>6) Any industrial treatment facility lagoon.</p> <p>7) Any facility with a SIC Code number included under the New Jersey Safe Drinking Water Act Regulations at N.J.A.C 7:10A-1.14, Table II(N), with a toxicity number of II or greater. (See Appendix A.)</p> <p>8) Automotive service center (repair & maintenance).</p> <p>9) Landfill.</p> <p>10) Dry cleaning processing facility.</p> <p>11) Road salt storage facility.</p> <p>12) Cemetery.</p> <p>13) Highway maintenance yard.</p> <p>14) Truck, bus, locomotive maintenance yard.</p> <p>15) Site for storage and maintenance of heavy construction equipment and materials.</p> <p>16) Site for storage and maintenance of equipment and materials for landscaping.</p> <p>17) Livestock operation containing more than X animal units as defined by the New Jersey Department of Agriculture pursuant to its regulations at NJAC XXXX [in development as of April 2005].</p> <p>18) Quarrying and/or mining facility.</p> <p>19) Asphalt and/or concrete manufacturing facility.</p> <p>20) Junkyard/auto recycling and scrap metal facility.</p> <p>21) Residential or agricultural motor fuel in NJDEP exempted underground storage tanks (i.e., under 1,000 gallons).</p>	<p>off/pick up sites are not to be regulated as a Major PCS.</p> <p>NOTE 2: NJDEP’s current regulations under the Underground Storage of Hazardous Substances Act (N.J.S.A. 58:10A-21 et seq.) may require that a municipality proposing to exclude the type of underground storage tanks regulated under the Act from a WHPA must receive NJDEP authorization to be more stringent than the NJDEP regulations. This provision definitely applies if an underground storage tank is to be allowed, but with design or monitoring requirements that exceed those in NJDEP’s regulations. Until NJDEP modifies its regulations to address this issue, municipalities should submit their WHPA ordinances to NJDEP for certification, just to be sure that the municipality is within its legal authority.</p> <p>NOTE 3: The NJ Department of Agriculture is developing rules regulating livestock manure management. This rule will have two thresholds for application. The WHP Model Ordinance will use the lower of the two NJDAg thresholds as the threshold for a “Minor PCS” and the higher of the two NJDAg thresholds as the threshold for a “Major PCS.”</p>
<p>Minor Potential Contaminant Sources (PCS) – include the following, consistent with the New Jersey Safe Drinking Water Act, N.J.A.C. 7:10-11.7 through 12.12:</p> <p>1) Underground storage of hazardous substance or waste of less than 50</p>	<p>NOTE: The NJ Department of Agriculture is developing rules regulating livestock manure management. This rule will have two</p>

Ordinance Text	Commentary
<p>gallons.</p> <p>2) Underground heating oil storage tank with a capacity of less than 2,000 gallons.</p> <p>3) Sewage treatment facility regulated by a NJPDES permit granted under NJAC 7:14A.</p> <p>4) Sanitary sewer system, including sewer line, manhole, or pump station. (See conditions in Section VI.G.)</p> <p>5) Industrial waste line. (See conditions in Section VI.G.)</p> <p>6) Septic leaching field.</p> <p>7) Facility requiring a ground water discharge permit issued by the NJDEP pursuant to N.J.A.C 7:14A et seq.</p> <p>8) Stormwater retention-recharge basin.</p> <p>9) Dry well. (See conditions in Section VI.G.)</p> <p>10) Storm water conveyance line. (See conditions in Section VI.G.)</p> <p>11) Waste oil collection, storage and recycling facility.</p> <p>12) Agricultural chemical bulk storage and mixing or loading facility including crop dusting facilities.</p> <p>13) Above-ground storage of hazardous substance or waste in quantities of less than 2,000 gallons.</p> <p>14) Livestock operation containing more than X animal units as defined by the New Jersey Department of Agriculture pursuant to its regulations at NJAC XXXX.</p> <p>15) Other PCS of similar nature that are not listed in (1) through (13) above or in the definition of Major PCS</p>	<p>thresholds for application. The WHP Model Ordinance will use the lower of the two NJDAg thresholds as the threshold for a “Minor PCS” and the higher of the two NJDAg thresholds as the threshold for a “Major PCS.”</p>
<p>NJDEP – New Jersey Department of Environmental Protection.</p>	
<p>Person – Any individual, public or private corporation, company, partnership, firm, association, owner or operator, political subdivision of this State, and any state, Federal or interstate agency or an agent or employee thereof.</p>	
<p>Potential Contaminant Source (PCS) – Activity or land use that may be a source of a contaminant that has the potential to move into ground water withdrawn from a well.</p>	
<p>Public Community Well – A public water supply well that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.</p>	<p>Definition same as in NJAC 7:10-1.3.</p>

Ordinance Text	Commentary
<p>Public Noncommunity Well – a public water supply well that is not a public community well and that regularly serves at least 25 individuals for at least 60 days in any given calendar year.</p>	<p>This definition includes wells for both public noncommunity transient and nontransient water supply systems as defined by NJAC 7:10-1.3.</p>
<p>SIC-- Standard Industrial Classification.</p>	
<p>Time of Travel (TOT) – The average time that a volume of water will take to travel in the saturated zone from a given point to a pumping well.</p>	
<p>Tier 1 Well Head Protection Area – That area of land within a WHPA from which ground water may enter the well within 2 years. (See maps referenced under Section V, or Master Plan.)</p>	
<p>Tier 2 Well Head Protection Area – That area of land within a WHPA from which ground water may enter the well within 5 years but more than 2 years. (See maps referenced under Section V, or Master Plan.)</p>	
<p>Tier 3 Well Head Protection Area – That area of land within a WHPA from which ground water may enter the well within 12 years but more than 5 years. (See maps referenced under Section V, or Master Plan.)</p>	
<p>Well Head – The well borehole and appurtenant equipment for a public community well, public noncommunity well, or domestic well within a cluster of domestic wells.</p>	
<p>Well Head Protection Area (WHPA) – An area described in plan view around a well, from which ground water flows to the well and ground water contamination, if it occurs, may pose a significant threat to the quality of water withdrawn from the well.</p>	
<p>WHPA – Well Head Protection Area.</p>	

Ordinance Text	Commentary
SECTION V. ESTABLISHMENT OF WELL HEAD PROTECTION AREAS AND MAPS	
A. Well Head Protection Area Maps:	
1) The delineations of Tier 1, Tier 2 and Tier 3 of Well Head Protection Areas shall be established in the following manner:	Inclusion of Well Head Protection Area Zoning into Master Plan: The municipal Master Plan provides the legal basis for zoning and land use regulation at the local level. The technical foundation for local well head protection in this municipality should be incorporated into the Master Plan. A technical report on the need for well head protection in [municipality] may be adopted as part of the Master Plan (N.J.S.A 40:55D-28b(11)). The technical report should include the following information:
a. Public community wells, as published by the New Jersey Geological Survey of the New Jersey Department of Environmental Protection, are incorporated herein and made a part of this Ordinance. The WHPAs are designated as follows: New Jersey Well Head Protection Areas, Edition 2, Geospatial Data Presentation, New Jersey Digital Data Series, DGS02-2, dated 18 June 2002, or more current version as updated and published by NJDEP. A description of these WHPAs, which has been excerpted from these materials, is appended as Appendix B.	<ul style="list-style-type: none"> • A statement setting forth the rationale and need to protect the public water supply through a program of well head protection for public community wells.
b. Public noncommunity wells, as defined by the Calculated Fixed Radius Method of the New Jersey Geological Survey Open File Report OFR-03-1 (2003 or most current version), and as delineated in the most current Source Water Assessment Report published by the NJDEP for each public noncommunity well.	<ul style="list-style-type: none"> • Reference to the method used to delineate the Well Head Protection Areas (WHPAs) according to the "tiered" level of protection for public community wells based upon the time of travel (TOT) of ground water, as developed by the New Jersey Geological Survey.
c. Clusters of domestic wells, using the area created by delineating a boundary around the outer perimeter of the cluster of domestic wells, as Tier 1, and then defining Tier 2 and Tier 3 using the Calculated Fixed Radius Method of the New Jersey Geological Survey Open File Report OFR-03-1 (2003 or most current version).	The method for clusters of domestic wells is adapted from a report by the Cape May County Planning Board, 1992, "Well Head Protection for Domestic Well Clusters;" the adaptation addresses the difference between sand aquifers and the rock aquifers typical of Hunterdon County by using the cluster of wells itself as Tier 1 and then using the NJGS report as the source of circular diameters for Tiers 2 and 3.
d. A map of the Well Head Protection Areas located within [municipality] is included as part of this Ordinance, is appended as Figure [?], and is adopted as of [date] [or is included in the Master Plan adopted as of [date]]. Maps of the municipality on which these delineations have been overlain shall be on file and maintained by the offices of the Clerk of [municipality], and of the Board of Health of [municipality] and the County Board of Health Office	

Ordinance Text	Commentary
<p>2) Well Head Protection Areas, as shown on the maps described in Section V.A(1), shall be considered to be superimposed over any other established zoning district. Land in a Well Head Protection Area may be used for any purpose permitted in the underlying district, subject to the additional restriction set forth herein.</p>	<p>It is expected that WHPAs for clusters of domestic wells will be needed only for existing developed areas, as future developments will either use public supplies (if developed compactly) or have large enough lots that a cluster would not be formed.</p>
<p>B. Assignment of Restriction within Well Head Protection Areas:</p>	
<p>1) Properties located wholly or partially within a Well Head Protection Area shall be governed by the restrictions applicable to the Well Head Protection Area.</p>	<p>WHPAs will frequently cut across parcels, and this ordinance should apply to the full WHPA, including affected parts of all parcels.</p>
<p> </p>	
<p>SECTION VI. REGULATION OF WELL HEAD PROTECTION AREAS</p>	
<p> </p>	
<p>A. Any applicant for a permit requesting a change in land use or any “development” as defined under the provisions of the Municipal Land Use Law and other pertinent regulations of [municipality], [code references], and which is located within a delineated WHPA, as defined in Section V, that involves a Major or Minor PCS, as defined in Section IV, shall comply with the requirements of this ordinance.</p>	<p> </p>
<p>B. Any applicant for a permit requesting a change in land use or development which is subject to the requirements of this ordinance, shall file an Operations and Contingency Plan, as required by Section VIII, with the Administrative Authority. No permit that allows a change in land use or development, which is subject to the requirements of this ordinance, shall be granted unless an Operations and Contingency Plan for the proposed change has been approved by the Administrative Authority. Any plan approved by the Administrative Authority shall be kept on file in the office of the [office] of [municipality], and shall be available to the public for inspection.</p>	<p>A municipality may choose to have the Board of Health review all Plans, regardless of the type of permit or approval sought, and then provide a report to the Administrative Authority if that is not the Board of Health. Alternatively, a consultant may be used.</p>
<p>C. Any existing land use or activity that constitutes a Major PCS, as defined in Section IV, and is located within Tier 1 or 2 of a WHPA shall comply with the provisions of Section VIII.C.</p>	<p>This provision is Board of Health function.</p>

Ordinance Text	Commentary
<p>D. Any change in land use or activity that introduces a Major or Minor PCS, as defined in Section IV, shall be prohibited within a Tier 1 WHPA. In the event that the proposed configuration of a specific lot does not allow placement of a proposed Minor or Major Potential Contaminant Source outside of the Tier 1 WHPA, and the combination of the municipality's Development Regulations and the provisions of this ordinance would prohibit any economically viable land use, then the applicant may submit a Variance Application, and upon submission of required proofs under the MLUL and testimony as to the constraints on the property as a result of this Ordinance, be granted a variance, with any appropriate conditions deemed necessary by the Planning Board / Board of Adjustment, for the installation of a Minor PCS with Best Management Practices as would apply within the Tier 2 WHPA, with such variance being limited to the minimum necessary to provide for an economically viable land use.</p>	<p>Tier 1 is very close to a well, and a ground water contamination incident often will not be discovered or corrected in time to project the water supply. A municipality considering this model ordinance should ensure that its zoning and the WHP overlay do not constitute a "taking" by (among other things) carefully comparing the uses allowed by the underlying zoning and those prohibited within the WHPA (Tier 1 <u>and</u> Tier 2).</p> <p>Please note the underground storage tanks issue described in the Section IV definition of Major PCS.</p>
<p>E. Any change in land use or activity that introduces a Major PCS, as defined in Section IV, shall be prohibited within a Tier 2 WHPA.</p>	<p>Tier 2 is far enough away from the well that Minor PCS are not likely to cause a problem, but Major PCS can still contaminate the well in less time than a remedial action usually requires for any major discharge.</p>
<p>F. Any change in land use or activity that involves any PCS, as defined in Section VII, within any WHPA, that is not prohibited pursuant to Section VI.D. or VI.E., shall comply with the Best Management Practice Standards, as defined in Section IX.</p>	
<p>G. Any change in an existing land use or activity that involves replacing an existing Major or Minor PCS with an equivalent Major or Minor PCS (e.g., a replacement septic system, sewer line, parking lot or underground storage tank) shall be permitted if the replacement:</p> <ol style="list-style-type: none"> 1) does not involve an increase in capacity to the PCS; 2) will meet the applicable Best Management Practices from Section VII; 3) will be located as far from the affected well as is reasonably feasible within the existing property; and 4) will result in a reduction of risk to ground water quality. 	<p>This provision is written to prevent a situation where an upgrade to an existing potential contaminant source would be prohibited due to its location in Tier 1 or 2 of a well head protection area. Some facilities require periodic replacement (e.g., septic system leaching fields) and prohibiting that upgrade would be contrary to the intent of protection the affected well.</p>

Ordinance Text	Commentary
<p>H. This Ordinance is supplementary to other laws and Ordinances in this municipality. Where this Ordinance or any portion thereof imposes a greater restriction than is imposed by other regulations, the provisions of this Ordinance shall supersede. These Rules and Regulations shall in no way affect the limitations or requirements applicable in the underlying municipal land use and zoning districts.</p>	<p>The WHP Ordinance is essentially an overlay ordinance for land use regulation purposes, and should be addressed in the Master Plan in this manner.</p>
<p>I. Conditions:</p> <p>(a) Sanitary sewer lines, industrial waste lines and storm water conveyance lines may be located no closer than 100 feet to a well head, and only within a Tier 1 or 2 areas if they are constructed of watertight construction (that is steel, reinforced concrete, cast iron, PVC or other suitable material with watertight construction and verification).</p> <p>(b) Manhole and/or connections to a sanitary sewer system are prohibited within 100 feet of a regulated well.</p> <p>(c) Dry wells dedicated to roof runoff and serving residential properties or commercial or industrial properties with SIC codes not listed in Appendix A may be located no closer than 100 feet to a well head.</p>	<p>Because these lines and facilities are underground, hard to monitor and linear, they can pose a major threat to a well unless watertight.</p>
<p>SECTION VII. BEST MANAGEMENT PRACTICE PERFORMANCE STANDARD</p>	
<p>Any applicant proposing any change in land use or activity that involves any PCS, as defined in Section IV, that would be located either wholly or partially within any WHPA shall comply with and operate in a manner consistent with the following Best Management Practices:</p>	<p>These provisions heavily emphasize measures to sequester hazardous substances from any contact with water, or risk of migration from proper use areas.</p>
<p>A. All portions or areas of a facility in which hazardous substances or hazardous wastes are stored, processed, manufactured or transferred outdoors, shall be designed so that the discharges of hazardous substances will be prevented from overflowing, draining, or leaching into the ground water or surface waters.</p>	<p>Facilities with industrial stormwater permits, especially individual permits, should already be in compliance with many of these provisions.</p>
<p>B. Outdoor storage, dispensing, loading, manufacturing or processing areas of hazardous substances or hazardous wastes must be protected from precipitation, stormwater flows and flooding.</p>	

Ordinance Text	Commentary
<p>C. Wherever hazardous substances are stored, processed, manufactured or transferred outdoors, the design features shall include secondary containment and/or diversionary structures which may include but not be limited to:</p> <ul style="list-style-type: none"> (a) Containers, dikes, berms or retaining walls sufficiently impermeable to contain spilled hazardous substances, for the duration of a spill event. (b) Curbing. (c) Gutter, culverts and other drainage systems. (d) Weirs, booms and other barriers. (e) Lined diversion ponds, lined lagoons and lined retention basins, holding tanks, sumps, slop tanks and other collecting systems. (f) Drip pans. 	
<p>D. Secondary containment and/or diversionary systems, structure or equipment must meet the following standards:</p>	
<p>(a) The system must block all routes by which spilled hazardous substances could be expected to flow, migrate, or escape into the ground water or surface waters.</p>	
<p>(b) The system must have sufficient capacity to contain or divert the largest probable single discharge that could occur within the containment area, plus an additional capacity to compensate for any anticipated normal accumulation of rainwater.</p>	
<p>(c) In order to prevent the discharge of hazardous substances into ground water, all components of the system shall be made of or lined with impermeable materials sufficient to contain the substance for the duration of a spill event. Such material or liner must be maintained in an impermeable condition.</p>	
<p>(d) No manufacturing area, processing area, transfer area, dike storage area, or other storage area, or secondary containment/diversion system appurtenant thereto shall drain into a watercourse, or into a ditch, sewer, pipe or storm drain that leads directly or indirectly into a surface or subsurface disposal area, unless provision has been made to intercept and treat any spilled hazardous substances in an NJDEP approved industrial wastewater treatment or pre-treatment facility, or other NJDEP approved facility.</p>	

Ordinance Text	Commentary
(e) Catchment basins, lagoons and other containment areas that may contain hazardous substances should not be located in a manner that would subject them to flooding by natural waterways.	
E. Stormwater shall be managed so as to prevent contamination of ground water, and so as to be in accordance with applicable laws and regulations of the State of New Jersey, and of [municipality].	
F. The provisions of this section shall not apply to the extent that they are either superceded by or less stringent than any relevant and applicable State law or regulation, including but not limited to the Underground Storage Tank regulations at N.J.A.C. 7:14B.	
SECTION VIII. OPERATIONS AND CONTINGENCY PLAN	
<p>A. Any applicant proposing any change in land use or development that involves any PCS, as defined in Section IV, that would be located either wholly or partially within any WHPA shall submit an Operations and Contingency Plan to the Administrative Authority. This Operations and Contingency Plan shall inform the Administrative Authority about the following aspects of the proposal:</p> <ol style="list-style-type: none"> 1) Types of PCS proposed for the site; 2) Types and quantities of hazardous substances or hazardous wastes that may be used or stored on site; 3) Means to be employed to contain or restrict the spillage or migration of hazardous substances or hazardous wastes from the site into ground water; 4) Means to be used to contain or remediate accidental spillage of such materials; 5) Means to notify administrative authority about any accidental spillage of such materials; 6) Demonstration that the proposed use and/or development would employ, to the maximum extent possible, best management practices as set forth in Section VII, to protect ground water quality in the WHPA and minimize the risk of potential ground water contamination. 7) Where a Major or Minor PCS is allowed to be developed pursuant to Section VI of this ordinance may submit a permit or certification from 	<p>This model ordinance focuses on major and minor new potential contaminant sources, many of which tend to be owned by businesses or government. However, residential storage, use and disposal of chemicals can be a major concern, especially in clusters of domestic wells.</p> <p>Municipalities are advised to consider ways in which homeowners, renters and other residents can be educated about the potential for well contamination from residential chemicals and hazardous wastes.</p> <p>The provision at A(7) avoids a situation of duplicate regulation by the municipality and the State for an new potential contaminant source that is otherwise permitted to be developed under Section VI. The municipality should accept such permits as sufficient for well head protection. Because State permits rarely consider siting issues with regard to well head</p>

Ordinance Text	Commentary
<p>the New Jersey Departments of Agriculture or Environmental Protection that specifically addresses the components listed in Section VIII.A(1) through (6) as the Operations and Contingency Plan for that Major or Minor PCS.</p>	<p>protection zones, they so should not affect a decision under Section VI as to whether the PCS should be allowed at that location.</p>
<p>B. The Administrative Authority shall review, and shall approve or reject, in consultation with the Board of Health, and Operations and Contingency Plan prior to approving or denying the application for a land use change or development.</p>	
<p>C. Any existing Major PCS located within Tier 1 or Tier 2 of a WHPA shall submit an Operations and Contingency Plan to the Board of Health, with the components listed in Section VIII.A(1) through (6), within six months of the effective date of this ordinance.</p>	<p>This provision was written to improve controls on existing facilities, so that a municipality is not regulating new PCS and not existing. The language is written to avoid a situation where a Major PCS submits an unsatisfactory Plan and then continues to resubmit versions that still don't meet the requirements, as a way of delaying its compliance requirement.</p>
<p>1) The Operations and Contingency Plan shall be implemented within six months of approval, unless the Board of Health approves an alternative schedule.</p>	
<p>2) The Board of Health shall review and approve or disapprove the Plan within 2 months of receipt. If disapproved, the Plan must be resubmitted within 1 month of disapproval for Board of Health review.</p>	
<p>3) Regardless of Plan approval status, the provisions of Section IX regarding inspections and enforcement shall apply to all existing Major PCS.</p>	
<p>4) An existing Major PCS that is currently regulated by the New Jersey Departments of Agriculture or Environmental Protection in a manner that addresses the components listed in Section VIII.A(1) through (6) shall submit the State permit or certification to the Board of Health as the Operations and Contingency Plan for that Major PCS. The State permit or certification shall only apply to the Major PCS specified in the permit or certification, and not to any other Major PCS on the property. Acquisition of a State permit or certificate does not exempt new Major or Minor PCS from regulation under Section VI of this ordinance.</p>	<p>This provision avoids a situation of duplicate regulation by the municipality and the State for an existing potential contaminant source. The municipality should accept such permits as sufficient for well head protection, and without a review fee. However, State permits rarely consider siting issues, and so should not affect a decision under Section VI as to whether the PCS should be allowed at that location.</p>
<p>D. Any Operations and Contingency Plan submitted shall be available for public review and comment.</p>	

Ordinance Text	Commentary
<p>E. Each Major PCS shall be licensed by the board of health, and the license shall require continued conformance with the approved Operations and Contingency Plan. The licensing year shall run from January 1st through December 31st.</p>	<p>This provision ensures ongoing BMPs for any Major PCS, through an annual license similar to those required of retail food establishments.</p>
<p>F. Each licensed Major PCS shall submit an annual inspection fee of \$_____ to the Board of Health and also shall submit an annual evaluation of the Operations and Contingency Plan and any recommended changes thereto, as a condition of continuing operations.</p>	<p>Inspections do have a cost associated with them, due to the need for technical expertise. For new facilities, this cost is covered as part of the construction inspection process. However, a fee will be required to cover the annual inspection costs. To avoid burdening minor facilities, the fee and annual expectation are applied only to a Major PCS.</p>
<p>SECTION IX. INSPECTIONS AND ENFORCEMENT</p>	
<p>If, upon inspection, a condition which is in violation of this Ordinance is discovered, a civil action may be commenced by the municipality or the Board of Health in the Special Part of the Superior Court, or in the Superior Court, if the primary relief sought is injunctive or if penalties may exceed the jurisdictional limit of the Special Civil Part, by the filing and serving of appropriate process. Nothing in this Ordinance shall be construed to preclude a municipality's right, pursuant to N.J.S.A 26:3A-25, to initiate legal proceedings hereunder in Municipal Court. The violation of any section or subsection of this Ordinance shall constitute a separate and distinct offense independent of the violation of any other section or subsection, or of any order issued pursuant to this Ordinance. Each day a violation continues shall be considered a separate offense. Inspections shall be performed on the following basis:</p> <ol style="list-style-type: none"> 1. A prompt investigation shall be made by the appropriate personnel of the Health Department of [municipality], of any person or entity believed to be in violation hereof. 2. An investigation of an existing Major PCS shall be made approximately one year after the effective date of this ordinance, regardless of the status of approval for an Operations and Contingency Plan under Section VIII.C, to determine whether the Major PCS poses an imminent threat of contamination within the WHPA. 	

Ordinance Text	Commentary
<p>3. An inspection of each Major PCS approved under Section VIII.B shall be made to confirm that the Major PCS has been constructed in accordance with the land use approval.</p> <p>4. An annual inspection of each Major PCS shall be made to confirm that the Major PCS is operating in accordance with its Operations and Contingency Plan as approved under Section VIII.</p>	
<p>SECTION X. SEVERABILITY</p>	
<p>If any section, sentence, clause or phrase of this Ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holdings shall in no way affect the validity of the remaining portions of this Ordinance.</p>	
<p>SECTION XI. EFFECTIVE DATE</p>	
<p>This Ordinance shall take effect upon final adoption and publication in accordance with the law on [date].</p>	

Appendix A

Types of Facilities that are Major Potential Pollutant Sources		
Facilities with Toxicity Ratings of II or Greater		
N.J.A.C. 7:10A-1.14(c)4, Table II(N)		
<i>SIC Code for Industrial Facility*</i>	<i>Description of Industrial Facility which includes activities that may release hazardous substances</i>	<i>Toxicity Rating</i>
Any SIC Code	All ground water remediation of toxic substances, including priority pollutants	V
Any SIC Code	Contaminated storm water runoff from any type of facility listed below	
0721	Crop dusting and spraying	IV
10xx	Metal mining	V
12xx	Coal mining	III
1475	Phosphate rock mining	IV
22xx	Textile mills with finishing operations (dyeing, coating, etc.)	V
2491	Wood preserving	VI
2493	Reconstituted wood products	II
25xx	Furniture & fixtures with metal finishing	V
261x, 262x, 263x	Pulp, paper, and paperboard mills	V
27xx	Printing & publishing	II
2812	Inorganic chemicals, alkalies & chorine	V
2813	Industrial gases	II
2816	Inorganic pigments	IV
2819	Industrial inorganic chemicals	IV
282x	Plastic materials & synthetic resins	V
283x	Drugs	V
284x	Soaps, detergents, etc.	III
285x	Paints, etc.	IV
2861	Gum & wood chemicals	III
2865, 2869	Industrial organic chemicals	VI
2879	Pesticides & agricultural chemicals	VI
289x, except 2891	Miscellaneous chemical products	IV
2891	Adhesives & sealants	V
29xx	Petroleum refining	V
30xx	Rubber & plastic products	IV
3111	Leather tanning & finishing	IV
331x, except 3313	Steel mills	VI
3313	Electrometallurgical products, except steel	III
332x	Iron & steel foundries	V
333x	Primary smelting, nonferrous metals	VI
334x	Secondary smelting, nonferrous metals	V
335x	Rolling, drawing, extruding, nonferrous metals	V
336x	Nonferrous foundries	V
339x	Miscellaneous primary metals products	V
341x, 342x, 343x, 344x, 345x, 346x, except 3431 & 3463	Fabricated metal products, with metal finishing	V
3431	Enameled sanitary ware, cast iron basis	VI
3463	Nonferrous forgings	V
347x	Plating & coating	V
348x	Ordinance, with metal finishing	V
348x	Ordinance, explosive load, assembly, packing	IV
349x, except 3497	Miscellaneous fabricated metal products, with metal finishing	V
3497	Metal foil & leaf	V

<i>SIC Code for Industrial Facility*</i>	<i>Description of Industrial Facility which includes activities that may release hazardous substances</i>	<i>Toxicity Rating</i>
35xx	Industrial/commercial machinery & equipment, with metal finishing	V
36xx	Electronic equipment, with metal finishing or porcelain enameling	V
3624	Carbon & graphite products	V
3671	Cathode ray tubes	V
3672	Printed circuit boards	V
3674	Semiconductors	VI
3679	Electronic crystals only	III
3691, 3692	Batteries	IV
37xx, except 3731	Transportation equipment, with metal finishing	V
3731	Shipbuilding	IV
38xx	Measuring, analyzing & controlling instruments, with metal finishing	V
3844, 3845	Measuring, analyzing & controlling instruments, with electron tube manufacture	V
3861	Photographic related chemicals	V
39xx	Miscellaneous manufacturing industries, with metal finishing	V
4231	Trucking terminals	III
4493	Marinas	III
4499	Water transportation services	III
46xx	Pipelines, except natural gas	V
4911, 4931	Electric services	IV
4941	Water supply	IV
4953	Solid waste facilities	IV
4953	Hazardous waste treatment facilities	VI
5052	Coal & other minerals & ores	V
5093	Scrap & waste materials	VI
5169	Chemicals & allied products	VI
5171	Petroleum bulk stations & terminals	V
5191	Farm supplies	IV
7211, 7215, 7216 & 7217	Laundries, dry-cleaning & carpet/upholstery cleaning	II
7213, 7218	Linen supply & industrial launderers	IV
7342	Disinfecting & pest control services	VI
7389	Solvents recovery services only	VI
7542	Car & truck washes	II
7699	Repair shops, with metal finishing	V
8062	General medical & surgical hospitals	VI
8069	Specialty hospitals	VI
8071	Medical laboratories	VI
8731	Commercial research organizations	IV
8733	Noncommercial research organizations	IV

* For the purposes of this table, SIC (Standard Industrial Classification) Codes are determined from the Federal Standard Industrial Classification Manual (1987) issued by the United States Office of Management and Budget.

Appendix B
New Jersey Department of Environmental Protection (NJDEP) Delineations
of Well Head Protection Areas (WHPAs) around Public Community Water Supply Wells

Excerpts from:

New Jersey Geological Survey, New Jersey Department of Environmental Protection,
New Jersey Public Community Water Supply Well Head Protection Areas, Edition 2,
Geospatial Data Presentation, New Jersey Digital Data Series, DGS02-2, dated 18 June 2002.

Description of WHPAs: A Well Head Protection Area (WHPA) is an area calculated around a Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of groundwater captured by a well pumping at a specific rate over two-, five-, and twelve-year periods of time. The area of capture is defined using line boundaries and polygon areas generated with the ARC/INFO Geographic Information System (GIS). GIS coverages are produced for each PCWS well and for the set of all PCWS wells in a county using the ARC/INFO UNION command on individual coverages. WHPA delineation methods are described in "Guidelines for Delineation of Well Head Protection Areas in New Jersey" (<<http://www.state.nj.us/dep/njgs/whpaguide.pdf>>). An ARC/INFO point coverage of associated PCWS wells is available as N.J. Geological Survey Digital Geodata Series DGS97-1 (<<http://www.state.nj.us/dep/njgs/geodata/dgs97-1.htm>>).

Internet Address:

<<http://www.state.nj.us/dep/njgs/geodata/dgs02-2.htm>>

NJDEP Data Distribution Agreement:

The Data provided herein are distributed subject to the following conditions and restrictions.

I. Description of Data to be Provided: For all data contained herein, NJDEP makes no representations of any kind, including, but not limited to, the warranties of merchantability or fitness for a particular use, nor are any such warranties to be implied with respect to the digital data layers furnished hereunder. NJDEP assumes no responsibility to maintain them in any manner or form.

II. Terms of Agreement:

1. Digital data received from the NJDEP are to be used solely for internal purposes in the conduct of daily affairs.

2. The data are provided, as is, without warranty of any kind and the user is responsible for understanding the accuracy limitations of all digital data layers provided herein, as documented in the accompanying cross-reference files (see Section 1.14 CROSS_REFERENCE). Any reproduction or manipulation of the above data must ensure that the coordinate reference system remains intact.

3. Digital data received from the NJDEP may not be reproduced or redistributed for use by anyone without first obtaining written permission from the NJDEP. This clause is not intended to restrict distribution of printed mapped information produced from the digital data.

4. Any maps, publications, reports, or other documents produced as a result of this project that utilize NJDEP digital data will credit the NJDEP's Geographic Information System (GIS) as the source of the data with the following credit/disclaimer: "This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized."

5. Users shall require any independent contractor, hired to undertake work that will utilize digital data obtained from the NJDEP, to agree not to use, reproduce, or redistribute NJDEP GIS data for any purpose other than the specified contractual work. All copies of NJDEP GIS data utilized by an independent contractor will be required to be returned to the original user at

the close of such contractual work. Users hereby agree to abide by the use and reproduction conditions specified above and agree to hold any independent contractor to the same terms. By using data provided herein, the user acknowledges that terms and conditions have been read and that the user is bound by these criteria.

Process Description:

The WHPA delineations were created using the methods outlined in "Guidelines for Delineation of Well Head Protection Areas in New Jersey" available as a download at <http://www.state.nj.us/dep/njgs/whpaguide.pdf>. Coordinate files delineating each WHPA boundary were generated using a custom MS-DOS program on-file at the offices of the N.J. Geological Survey. The MS-DOS coordinate files are formatted as ARC/INFO coverages and contain line attributes specifying each time of travel tier for groundwater to the well. Each coverage was built as both a line and a polygon coverage having both arc and polygon attributes for the three Time of Travel (TOT) tiers. PCWS wells were located using a Global Positioning System (GPS). WHPA delineations are considered to have an accuracy of plus or minus 40 feet in any direction from the mapped location. WHPA delineations for wells completed in the glacial sand and gravel aquifer were clipped to a custom hydrologic boundary. Sand and gravel aquifers occur where deposits are more than 50 feet thick. The hydrologic boundary is generated as a 2000 foot buffer around the polygon representing the contact of the sand and gravel aquifer for those areas where the aquifer is less than 50 feet thick. This distance was selected based on an average distance between the 50 and 100 foot thickness contours of the sand and gravel aquifer. The average inter contour distance was doubled to provide a conservative estimate of the thickness variation. Therefore, any portion of the WHPA delineation that lies beyond this extent is clipped.