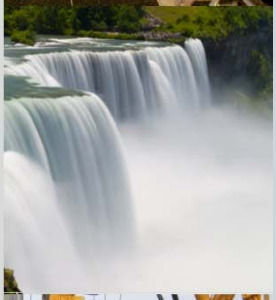
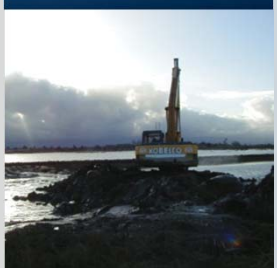
S.S. Papadopulos & Associates, Inc.
Environmental and Water Resource Consultants





Source Water Protection Plan for the Woodsboro, Maryland Public Water System

October, 2013

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Source Water Protection Plan for the Woodsboro, Maryland Public Water System

Prepared for:
Maryland Department of the Environment
Water Supply Program
(Purchase Order # P2400301)

Prepared by:

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October, 2013

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ArcGIS Shapefiles for Source Water Assessment Areas

List of Acronyms

AGPD	Average Gallons per Day
BMP	Best Management Practices
CEM	Chesapeake Environmental Management
ESD	Environmental Site Design
GIS	Geographic Information System
GPD	Gallons per Day
IOC	Inorganic Compounds
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
MGPD	Maximum Gallons per Day
OCP	Oil Control Program
PCE	Tetrachloroethylene
PCS	Potential Contaminant Source
PWS	Public Water System
PWSID	Public Water System Identification
SOC	Synthetic Organic Compounds
SSP&A	S.S. Papadopulos & Associates
SWAA	Source Water Assessment Area
SWPP	Source Water Protection Plan
TTHM	Total Trihalomethanes
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WHPA	Wellhead Protection Area
WHPO	Wellhead Protection Ordinance

REPORT

Section 1
Introduction

This Source Water Protection Plan (SWPP) was prepared for the Woodsboro Public Water System by S.S. Papadopulos & Associates (SSP&A) and Chesapeake Environmental Management (CEM). The plan was initiated and funded by the Maryland Department of the Environment (MDE) under Purchase Order # P2400301.

In the early 2000s, the MDE completed or contracted out completion of Source Water Assessments (SSWAAs) for public water systems (PWS) across the state. These reports were developed in accordance with Maryland's Source Water Assessment Plan (1999). The content of these reports included

- Designation of Source Water Assessment Areas (SWAAs)
- Identifying Potential Sources of Contamination, and
- Completing a Susceptibility Analysis for each PWS groundwater source.

Woodsboro's SWAP was completed by MDE in 2005 (MDE, 2005). In addition, a Source Water Protection Plan was completed by the Town's Source Water Protection Committee in 2010 (Woodsboro Source Water Protection Planning Committee, 2010). This report updates and amplifies the information in both of those reports.

A significant portion of the current report is an update to the previous Source Water Assessment Report, including an update to the SWAAs. Recommendations included within the report, however, go beyond those in the original Source Water Assessment Report (MDE, 2005).

In completing this report, MDE provided assistance through access to files, databases, and GIS data. The report contents were discussed with representatives of Woodsboro, and input was solicited prior to finalization to help ensure that recommendations for Source Water Protection were consistent with the Town's needs and resources.

1.1 Community Involvement

Opportunities for public involvement were provided during the course of this project. The goals and scope of the project were presented at a public meeting on March 13, 2012 at the Woodsboro Fire Hall. Public notices prior to this meeting included an announcement in the Frederick News Post.

Draft versions of this report were provided to the Woodsboro Town Council for discussion in the Town Workshop meetings. The final version will be presented to the Town Council for adoption.

Section 2
Background

The Woodsboro Public Water System (PWS) is operated by the town of Woodsboro. It is located in Frederick County, approximately 10 miles northeast of the town of Frederick (Figure 1), and serves approximately 456 homes.

The town of Woodsboro encompasses approximately 450 acres at an elevation of approximately 300 to 400 ft MSL, rising to about 500 feet on the eastern edge. The entire town is situated within the Middle Potomac River watershed, and Israel Creek flows southward through the town.

Currently the Town obtains its drinking water supply entirely from five wells.

2.1 Groundwater Sources; System Operations

Currently the Woodsboro Public Water System (PWSID 0100027) is permitted to withdraw 128,000 gallons per day (gpd) on average, from 6 sources under a single Water Appropriation Permit (WAP; Table 1). Well 1 is currently on Standby status, and is not used for primary production. This well, immediately adjacent to the Barrick limestone quarry, has a history of elevated coliform detections in raw water data, and is classified as under the direct influence of surface water (GUDI). This designation requires additional monitoring, and is an indication of greater susceptibility to surface water impacts than most groundwater sources

Data provided by MDE indicate that from 2002 to 2011, the Woodsboro PWS has appropriated between 26 million gallons and 39 million gallons per year, averaging about 31 million gallons a year, or about 85,000 gallons per day (Figure 2). This is equivalent to an extraction rate of about 59 gpm on average.

2.2 Previous Source Water Assessment and Protection Reports

A Wellhead Protection Plan for Woodsboro was developed by MDE's Public Drinking Water Program in 1997 (MDE, 1997). This report found that Woodsboro's wells were highly susceptible to contamination due to the limestone bedrock, and made recommendations on strategies for wellhead protection. Subsequent efforts were made to evaluate treatability options for Well 1 (Hyder Consulting, 2001).

A formal Source Water Assessment Report was completed by MDE in 2005 (MDE, 2005). This report concluded that Woodsboro's Well 1 was susceptible to contamination by microbiological contaminants, and lacking treatment, should be abandoned and sealed. It also determined that the overall water supply was susceptible to nitrates and volatile organic compounds, but not to other inorganic compounds, radionuclides, or synthetic organic compounds. Currently, well 1 is not used for water supply, but kept in standby status in case of the need for water in a firefighting emergency.

In 2010, the Towns' Source Water Protection Committee issued a Source Water Protection Plan, as an extension to the SWAP report, although this plan was not formally adopted. The plan has a number of recommendations for future consideration of a Source Water Protection Steering Committee. These addressed implementation of Best Management Practices

for water management, public outreach and education (including posting of WHPA signs), contingency planning, and aquifer protection through zoning, and steering committee review of relevant ordinances. The Town of Woodsboro does not currently have its own Wellhead Protection Ordinance. Water Resources including wellhead protection areas and zones of dewatering influence are addressed in the Town's Comprehensive Plan (Frederick County, 2008, 2010).

2.3 Water System Infrastructure

The Town of Woodsboro owns and operates its own water and sewer systems., which serve development within the town limits. As noted above, the Woodsboro PWS currently obtains water from 5 wells, with Well 1 on standby status. The five wells currently in use share two treatment plants (Table 1) where the raw water receives hypochlorite treatment. The town currently has 300,000 gallons of storage capacity, and 250,000 gallons per day WWTP capacity (Frederick County, 2008, 2010).

Section 3
Source Water Assessment

This section of the report provides the updated Source Water Assessment for the Woodsboro PWS.

3.1 Hydrogeology and Hydrology

The town of Woodsboro is located within the Piedmont Physiographic Province of Maryland, primarily within the limestone lowland section (Reager and Cleaves, 2008; Figure 3). This region consists of valley regions floored by limestone bedrock, exhibiting many sinkholes, but few caves. Reger and Cleaves (2008) place Woodsboro within the Frederick Valley District of this sub-province.

All wells in the Woodsboro system are screened within limestone of either the Frederick or Grove Formations.[1] As shown on Figure 4, a north-south trending diabase dike of Jurassic age cuts through the town of Woodsboro. This dike serves as a boundary between the Legore and Barrick limestone quarries that are situated adjacent to the northern edge of Woodsboro (Figure 5). The Legore Quarry, east of the diabase dike, was opened in 1861 and is no longer operating. The Barrick Quarry, west of the dike, is more recent.

The MDE established a zone of dewatering influence (ZOD) around the Barrick and LeGore quarries in the late 1990s (MDE, 2001; Frederick County Department of Planning, 2008). The extent of this zone is based upon topography, watershed boundaries, geologic structures and composition (Figure 5). Dye tracer tests indicated that dye sourced in the quarry locations and sinkholes could be detected in town wells within a short time span (MDE, 2001). These tests established an interconnection between sinkholes located east and west of the diabase dike and town wells. They also established a link between the surface water in an unnamed tributary to Israel Creek and Town Well 14. Because the Legore Quarry was discharging dewatering effluent to the same creek, it establishes a link between the quarry and that well. Another key conclusion of that study was that Israel Creek contains a losing reach north town (e.g. water discharges from the stream into the ground), further emphasizing the connection between surface and groundwater in this system. Mining operations are required to address damage to water supplies and/or creation of sinkholes within this zone (Frederick County, 2008, 2010).

3.2 Review of Water Quality Data

Maryland's Water Supply Program provided SSP&A with compiled analytical data reported for the Woodsboro PWS from 1990 to 2011. For the purposes of this analysis, ten (10) full year's worth of data are reviewed (2001 to 2010). Data discussed here are compared to the US Environmental Protection Agency (USEPA)'s Maximum Contaminant levels (MCLs) and Maryland groundwater cleanup standards (MDE, 2008).

[1] Well 1 is open to either the Frederick Limestone or the Grove Limestone according to MDE's Water Supply Program database or Woodsboro's 2008 Comprehensive Plan, respectively.

3.2.1 Volatile Organic Compounds (VOCs)

For the period from 2001 through 2010, 1,440 VOC analyses were reported for the Woodsboro PWS, from four treatment plants. During this time period, four (4) VOCs were detected (Table 2):

- Methyl-tert-butyl ether (MTBE)
- Trihalomethanes
  - Bromodichloromethane
  - Chloroform
  - Dibromochloromethane

Trihalomethanes are formed when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water. These are regulated as a group – the Total Trihalomehtanes (TTHM). The USEPA has established a Maximum Contaminant Level (MCL) of 80 ug/l for the TTHMs. Under USEPA's Stage 2 Disinfection Byprodcuts Rule (DBR), compliance with this standard is based upon an annual average value at each location. As shown in Table 2, for the period from 2001 to 2010, there have been no exceedances of the TTHM level; the annual averages have also been lower than 40 ug/l.

Methyl-tert-butyl ether (MTBE) is a man-made compound that is often associated with releases of contaminants from underground tanks or surface releases. Detection of MTBE was reported at Treatment Plant 2 throughout the period of interest, with persistent concentrations ranging from about 1 ug/l to 5.6 ug/l. Earlier data suggest a pulse of MTBE contamination, with concentrations decreasing from a maximum of 31 ug/l 1995. Two detections of MTBE were also reported for TP-3. The State of Maryland's remediation standard and action level for MTBE is 20 ug/l. The USEPA does not currently have an MCL for MTBE.

3.2.2 Synthetic Organic Contaminants (SOCs)

Synthetic organic compounds detected in the Woodsboro Public Water System are summarized in Table 3. The only contaminants detected were:

- Di(2-Ethylhexyl) Phthalate, and
- Di(2-Ethylhexyl) Adipate.

Di (2-Ethylhexyl) phthalate is a common plasticizer and laboratory contaminant and may not be indicative of water quality in the aquifer. Di(2-Ethylhexyl) Adipate is also a common plasticizer, and may be a common laboratory and sample contaminant associated with plastics use. Neither compound was detected in excess of relevant drinking water standards.

3.2.3 Inorganic Compounds

Inorganic compounds reported in Woodsboro groundwater are summarized in Table 4. Many of these compounds can have both natural and man-made (anthropogenic) sources. None

of the parameters listed in Table 4 have exceeded the relevant standard - MCL or secondary MCL during the time period from 2001 to 2010.

Nitrate is a naturally-occurring ion that is also a contaminant associated with agricultural fertilizers and septic systems/sewage. None of the nitrate measurements reported for Woodsboro exceeded the MCL (10 mg/l). Concentrations in TP-4, however, have generally remained in a range between 3 and 6 mg/ for the past 10 years, exceeding one-half the MCL on average (Figure 6). Prior to being converted to standby status, Well/TP-1 exhibited even higher nitrate concentrations, with a maximum value of 9.9 mg/l in 1999.

Gross alpha is a measure of radioactivity associated with decay of radioactive materials such as uranium. Most of the radioactivity found in groundwater samples is associated with naturally-occurring radioactive materials that decay slowly over time. A single sample from TP 2, in 2006, yielded a value of 11 Ci/L, or more than ½ the CML of 15 pCi/L. This result as not repeated in subsequent samples, so it is considered non-representative of water quality.

3.2.4 Coliform Bacteria

Total coliforms are a group of closely related, mostly harmless bacteria that live in soil and water as well as the gut of animals. The extent to which total coliforms are present in source water can indicate the general quality of that water and the likelihood that the water is contaminated with fecal matter from animals or humans. Total coliforms are currently controlled in drinking water regulations (Total Coliform Rule) because their presence above the standard indicates problems in treatment or in the distribution system. EPA requires all PWS to monitor for total coliforms in distribution systems. If total coliforms are found, then the public water system must further analyze that total coliform-positive sample to determine which specific types of coliforms (i.e., fecal coliforms or *E. coli*) are present.

Table 5 summarizes the coliform results for the Woodsboro PWS for the years 2001 to 2010. During this period, there was a single positive detection for total coliform, which was not confirmed in repeat sampling. No fecal coliform were reported. Removal of Well 1 from the active water sources appears to have addressed concerns regarding potential bacterial contamination.

3.3 Source Water Assessment Areas

The Source Water Assessment Area describes the geographic boundary of areas providing water to public water systems. As per Maryland's Source Water Assessment Program Guidance (MDE, 1999), the primary tool to be used for delineating SWAAs for groundwater sources in areas of fractured bedrock is hydrogeologic mapping.

The following steps were used to define the SWAA for the Woodsboro sources:

1. Each source location was visually inspected in the field, and then mapped in a Geographic Information System (GIS);
2. Based upon the permitted daily average value permitted for each source, the total annual volume of recharge required was calculated;
3. Using MDE's drought annual recharge value for Hunting Creek (8.1 inches,1 in 10 year drought) the surface area required to meet the permitted annual withdrawal values was calculated;

4. Geologic maps of the area were reviewed, and stereo-pairs of air photos were reviewed to delineate any lineaments that might be related to local geologic structures
5. A digital elevation model (DEM) and topographic maps of the area were reviewed for topographic and hydrologic constraints on surface water flow; and
6. This information was combined to determine the minimum geographic extent and shape of the SWAA for each well that corresponded to the calculated recharge area.

The new SWAAs for all of the sources in Woodsboro overlap spatially. Because of this, and because the SWAA is based upon a single permitted extraction rate, there is only a single, composite SWAA represented. The composite SWAA is delineated on Figure 7. It is about 571 acres in size and is approximately 45% within the Town boundaries; for comparison the Zone of Dewatering Influence identified by MDE is 1,379 acres in size.

3.4 Potential Contaminant Sources

In August, 2011, staff of Chesapeake Environmental Management (CEM), completed a survey of the Woodsboro area to identify any Potential Contaminant Sources (PCS) that might be located within or near the SWAAs. Identification and description of these PCS will assist in understanding current conditions with regard to threats to groundwater quality and contribute to the susceptibility analysis.

Prior to the field Survey, SSP&A obtained database and shape file layers from MDE, USEPA, and AAC to assist in identifying existing and new PCS. These layers included those generated during the previous SWAA evaluation (2003-2005), MD oil control program (OCP) sites, registered generators of hazardous waste (GHS), registered pesticide dealers, existing and out-of-service underground storage tanks, and Land Remediation Program sites. These were used to create preliminary maps and tables from which CEM staff worked to identify existing PCS.

Sixteen (16) PCS were identified in the area (Table 6, Figure 8). These include underground storage tanks (USTs) at gas stations, above-ground diesel tanks associated with diesel generators and gas stations, a car wash, auto repair shops, and several quarries. In addition, the Woodsboro WWTP is located within the SWAA boundary.

3.5 Land Use

Figures 9 and 10 and Table 7 illustrate the land use within the Woodsboro SWAA. About one third each of the total Land Use is devoted to agricultural and low/medium density residential use. The remaining third is apportioned primarily between commercial/institutional/industrial areas within the town, forested land, open land and mining properties (18%). Land use within the Zone of Dewatering Influence is itself only marginally greater in mined land (22%). More than half of the land is agricultural, with smaller portions in use for residential and commercial purposes.

Water and Sewer zoning from the Frederick County Comprehensive Plan is shown in Figure 11. The zoning largely mirrors the current land use for the Woodsboro area, with the southern half of the SWAA, the portions within the residential sections of Woodsboro, served by

both public sewer and public water. Planned service and areas for future evaluation are also within the SWAA, consistent with the extent of the Community Growth Area. There are currently no properties currently within the Town boundaries that are using septic systems.

3.6 Susceptibility Analysis

As outlined in MDE's Source Water Assessment Program Plan (1999), the goal of a Susceptibility Analysis is to assess the potential for a water supply source to be contaminated at concentrations that would pose a concern or be affected in a way that is detrimental to the operation, health of consumers, or long-term viability of the supply. The methodology relies on existing water quality data, and an evaluation of potential contaminants of concern and their sources. Specifically, if any potential contaminant of concern exceeds ½ the Federal MCL for 10% of the results, a more detailed evaluation is warranted.

All wellheads were visually inspected at the start of this program. All active wells were in good conditions, and largely protected from vandalism or accidental damage by fencing and dedicated well houses. Two wells (#7, #14) are situated in open areas and not adequately protected from accidental damage by heavy equipment. Well 2A, while protected within a fenced area is situated in an area that floods during storm events.

Because the Woodsboro PWS relies on wells open to fractured bedrock and surface water for its water supplies, all of these sources are potentially susceptible to contamination from surface sources. The only source classified as under the direct influence of Surface Water (Table 1) has subsequently been put into "Standby" status and is not currently used, except as a backup supply for firefighting purposes. The point sources previously identified in or near the SWAAs include potential sources of gasoline, motor oil, other man-made chemicals, and biological contaminants and nitrates (from wastewater discharge).

None of the compounds detected exceeded ½ of the relevant drinking water standard in more than 10% of the analyses. As noted above, the only anthropogenic VOC to be detected in reported water quality data was MTBE, which appears to be the tail end of an earlier pulse of contamination that has not reappeared. Nonetheless, this occurrence affirms the potential for contamination of wells from gasoline-related sources.

The persistence of nitrate concentrations above ½ the MCL in TP 4 suggest impacts from agricultural land use which comprises a large portion of the SWAA associated with TP-4. All of the active wells for this PWS are screened in the same formation – the Frederick Limestone, although some are in different members (sub-units). There is no obvious reason why nitrate concentrations from the different treatment plants should be consistently higher than the other. This lack of a point source emphasizes the need to manage nitrate as a regional and watershed-level issue, with the assistance of Frederick County.

Based upon the land use described above, the history of contamination and geologic setting of these wells, they are likely susceptible to surficial sources of contamination, including

- Point Sources of anthropogenic chemicals
- Bacterial contamination from WWTP and private Sewer systems
- Nitrate from agricultural uses, especially in TP 4
  - Pesticides and fertilizers from agricultural and domestic use.

Section 4
Existing Provisions for Source Water Protection

This section addresses existing provisions in place to protect Woodsboro's water supply, and provide recommendations for additional, improved or revised items.

4.1 Frederick County Water Resources Element (WRE)

The Frederick County Water Resources Element of its Comprehensive Plan was adopted in 2010. There are numerous aspects of the WRE that pertain to management of surface and groundwater water resources. These include general water resource policies, drinking water policies, drinking water action items, waste water action items and stormwater action items. Selected items relevant to Woodsboro area summarized in Table 8.

In addition to the other items outlined in Table 8, stormwater management facilities for new development are required by the latest Maryland Stormwater Design Manual to treat stormwater using small-scale Environmental Site Design (ESD) facilities to the maximum extent practical. The Town can provide feedback to the developers to ensure that the stormwater features are designed and installed appropriately to have the greatest benefit for water quality and quantity. Stormwater management plans should contain specifications for scheduled maintenance, which should be followed to ensure proper function.

4.2 Frederick County Wellhead Zoning Ordinance

In 2007, Frederick County adopted a Wellhead Protection ordinance which applies to Frederick County jurisdiction outside the Town boundaries. About 65% of the SWAA lies outside of the Woodsboro Town Boundaries, however, making it relevant to Woodsboro. The ordinance includes a number of provisions, including

- A definition of wellhead protection areas (WPAs) that conforms to the Source Water Assessment areas developed by the MDE
- Requirements for placement and of hazardous substance and petroleum storage tanks and their containment capacities within the WPAs
- Requirements for review of permits regarding placement of storage tanks within WPAs
- Prohibited land uses within the WPAs

4.3 Town of Woodboro Comprehensive Plan

The Towns' Comprehensive Plan (Frederick County, 2008, 2010) specifically addresses the need to protect ecologically sensitive and wellhead protection areas. One of its objectives includes:

- Permanently preserve the Town's well fields and recharge areas from contamination and over-withdrawal.

Section 5
Recommended Actions

The following recommendations are provided for Protection of Woodsboro's Source Water: Considering the town's limited size and resources, a phased implementation or prioritization may be appropriate. An Implementation Schedule is provided as Table 10.

5.1 Contingency Planning for Emergency Spill Response

Most point-source PCS identified in this report are located within the Town Boundaries. About 45% of the composite SWAA for the Woodsboro PWS wells falls within the town boundaries, and about 48% falls within the Community Growth Area (Figure 1). In addition, MDE (2001) documented the potential for impacts to town wells from quarry activities via groundwater or surface water. Consequently a number of current and future point Potential Contaminant Sources are located in or near the SWAA. Well 14 in particular is closest to the identified underground storage tanks and other PCS. It is therefore important that the Town of Woodsboro include the potential for contamination of these water supplies in its contingency planning.

In Woodsboro, emergency response is primarily provided through Frederick County 911 services. The Woodsboro Volunteer Fire Department provides fire protection and ambulance response, and the Frederick County Sherriff and State Police provide police protection. It is recommended that the Contamination Contingency Plan conform to the Town's approach for all hazards, and include the following components:

5.1.1 Emergency Contact Lists

Type of Incident	Designated Department	Contact
Hazardous Material Release	Frederick County Div. of Emergency Mgmt	Frederick County 911
Fire or Explosion	Woodsboro VFC	Frederick County 911
Water distribution / Water Quality	Town Manager / Water System	301-898-3800

Under scenarios that might pose a risk of contamination to groundwater or surface water supplies (spill, explosion, leak) any immediate threat to human health will be most appropriately addressed by Emergency Services. The longer-term, potential threats to drinking water supplies are appropriately addressed by the Town; these responsibilities would include addressing water and sewer infrastructure, and ensuring the continued supply of potable water.

5.1.2 Known PCS

It is recommended that the Contingency Plan include all PCS identified in or near the SWAAs, as outlined in this report and future updates. Appropriate content includes

- Figure 8 and Table 6 from this report, and similar figures, as updated in future Source Water Protection Plans

5.1.3 Steps for Alerting the Public

Steps necessary to alert the public to water quality or water supply issues will be outlined. These will include existing measures currently used for public notification including

- Town emergency siren, and
- Electronic signs in public areas

In addition, as other measures become available, such as text alert system, these will be implemented and the Contingency Plan will be updated as appropriate.

5.1.4 Alternate Water Supply for Impacted Source(s)

In cases where the water supply to a well or surface water source is threatened, the Town will take steps necessary to replace that water until the problem can be solved. The Town's current water storage capacity is about 300,000 gallons, or just under a 3-day supply at average usage rages (Frederick County, 2008, 2010).

No Town resources are currently available for replacement of water supplies should a lengthy outage occur. The primary option would therefore be reliance upon Frederick County emergency response. Alternately, temporary pumping and treatment of water from Well 1 might be appropriate.

5.2 Town Zoning and Water System Management

5.2.1 Digital Information/Mapping Resources

It is recommended that he Town continue to support mapping and Geographic Information Systems (GIS) resources through a part-time, full-time or contract planner. This effort will allow local government to consider SWAAs, water resources, PCS locations, potential effluent sources in land use planning. It is recommended that the SWAAs (as currently defined and subsequently updated) be permanently incorporated into the zoning and planning process as a required GIS layer.

These maps can be very useful in communicating information to the public and decision makers as it regards water policy and emergency response. At a minimum, the Town should maintain hard copy maps that depict the boundaries of the SWAAs, PCS, critical infrastructure, emergency transportation options, and areas of high vulnerability.

5.2.2 Source Water Assessment Areas and Source Water Protection Planning

It is recommended that the Town update the delineation of SWAAs, and complete a new inventory of Potential Contaminant Sources, and a new Susceptibility Analysis at regular intervals; an interval of every 6 years is recommended, coincident with revisions to the Comprehensive Plan. This interval will be sufficient to account for identifying new trends in groundwater monitoring data, zoning and land use. An updated Source Water Protection Plan should be completed and provided to the town council after each review.

5.2.3 Wellhead Protection Ordinance (WHPO)

It is recommended that the Town of Woodsboro implement a Wellhead Protection Ordinance (WHPO) tailored to the Town's needs. It is recommended that, as per MDE's Model WHPO ordinance, the WHPO provisions be designated by zone, with Zone 1 representing an area closest to the wellhead, and Zone 2 an area defined by the SWAAs delineated in this report (via MDE's methodology for fractured bedrock).

It is recommended that Zone 1 be defined as a 500 foot radius from the wellhead. Based on the survey of PCS detailed here, implementation of Zone 1 restrictions may result in one non-conforming uses near Well 14 – specifically the presence of a diesel generator and associated above-ground tank at the Town Fire Hall, within 500 feet of the wellhead[2]. This use may be "grandfathered", and re-evaluated at a later date if the land use changes or ownership changes. An example, WHPO for Woodsboro, based on the MDE Model WHPO is provided in Appendix A.

Within Zone 1, specific land uses that involve concentrated storage and/or use of potential contaminants are prohibited. Within Zone 2, such land uses are conditional, pending Town approval. Among the requirements within both zones are application of Best Management Practices (BMPs) for managing hazardous materials and controlling surface water runoff. These BMPs will help ensure groundwater quality and quantity, and are defined in part by the state of Maryland's Stormwater Design Manual (updated 2009).

As noted elsewhere, significant portions of the Towns' SWAA lie within Frederick County jurisdiction. Thus, it is important that provisions of the Town's WHPO do not contradict with those of the Town, or cause conflicts.

5.2.3 Coordinating with County/Regional Watershed Preservation Activities

Woodsboro has previously preserved recharge areas through the creation of park and recreational facilities. The Town should continue to preserve buffers for existing and identify opportunities for buffer protection of any new water supplies. The following recommendations address possible changes to zoning and permitting requirements that may improve source water quality.

It is recommended that the Town identify opportunities to work with the County and regional planning organizations to participate in efforts such as the development of watershed planning and protection documents. These are best opportunities to address regional concerns

[2] The Draft WHPO makes exception for emergency power equipment, and thus this PCS may not be a non-conforming use.

such as nitrate levels associated with agricultural land use. The Town should ensure that adequate attention is provided to protecting the watershed draining to the wellheads. Additionally, regulations that expand or contract the development envelope in the Woodsboro service area should be considered as it affects the quantity and quality of the groundwater.

5.2.4 Physical Protection of Sources

For those water sources that are currently unprotected or minimally protected (e.g. Well #7, #14), the Town of Woodsboro should take steps to protect the components from accidental or intentional damage. This would include steps such as installing bollards around wells, fencing the wellheads off from unpermitted activity, and marking the area with no trespassing signs.

5.2.5 Abandonment of Well 1

As noted elsewhere, it has previously been recommended that Well 1 be properly abandoned to eliminate a pathway for aquifer contamination. Since the well currently serves as a backup water supply for firefighting purposes, this may not be appropriate at this time. But, should other backup water supplies be identified, this well should be properly and permanently abandoned.

5.3 Establish Inter-Governmental Communication Protocol

It is recommended that the Town of Woodsboro enter into an agreement with Frederick County and the Maryland Department of the Environment to explicitly detail the responsibilities of each party with regard to wellhead protection, water quality monitoring, remediation, and similar activities. This agreement should include the creation of two meeting dates per year for the Town and the relevant agencies to meet with each other and discuss the state of the water resources under consideration. Items to be included in this discussion would range from newly submitted groundwater withdrawal applications, current monitoring efforts and results, enforcement and remediation efforts, regulatory changes, and significant development proposals.

5.4 Public Awareness and Outreach

It is recommended that the Town appoint an individual to be responsible for communicating the importance of groundwater protection amongst the citizens and business interests of the Town. The Commissioner responsible for water issues would be an appropriate person. Communication with residents regarding water supply and preservation issues may be incorporated into periodic bills and/or Water Quality Reports.

5.4.1 Develop Signage for the Recharge Zones

The Town of Woodsboro has previously obtained some signage from the Maryland Rural Water Association indicating the presence of a “Drinking water Protection Area”; these signs are placed within Town parkland near wells 2A and 3. It is recommended that additional signs should be placed along main roads (either Route 194 and/or Main Street) at either end of town to remind residents of the need for conscious Source Water Protection. Such signs are still

available from the Maryland Rural Water Association at minimal or no cost. Coordination with MDOT may be required for placement of the signage.

5.5 Funding Opportunities

Because the Town's resources are limited, the Town should continue to pursue means of outside funding water quality improvement and community outreach efforts to offset additional costs incurred by protection measures and recommended actions identified. EPA and MDE provide opportunities for grants and loans through various programs targeted for specific purposes. Table 9 provides information pertaining to each funding opportunity and contact information to pursue funding.

5.6 Implementation Schedule

Table 10 is a matrix summarizing the results of this report. It includes a listing of possible threats to water quality and supply, recommended actions, together with estimated costs, sources of funding, and proposed schedule. Some potential costs and schedules are poorly defined at this time, and dependent upon further Town action. These are noted as "---" in the table.

Section 6
Conclusions and Summary

The Source Water Assessment for Woodsboro's Public Water System has been updated to account for the current permitted water withdrawals. New Source Water Assessment Areas have been delineated, using MDE's prescribed method of hydrogeologic mapping. These include a SWAA comprising 571 acres associated with 5 groundwater sources.

The susceptibility analysis for the Woodsboro PWS finds that all of the groundwater and surface water sources are potentially susceptible to surface contamination, including VOCs, IOCs, and SOCs. During the past 10 years, however, there has been only a single exceedance of natural or man-made contaminants (MTBE), which appears to be declining in concentration. Phthalates detected at greater than one-half the MCL are likely related to laboratory contamination and do not necessarily indicate contamination at the source.

Recommendations to the Town of Woodsboro include the following:

- Adoption of a Simple Contingency Planning for Emergency Spill Response that incorporates
    - Emergency Contact Lists
    - Location of Known PCS
    - Steps for Alerting the Public
    - Alternate Water Supply for Impacted Source(s)
- Supporting Digital Information/Mapping Resources to enhance planning
- Updating the Source Water Assessment Areas and Source Water Protection Planning every 6 years, coincident with the Comprehensive Plan
- Implementation of a Wellhead Protection Ordinance (WHPO)
- Coordinating with County/Regional Watershed Preservation Activities
- Physical Protection of Sources
- Abandonment of Well 1
- Establishing an Inter-Governmental Communication Protocol
- Development of Outreach Strategy to include the public informed of water management issues
- Additional Signage for the Recharge Zones

Section 7
References

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FIGURES

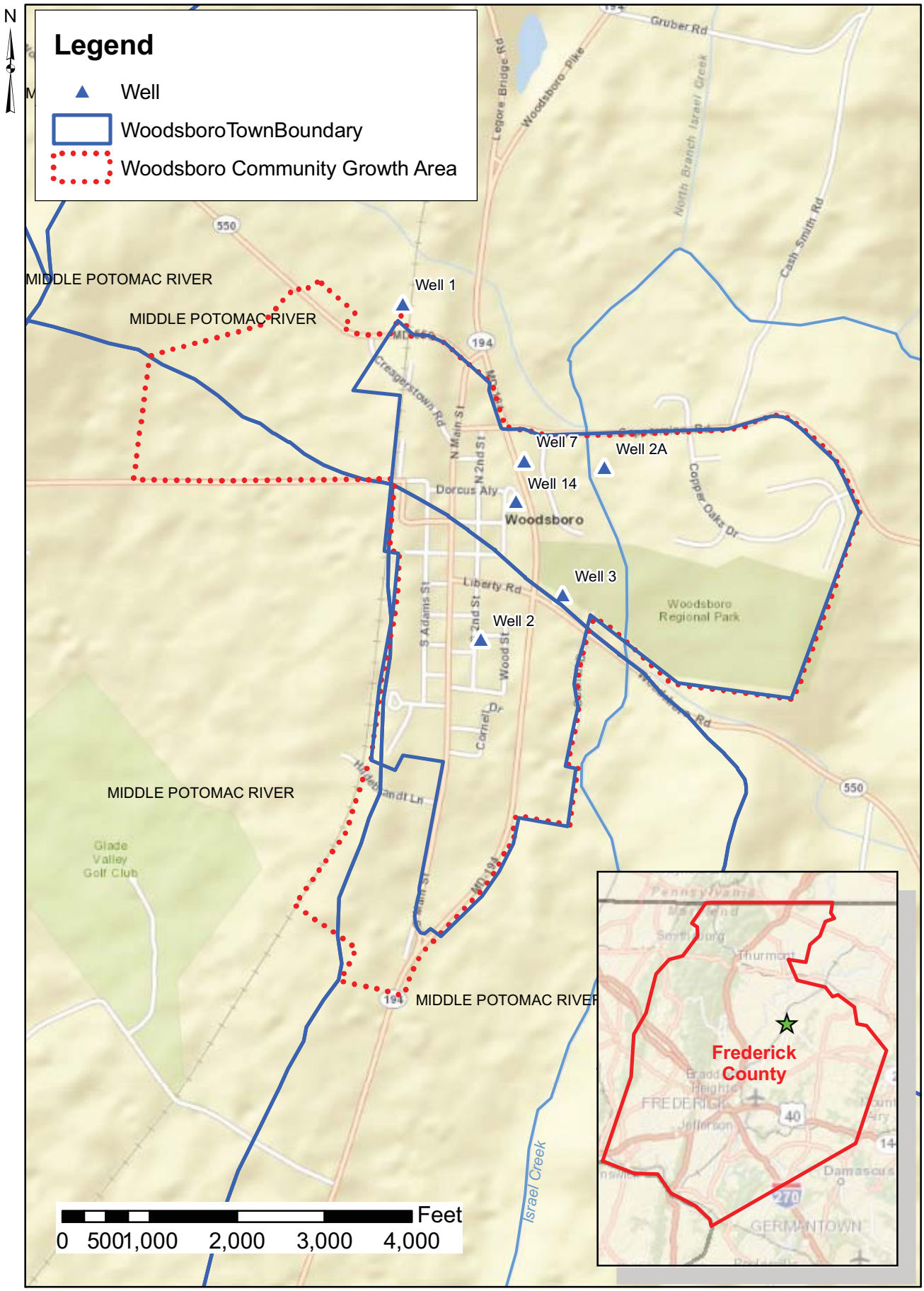

Figure 1 Location of Woodsboro, MD

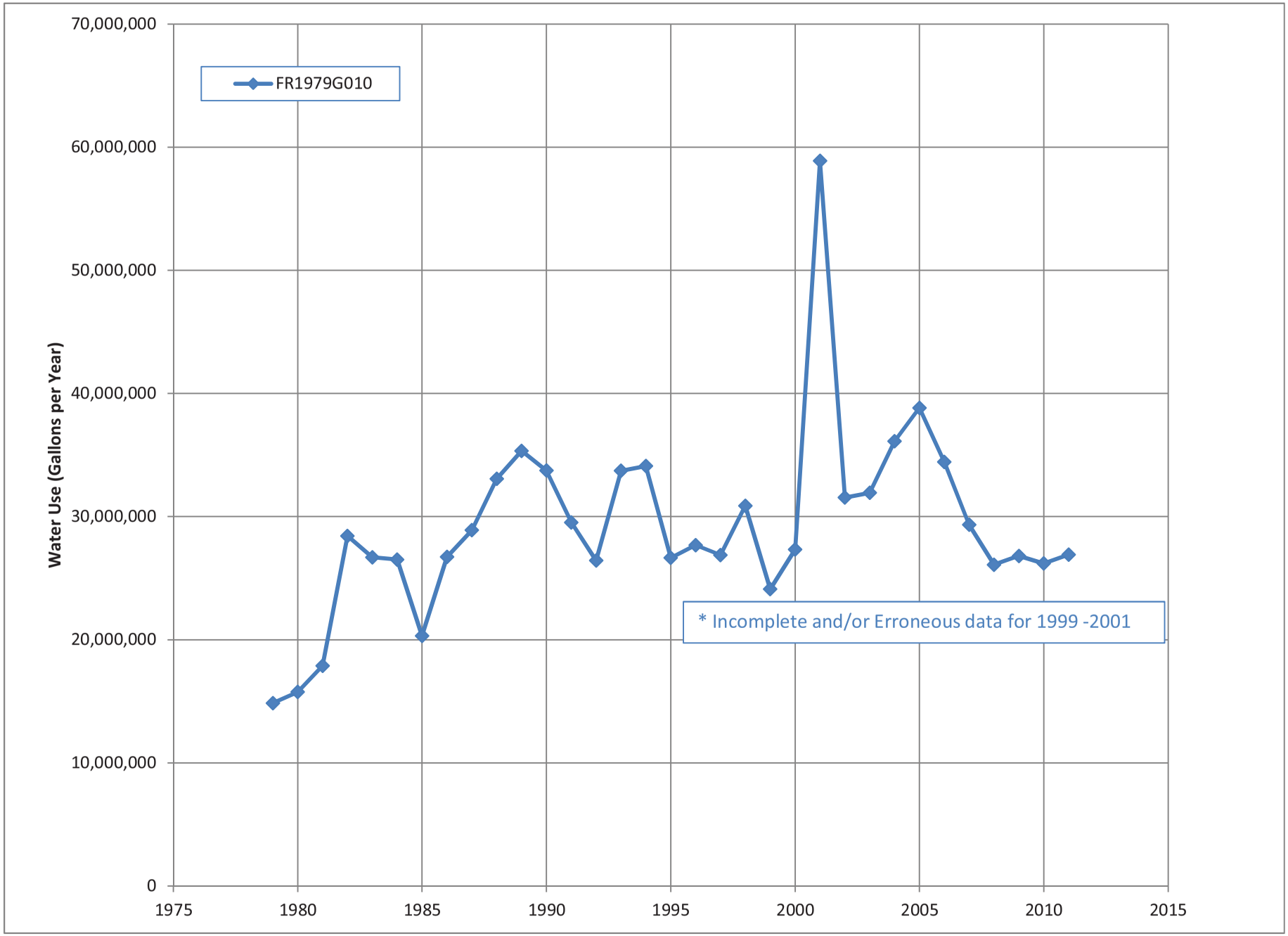

Figure 2 Reported Water Use by the Woodsboro PWS, 1979 to 2011

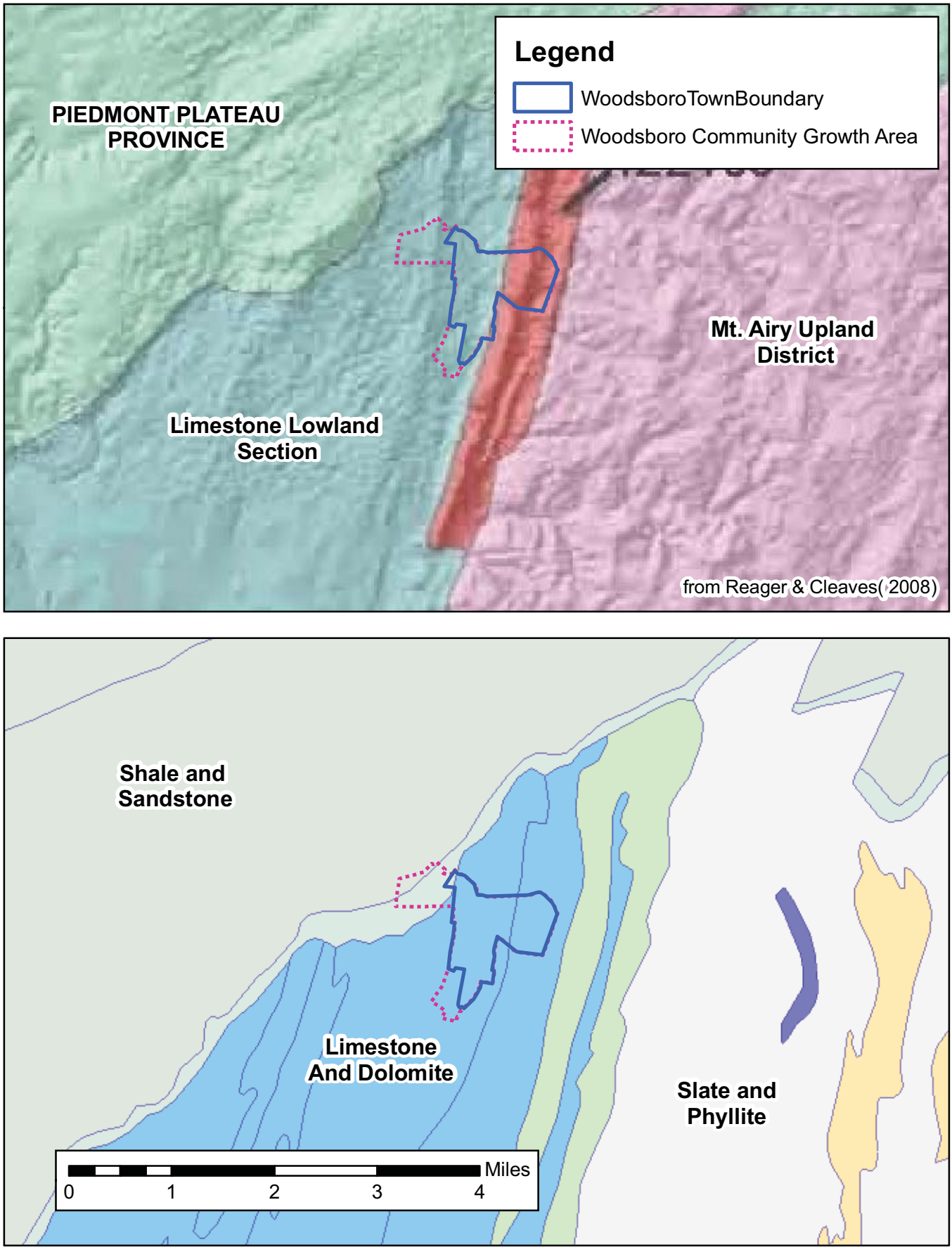

Figure 3 Physiographic Provinces of Maryland (A) and Bedrock Geology (B) in the Woodsboro Area

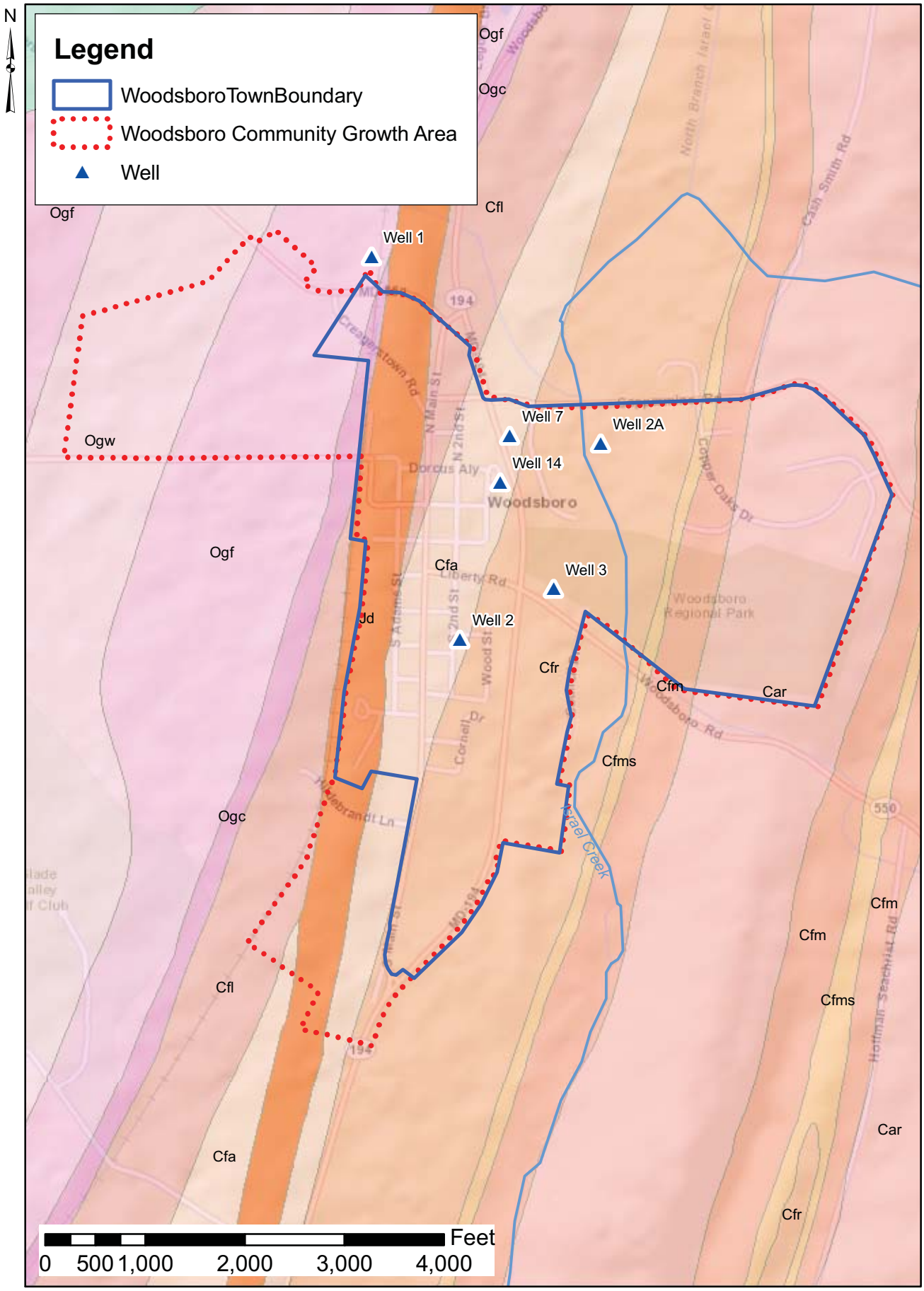

Figure 4 Bedrock Geology - Local Detail, Woodsboro, MD

Figure 5 Quarries and Zone of Dewatering Influence, Woodsboro, MD

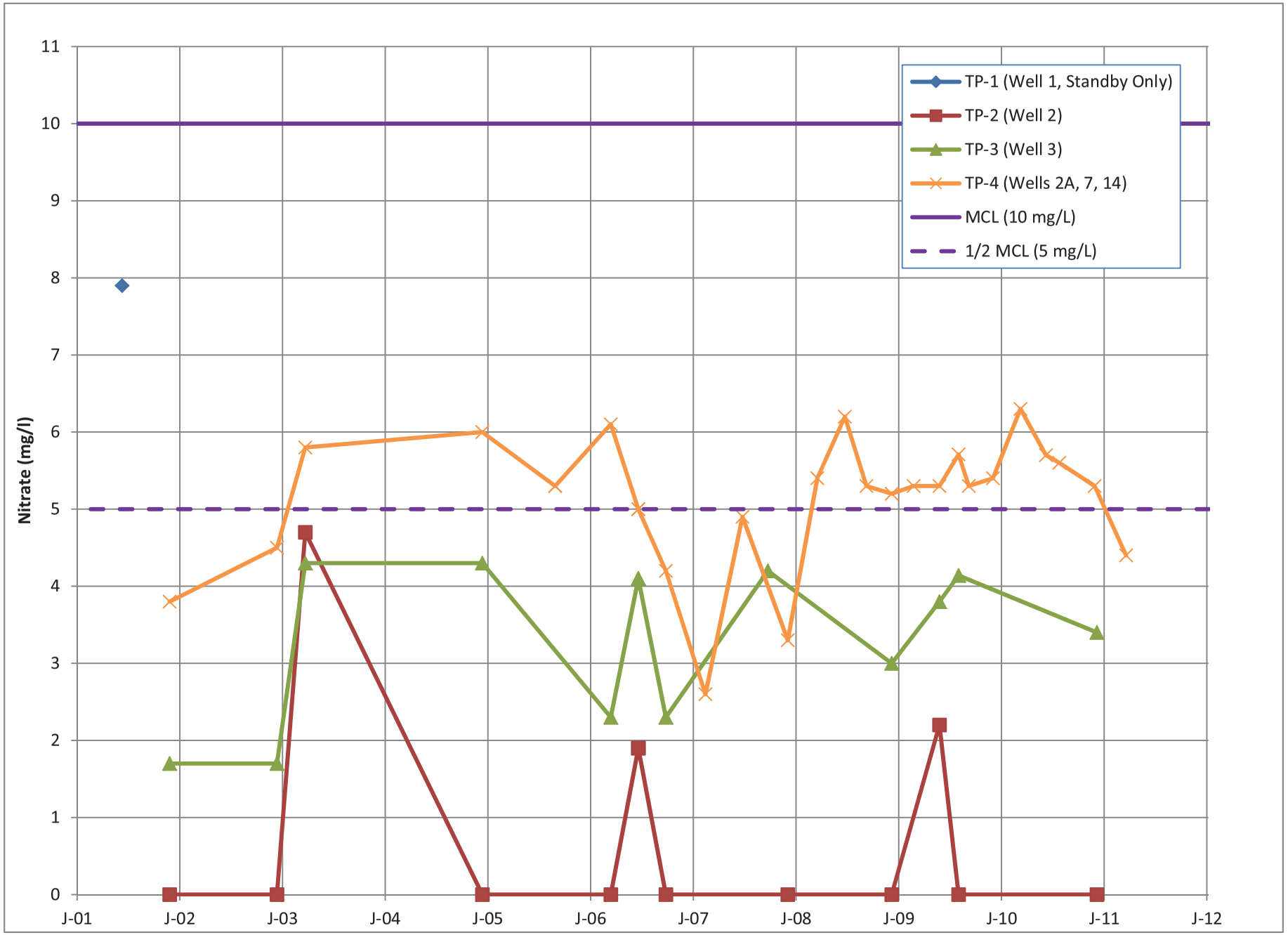

Figure 6 Nitrate Concentrations Reported for the Woodsboro Public Water System

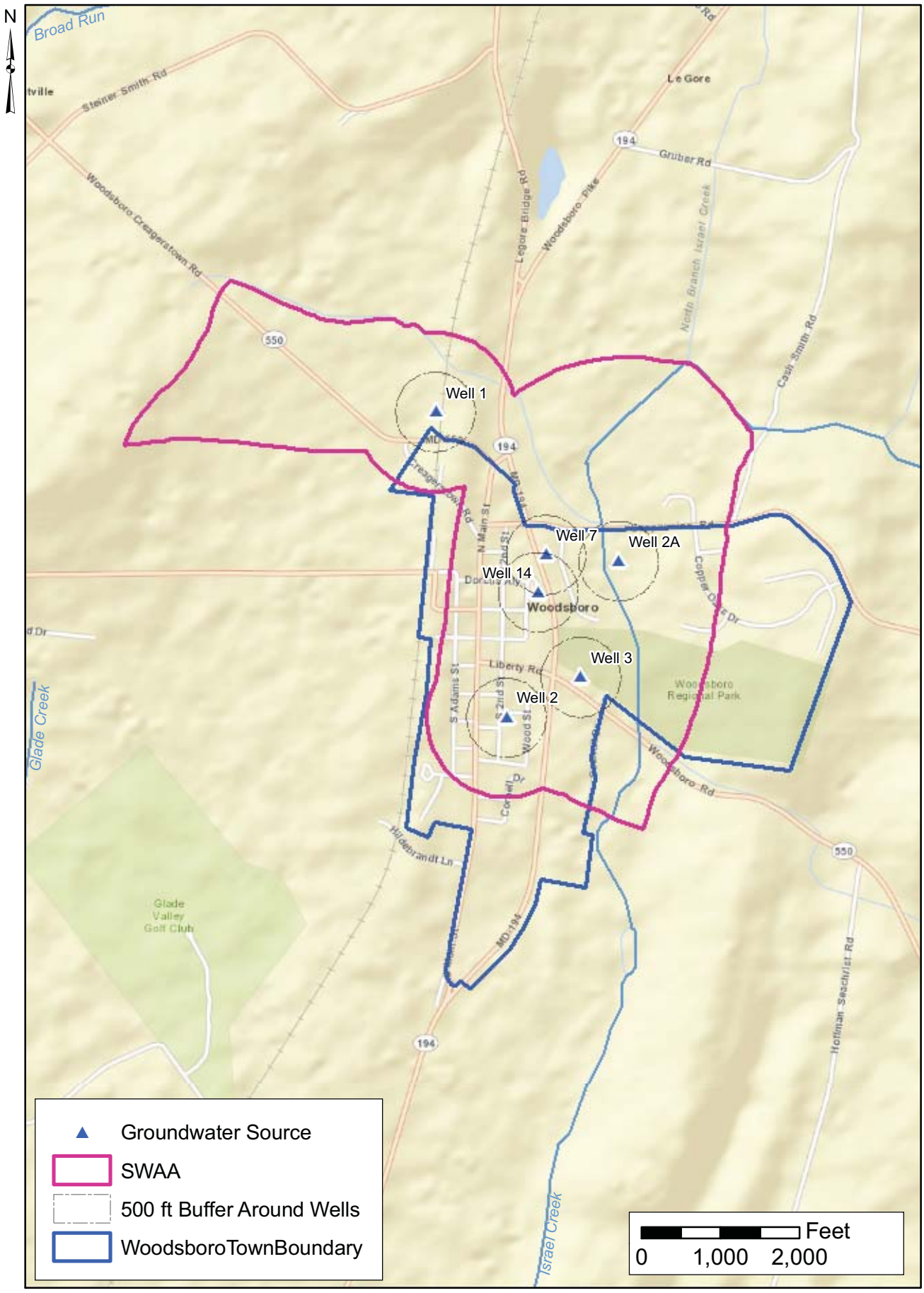

Figure 7 Source Water Assessment Area (SWAA) for the Woodsboro Public Water System

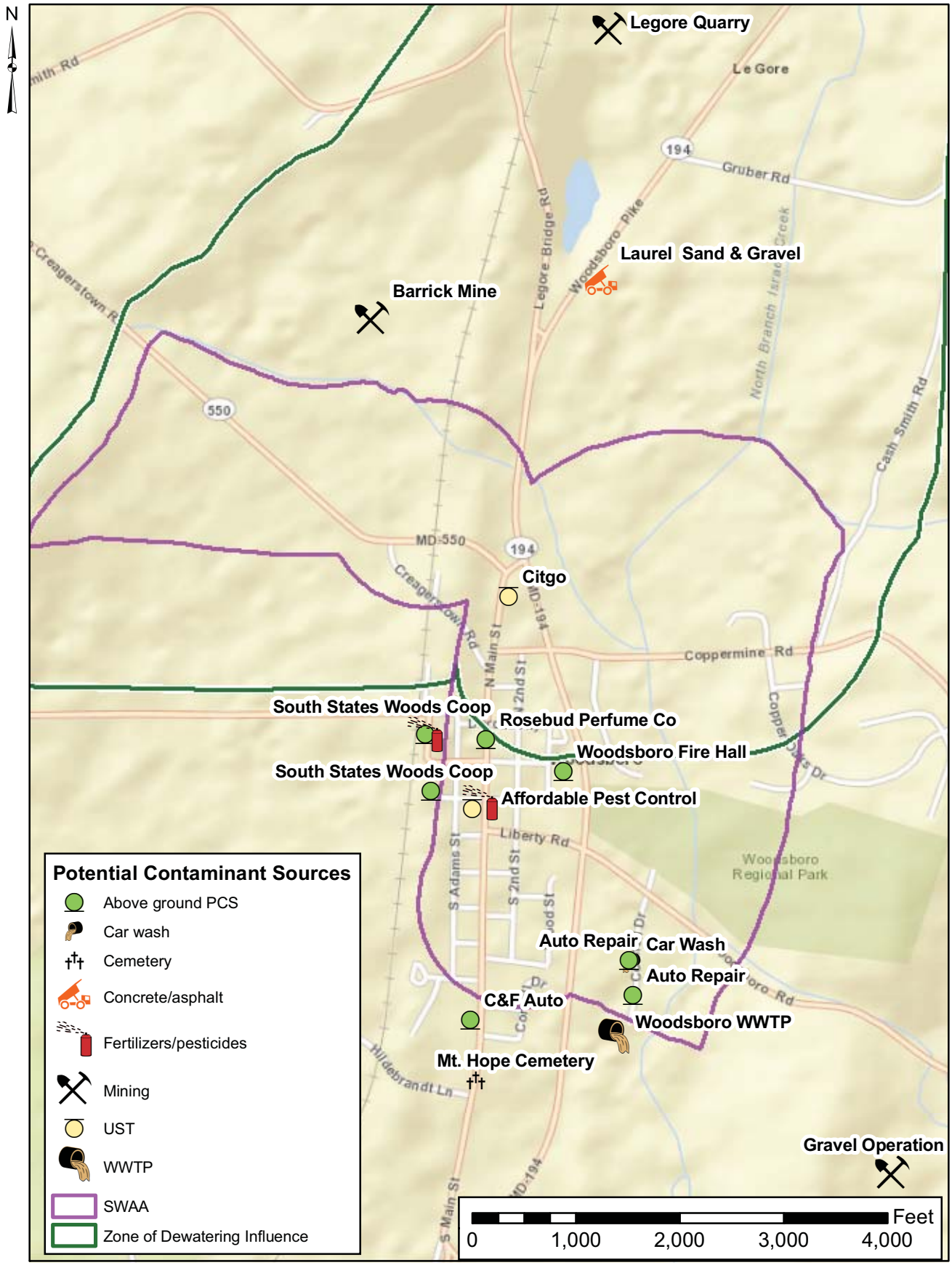

Figure 8 Potential Contaminant Sources in the Woodsboro Area

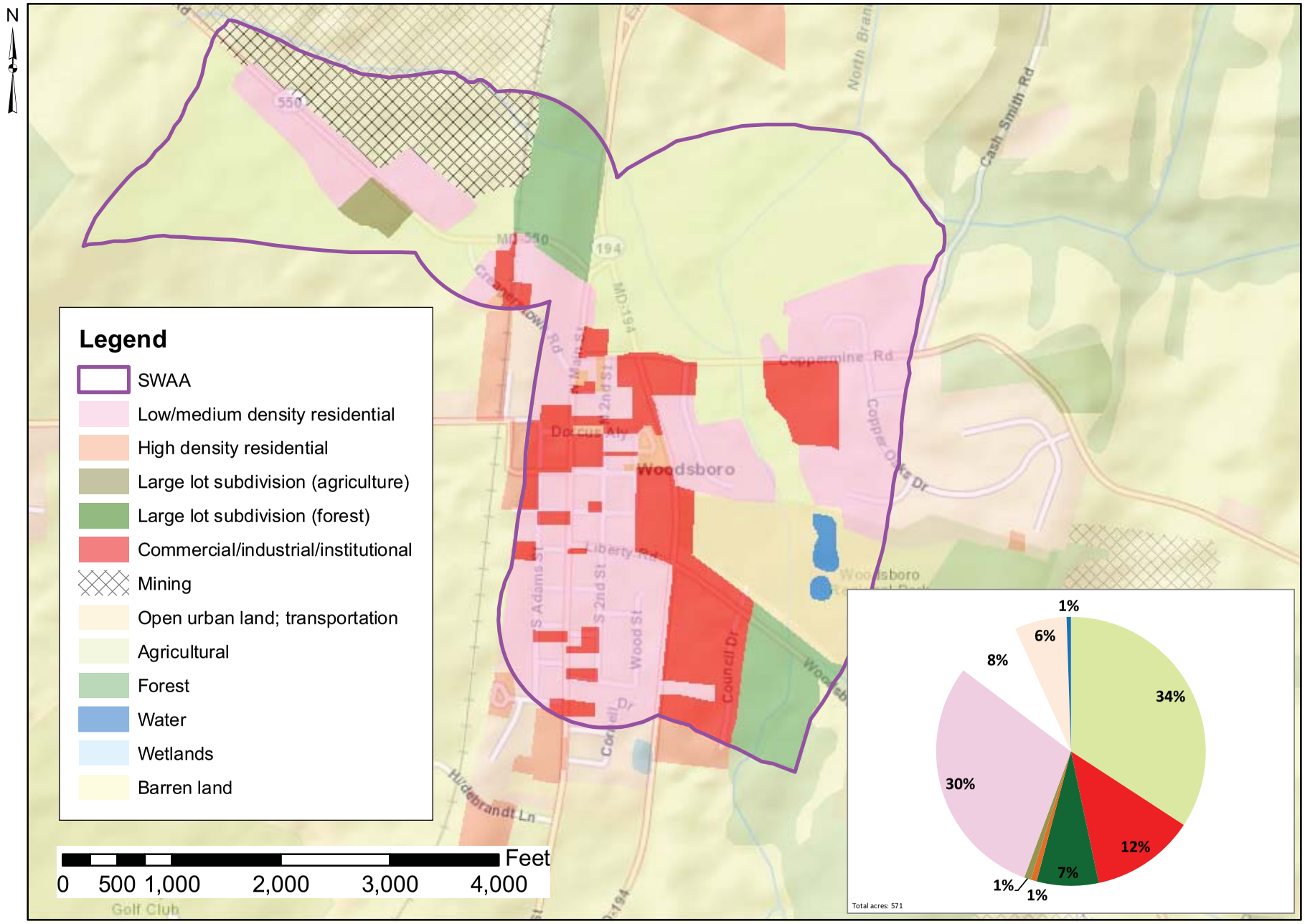

Figure 9 Land Use in the Woodsboro Source Water Assessment Area

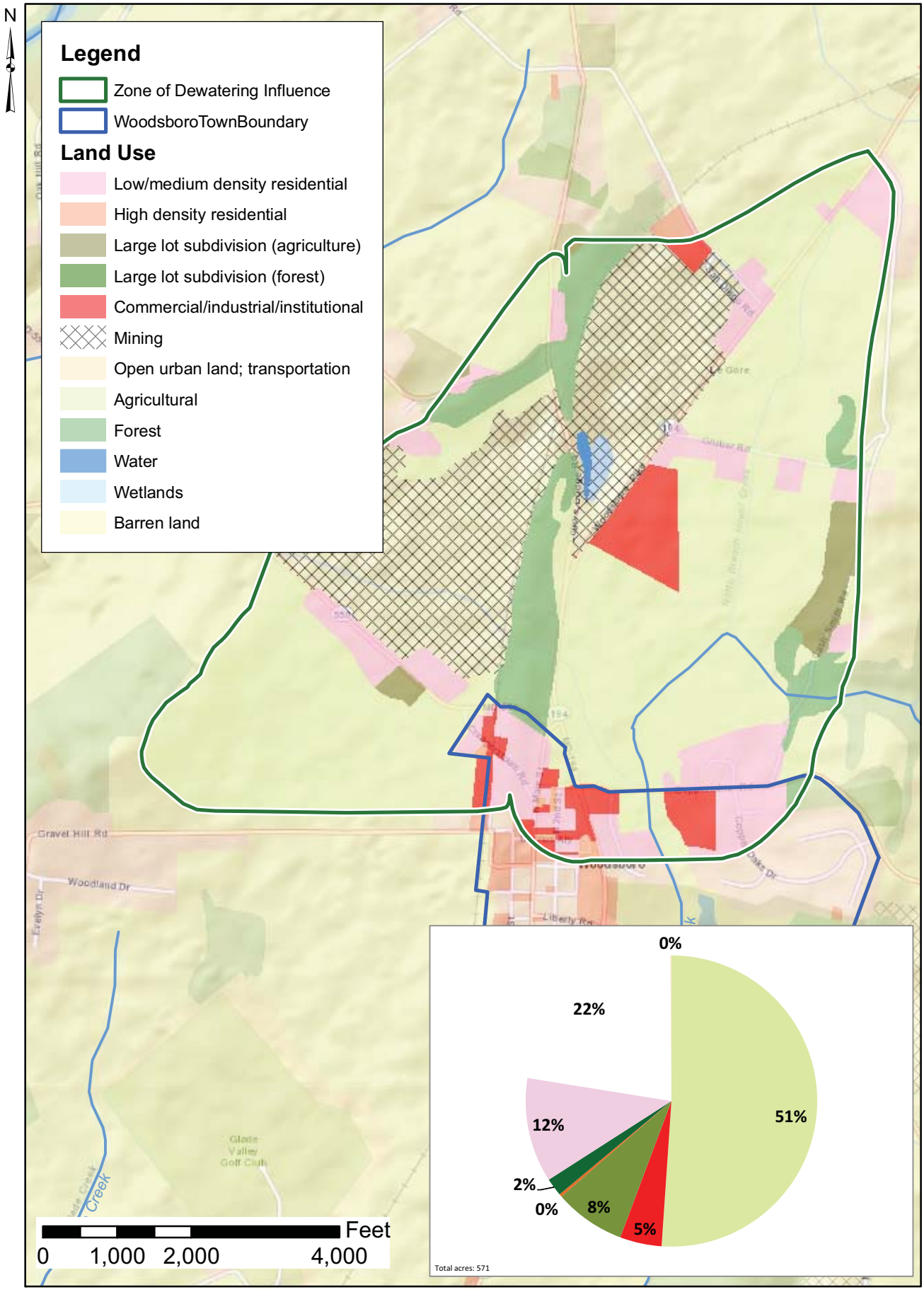

Figure 10 Land Use in the Zone of Dewatering Influence

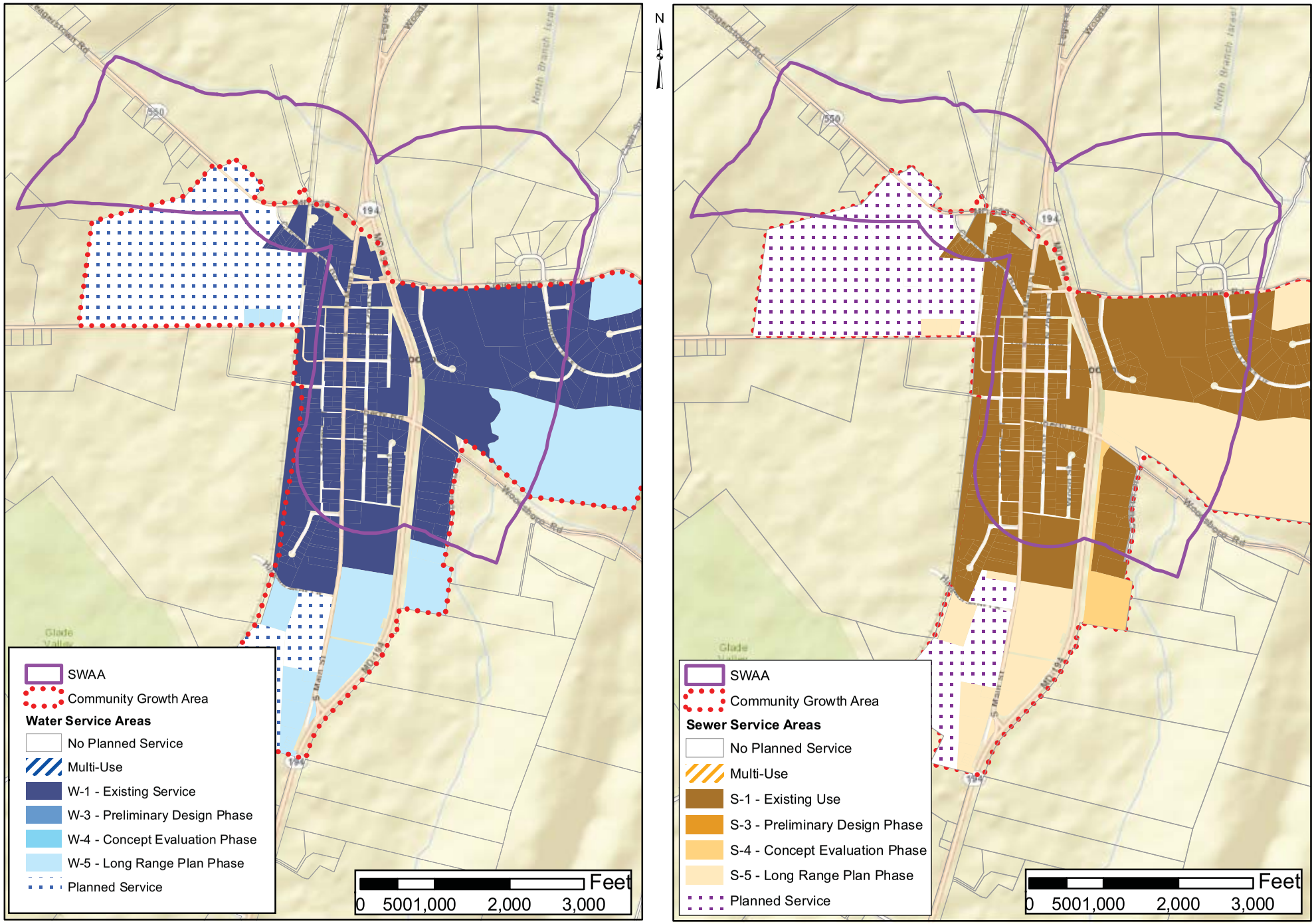

Figure 11 Water Service (A) and Sewer Service Areas (B) in the Vicinity of Woodsboro

TABLES

TABLE 1 Water Appropriation Permits and Sources of the Woodsboro Public Water System

	SOURCES ADDRESSED IN THIS REPORT											
	Source Type	**Source ID**	**Plant ID**	**Source Name**	**Well Permit**	**WAPID #**	**Total Depth (ft)**	**Casing Depth (ft)**	**Completion Date**	**GUDI? ***	**Open Interval (ft)**	**Included in 2005 SWAP Report?**
1	GW	1	1	WOODSBORO 1 (Standby Status)	FR010039	FR1979G010	200	35	June-52	X	35 - 200	Yes
2	GW	2	2	WOODSBORO 2	FR034608	FR1979G010	297	36	July-59		36 - 297	Yes
3	GW	3	3	WOODSBORO 3	FR810518	FR1979G010	600	41	October-82		41 - 600	Yes
4	GW	4	4	WELL 2A	FR881545	FR1979G010	475	42	July-90		42 - 475	Yes
5	GW	5	4	WELL 7	FR881607	FR1979G010	600	42	July-90		42 - 600	Yes
6	GW	6	4	WELL 14	FR881833	FR1979G010	125	64	October-90		64 - 125	Yes

* Groundwater under the direct influence of surface water

All Woodsboro wells operate under a single Water Appropriation Permit (WAPID) with an average daily rate of 128,000 GPD, and a maximum daily rate of 178,200 GPD

TABLE 2 Volatile Organic Compounds (VOCs) and Total Trihalomethanes (TTHM) Reported for the Woodsboro Public Water System

A. Non - Trihalomethanes

Contaminant	Plant ID	Earliest Detect Date	Most Recent Detect Date	Number of Analyses	Count of Detections	Max Concentration (ug/L)
METHYL-TERT-BUTYL-ETHER	2	June-01	September-10	22	18	5.6
METHYL-TERT-BUTYL-ETHER	3	March-03	March-03	18	2	2.7

B. Individual Trihalomethanes

Contaminant	Plant ID	Earliest Detect Date	Most Recent Detect Date	Number of Analyses	Count of Detections	Max Concentration (ug/L)
BROMODICHLOROMETHANE	1	June-01	June-01	1	1	1.2
BROMODICHLOROMETHANE	2	October-07	September-10	11	2	1.6
BROMODICHLOROMETHANE	3	June-01	August-09	9	3	0.8
BROMOFORM	2	October-07	October-07	11	1	0.8
BROMOFORM	3	August-09	August-09	9	1	0.6
CHLOROFORM	1	June-01	June-01	1	1	2.3
CHLOROFORM	2	June-01	September-10	11	7	4.4
CHLOROFORM	3	June-01	August-09	9	9	9.9
DIBROMOCHLOROMETHANE	1	June-01	June-01	1	1	0.8
DIBROMOCHLOROMETHANE	2	October-07	September-10	11	3	2
DIBROMOCHLOROMETHANE	3	June-01	August-09	9	2	1

C. Total Trihalomethanes

Contaminant	Plant ID	Number of Samples	Exceedances of One-Half MCL (40 ug/l)	Exceedances of MCL (80 ug/l)
Total Trihalomethanes	0 *	2		
Total Trihalomethanes	1	2		

* Samples collected from the water distribution system are flagged as Plant "0"

TABLE 3 Synthetic Organic Compounds (SOCs) Reported in Woodsboro Public Water System

Contaminant	Plant ID	Earliest Detect Date	Most Recent Detect Date	Number of Analyses	Count of Detections	Max Concentration (ug/L)	MCL *
DI(2-ETHYLHEXYL) ADIPATE	2	Jun-01	Jun-01	2	2	0.6	400
DI(2-ETHYLHEXYL) ADIPATE	3	Jun-01	Jun-01	2	2	1	400
DI(2-ETHYLHEXYL) PHTHALATE	1	Jun-01	Jun-01	2	2	2	6
DI(2-ETHYLHEXYL) PHTHALATE	2	Jun-01	Nov-07	6	6	2	6
DI(2-ETHYLHEXYL) PHTHALATE	3	Jun-01	Sep-10	8	8	8.7	6
DI(2-ETHYLHEXYL) PHTHALATE	4	Oct-05	Oct-05	2	2	0.7	6

* Same as State of Maryland Groundwater Standards for Type I and Type II Aquifers

TABLE 4 Inorganic Compounds (IOCs) Reported in Woodsboro Public Water System

Contaminant	Number of Detections	Earliest Detect Date	Most Recent Detect Date	Min Concentration	Max Concentration	MCL	SMCL	Units
ARSENIC	2	May-06	May-06	0.0006	0.0008	0.01		mg/L
BARIUM	6	May-06	May-09	0.0407	0.071	2		mg/L
COMBINED RADIUM (226 & 228)	1	November-07	November-07	0.7	0.7	5		pCi/L
FLUORIDE	9	March-03	August-09	0.1	0.14	4	2	mg/L
GROSS ALPHA	4	March-03	November-07	3	11	15		pCi/L
GROSS BETA	5	March-03	August-09	4	8	50		pCi/L
IRON	1	August-09	August-09	0.15	0.15		0.3	mg/L
NICKEL	1	May-06	May-06	0.007	0.007	0.1		mg/L
NITRATE	50	June-01	March-11	0.2	7.9	10		mg/L
RADIUM-226	2	October-06	November-07	0.7	0.8			pCi/L
SODIUM	13	June-01	August-09	23	84			mg/L
SULFATE	1	June-01	June-01	43	43		250	mg/L

TABLE 5 Total and Fecal Coliform Results Reported for the Woodsboro Public Water System

Routine Samples				Repeat Samples			
Number of Samples Collected	**Number Positive for Total Coliform**	**Number Positive for Fecal Coliform**	**Number Indeterminate**	**Number of Samples Collected**	**Number Positive for Total Coliform**	**Number Positive for Fecal Coliform**	**Number Indeterminate**
125	1	0	0	0	0	0	0

TABLE 6 Potential Contaminant Sources in the Woodsboro Area

	Potential Contaminant Source	Type
1	Car wash, Council Drive	Car wash
2	Auto Repair	Above ground PCS
3	Woodsboro WWTP	WWTP
4	Gravel Operation	Mining
5	Barrick Mine	Mining
6	Citgo	UST
7	South States Woods Coop	Above ground PCS, Fertilizers/pesticides
8	Rosebud Perfume Co	Above ground PCS
9	Woodsboro Fire Hall	Above ground PCS
10	Affordable Pest Control	Fertilizers/pesticides
11	Evangelical Lutheran Church	UST
12	C&F Auto	Above ground PCS
13	Mt. Hope Cemetery	Cemetery
14	Auto Repair	Above ground PCS
15	Legore Quarry (abandoned)	Mining
16	Laurel Sand & Gravel	Concrete/asphalt

TABLE 7 Land Use in the Woodsboro Source Water Assessment Area

Source Water Assessment Area

Land Use	Acres	% of Acreage
Agricultural	195.5	34%
Commercial / Industrial / Institutional	71.2	12%
Forested	42.4	7%
High-Density Residential	4.2	1%
Large lot subdivision (agriculture)	4.6	1%
Low / Medium Density Residential	169.6	30%
Mining	45.2	8%
Open Urban Land / Transportation	35.8	6%
Water	3.0	1%
TOTAL	**571**	**100.0%**

Zone of Dewatering Influence

Land Use	Acres	% of Acreage
Agricultural	694.2	51%
Commercial / Industrial / Institutional	62.9	5%
Forested	107.5	8%
High-Density Residential	4.1	0%
Large lot subdivision (agriculture)	27.1	2%
Low / Medium Density Residential	158.0	12%
Mining	303.3	22%
Water	2.0	0%
TOTAL	**1,359**	**1.0**

TABLE 8 Selected Elements of Frederick County's Water Resources Element (2010)

Key General Water Resource Policies
WR-P-01 Provide community water/sewer service only within Community Growth Areas.
WR-P-02 Stage development within Community Growth Areas according to the adequacy of drinking water and wastewater treatment capacities.
WR-P-03 Consider including developed properties on well and septic within adjacent Community Growth Areas to facilitate connections to community water/sewer service.
WR-P-04 Minimize new development utilizing individual well and septic systems to protect the quality and quantity of ground water resources
Key Drinking Water Policies
WR-P-07 Protect community groundwater-based systems and individual wells in karst (limestone) areas.
WR-P-08 Support compatible land uses within designated wellhead protection areas.
Key Drinking Water Action Items
DW-A-01 Explore the application of water recharge easements as a complement to existing agricultural and land preservation easement programs.
DW-A-02 Explore the use of impoundments to supplement other drinking water sources.
DW-A-06 Develop a water conservation education program for residents and businesses of Frederick County.
DW-A-07 Develop a water-resources-based GIS database for staff to review in regard to development plans and proposals.
DW-A-11 Coordinate the development of GIS mapping and drinking water data with the municipalities.
DW-A-12 Identify means to keep pharmaceuticals and endocrine disruptors out of the County‘s waste stream and wastewater treatment systems.
Key Waste Water Policies Action Items
WW-A-01 Explore funding sources and programs to address inflow and infiltration problems in wastewater collection systems.
WW-A-02 Identify and prioritize retrofitting failing septic systems using the Bay Restoration Fund (flush tax) and other programs.
WW-A-03 Require that new septic systems use the best technologies available to reduce nitrogen pollution.
WW-A-04 Identify means to reduce pharmaceuticals and other components believed to be endocrine disrupters out of the County‘s wastewater streams and/or develop treatment strategies, which have been demonstrated to remove or destroy the contaminants.
Key Stormwater Policies and Action Items
SW-A-02 Develop an action plan to improve watershed health in watersheds where impervious cover is reaching or exceeding 10%.

TABLE 9 Source Water Protection Funding Opportunities

Organization/ Funding Opportunity	Contact	Description	Website
MDA			
Conservation Reserve Enhancement Program (CREP)	Dawn Early (301) 695-2803 ext. 3	Offers financial assistance above the rates offered by the traditional Conservation Reserve Program. Program places land in conservation reserve or provides cost-share assistance for BMPs.	http://mda.maryland.gov/resource_conservation/Pages/crep.aspx
MDE			
Drinking Water Supply Assistance Program	Deborah Thomas (410)537-3722	Provides financial assistance for the acquisition, construction, rehabilitation and improvement of publicly owned water supply facilities to protect against health problems and meet federal SDWA requirements.	http://www.mde.maryland.gov/programs/water/qualityfinancing/saterqualityfinancehome/pages/programs/waterprograms/water_quality_finance/wqfa_ws.aspx
319 Nonpoint Source Program	Eric Ruby (410) 537-3685 (800) 633-6101	Provides financial assistance for the implementation of nonpoint source best management practices and program enhancements as a means of controlling the loads of pollutants entering the State's waterways.	http://www.mde.state.md.us/programs/Water/319NonPointSource/Pages/Programs/WaterPrograms/319nps/index.aspx
Bay Restoration Fund Enhanced Nutrient Removal	Rajiv Chawla (410)537-3770 (800) 633-6101	Provides up to 100 percent grant funding to upgrade wastewater treatment plants to enhanced nutrient removal (ENR) technologies.	http://www.mde.state.md.us/programs/Water/BayRestorationFund/Pages/water/cbwrf/enr.aspx
Maryland's Nitrogen-Reducing Septic Upgrade Program	Shan Abeywickrama 410-537-3921	Onsite Disposal Systems (OSDS) Fund: Provides up to 100 percent in grant funding for upgrades of existing systems to best available technology for nitrogen removal or for the marginal cost of using best available technology instead of conventional technology. Priority given to failing OSDS in Critical Areas	http://www.mde.state.md.us/PROGRAMS/WATER/BAYRESTORATIONFUND/ONSITEDISPOSALSYSTEMS/Pages/Water/cbwrf/index.aspx
Biological Nutrient Removal Cost-Share Program	Ms. Elaine Dietz (410) 537-3908 (800) 633-6101	Provides grants to local municipalities and agencies for upgrading WWTPs with biological nitrification/denitrification facilities to achieve a goal of annual average effluent concentration of 8 mg/l total nitrogen.	http://www.mde.state.md.us/programs/Water/QualityFinancing/SaterQualityFinanceHome/Pages/programs/waterprograms/water_quality_finance/wqfa_bnr.aspx
Linked Deposit Water Quality Revolving Loan Fund (WQRLF) and Drinking Water Revolving Loan Fund (DWRLF)	Mr. Jag Khuman (410) 537-3119 (800) 633-6101	Provides a source of low-interest financing for certain water quality and drinking water capital projects. Below market interest rates are passed on to borrowers by participating commercial lenders with investment agreements with MDE	http://www.mde.state.md.us/programs/Water/QualityFinancing/LinkedDeposit/Pages/programs/waterprograms/water_quality_finance/link_deposit/index.aspx
Sewerage Facilities Supplemental Assistance Program	Ms. Heather Fleming (410) 537-3327 (800) 633-6101	Provides financial assistance to local governmental entities in the form of grants, supplementing the Water Quality Loan funds, where affordability is a problem and to correct public health or water quality problems	http://www.mde.state.md.us/programs/Water/QualityFinancing/SaterQualityFinanceHome/Pages/programs/waterprograms/water_quality_finance/wqfa_supplemental.aspx
State Revolving Loan Fund/ Water Quality Financing	Mr. Jag Khuman (410) 537-3119 (800) 633-6101	Provides a source of low interest financing to encourage private landowners, and water system owners to implement capital improvements that will protect or improve the quality of Maryland's water resources and provide safe drinking water.	http://www.mde.state.md.us/programs/Water/QualityFinancing/Pages/Programs/WaterPrograms/water_quality_finance/index.aspx
Water Supply Program/ Drinking Water Supply Assistance Program	Ms. Debbie Thomas (410) 537-3722 (800) 633-6101	Provides financial assistance to local governments or to water supply systems for wellhead protection projects and direct loans to local governments or to water supply systems for land acquisition for source water protection.	http://www.mde.state.md.us/programs/Water/QualityFinancing/SaterQualityFinanceHome/Pages/programs/waterprograms/water_quality_finance/wqfa_ws.aspx
UST Loan Program/ Linked Deposit WQRLF & DWRLF	Mr. Greg Sonberg (410) 537-3412 (800) 633-6101	A program through the Water Management Administration, known as Linked Deposit, may provide owners of underground oil storage tanks (UST) a way to replace those tanks.	http://www.mde.state.md.us/programs/Water/QualityFinancing/LinkedDeposit/Pages/programs/waterprograms/water_quality_finance/link_deposit/index.aspx
UST Reimbursement Program (Oil Contaminated Site Environmental Cleanup Fund)/ The Oil Control Program	Mr. Christopher Ralston (410) 537-3443 (800) 633-6101	Provides financial assistance to owners or operators of USTs by reimbursing them for costs incurred as a result of an oil-contaminated site environmental cleanup project.	http://www.mde.state.md.us/programs/Land/OilControl/OilControlProgram/Pages/programs/landprograms/oil_control/pollution_management/index.aspx
Environmental Benefits Districts	Lisa Nissley (410) 537-3812 (800) 633-6101	Offers financial, technical, and other appropriate resources to benefit targeted communities. This is a new initiative developed by MDE to foster sound environmental practices, healthy and safe communities, and proactive economic development for all Marylanders.	http://www.mde.state.md.us/programs/crossmedia/EnvironmentalJustice/EJImplementationinMaryland/Pages/programs/multimediaprograms/environmental_justice/implementation/details.aspx#ebd
USDA			
Funding for Rural Communities	Brad King 301-797-0500 ext. 5	Provides assistance for rural businesses, housing and community facilities, and utilities through direct or guaranteed loans, grants, technical assistance, research and educational materials.	http://www.rurdev.usda.gov/RD_Loans.html
Conservation Reserve Program (CRP)	Brad King 301-797-0500 ext. 5	Agricultural producers receive cost-share assistance to plant resource-conserving cover crops (improving water quality, controlling soil erosion and enhancing wildlife habitat) and receive annual rental payment for the contract term (10-15 years). Acts as an incentive to safeguard environmentally sensitive land.	http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp-sp
Conservation Innovation Grant (CIG) Program	Gregorio Cruz (703) 235-8065	Provides grants for the development and adoption of innovative conservation approaches and technologies. Provides more options for environmental enhancement and compliance with agricultural regulations.	http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044413.pdf
USEPA			
Assessment and Watershed Protection Program Grants (CFDA 66.480)	Federal Service Desk (866) 606-8220	Provides financial assistance for studies relating to water pollution, specifically for watershed management actions and policies.	https://www.cfda.gov/index?s=program&mode=form&tab=step1&id=8f560648f1725cee11f88ee3c25452ea
Environmental Education Regional Grants	Federal Service Desk (866) 606-8220	Provides financial assistance for environmental education projects that increase public awareness.	http://www.epa.gov/education/grants/index.html
Pollution Prevention Grants Program (CFDA 66.708)	Federal Service Desk (866) 606-8220	Provides financial assistance for pollution prevention technical assistance and projects for businesses.	https://cfda.symplicity.com/index?s=program&mode=form&tab=step1&id=15438a8058b068197cc298e0234f8695

TABLE 10 Implementation Matrix

Threat to Source Water	Recommended Action	Estimated Cost *	Funding Sources	Schedule
Releases of Contaminants	Contingency Planning	<$1,000	General Revenues	within 6 months
	Wellhead Protection Ordinance	<$1,000	General Revenues / Frederick County	within 6 months
Inappropriate Land Use	Digital Information/Mapping Resources	---	General Revenues / Frederick County	within 30 days
	Periodic Updates of SWPP	$15,000 - $30,000	General Revenues / Frederick County	every 6 years
	Outreach via Water Bills and Town Workshops	---	General Revenues	within 6 months
	Additional Signage for Town	<$200	Maryland Rural Water Assoc	within 6 months
	Establish Inter-Governmental Communication Protocol	---	General Revenues	within 6 months
GUDI / Surface Water Infiltration	Physical Protection of Sources	< $5,000	---	within 1 year
	Abandonment of Well 1	< $5,000	---	As alternate Source Determined

* Cost Estimates are based upon current implementation, and do not account for changes in costs over time
--- Dashes indicated minimal cost, and regular part of county operations

APPENDIX A

Example
Wellhead Protection Ordinance[1]

For the Town of Woodsboro,
October, 2013

Based on the
Maryland Model Wellhead Protection Ordinance
February 1997,
Revised August 2005
Revised August 2007

Maryland Department of the Environment
Water Management Administration
Water Supply Program

[1] This text has not been reviewed, approved, or otherwise endorsed by attorneys, planners or other parties responsible for enacting legislation for the Town of Woodsboro. It is provided as a framework and suggestion, only.

Table of Contents

Section 1.0 PURPOSE AND INTENT

WHEREAS, the ground water underlying the community water supply wellhead protection areas is a major source of the Town of Woodsboro's existing and future water supply; and

WHEREAS, a safe and adequate source of drinking water is of great benefit to the health and well being of the Town of Woodsboro; and

WHEREAS, the aquifer systems supplying the community water supply wellhead protection areas, with its ground water supply, is integrally connected with numerous surface waters and streams; and

WHEREAS, accidental spills and discharges of toxic and hazardous materials can threaten the quality of such water supplies, posing public health and safety hazards; and

WHEREAS, unless preventive measures are adopted to control the discharge and storage of toxic and hazardous materials within the community water supply wellhead protection areas, further spills and discharges of such materials will predictably occur, and with greater frequency and degree of hazard by reason of increasing land development, population, and vehicular traffic within the wellhead protection areas; and

WHEREAS, agricultural and residential development can result in increased nitrogen loading to the ground water from septic systems, fertilizer application and livestock wastes; and

WHEREAS, proper siting, installation, operation, and maintenance of septic systems, agricultural operations, feedlots and animal wastes areas are necessary to prevent contamination of the ground water from excessive nitrogen and pathogenic organisms; and

WHEREAS, the purpose of this ordinance is to protect the public health, safety, and welfare through the preservation of the ground water resources of community public water supplies to ensure a future supply of safe and healthful drinking water. The designation of the wellhead protection districts, and careful regulation of development activities within these districts, can reduce the potential for ground and surface water contamination.

Section 2.0 DEFINITIONS

A. **AQUIFER** means any formation of soil, sand, rock, gravel, limestone, sandstone, or other material, or any crevice from which underground water is or may be produced.

B. **BEST MANAGEMENT PRACTICES (BMPs)** means a conservation or pollution control practice that manages wastes, agricultural chemicals, or hazardous materials so as to minimize movement into surface or ground waters of the State.

C. **CONTAINMENT DEVICE** shall be defined as a device that is designed to contain an unauthorized release, retain it for cleanup, and prevent released materials from penetrating into the ground.

D. **EPA** refers to the United States Environmental Protection Agency.

E. **EPA STORMWATER NPDES PERMIT** shall be defined as a permit meeting the requirements of the National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges issued by EPA on November 16, 1990.

F. **HAZARDOUS MATERIALS** means any substance that: (1) conveys toxic, lethal, or other injurious effects or which causes sublethal alterations to plant, animal, or aquatic life; or (2) may be injurious to human beings. Hazardous materials include any matter identified as a "hazardous waste" by the Environmental Protection Agency or a "controlled hazardous substance" by the Maryland Department of the Environment.

G. **MDE** refers to the Maryland Department of the Environment.

H. **NUTRIENT/MANURE MANAGEMENT PLAN** shall be defined as a plan prepared by a certified nutrient management consultant to manage the amount, placement, timing, and application of animal waste, fertilizer, sewage sludge, and other plant nutrients in order to prevent pollution and to maintain productivity of the soil.

I. **ON-SITE FLOOR DRAINS** shall be defined as drains which are not connected to municipal sewer or stormwater systems and which discharge directly to the ground or septic system.

J. **OWNER** shall be defined as a property owner or his duly authorized agent or attorney, a purchaser, devisee, fiduciary, and any other person having vested or contingent interest in the property of question.

K. **PERSON** shall be defined as any natural person, individual, public or private corporation, firm, association, joint venture, partnership, municipality, government agency, political subdivision, public officer, owner, lessee, tenant, or any other entity whatsoever or any combination of such, jointly or severally.

L. **PESTICIDE** shall be defined as any substance or mixture of substances intended for: (1) preventing, destroying, repelling, or mitigating any pest; (2) use as a plant regulator, defoliant, or desiccant; or (3) use as a spray adjuvant such as a wetting agent or adhesive.

M. **RULES AND REGULATIONS OF MDE** shall be defined as official publications of MDE with standards and requirements for protection of ground water resources.

N. **UNDERGROUND INJECTION WELL** shall be defined as a bored, drilled, driven or dug well whose depth is greater than the largest surface dimension, through which fluids enter the subsurface; or, an improved sinkhole; or, a subsurface fluid distribution system.

O. **UNDERGROUND STORAGE TANK** means an underground storage tank, connected piping, underground ancillary equipment, and containment system, if any.

P. **WELLHEAD PROTECTION DISTRICT** means that land area overlying the aquifer which contributes water to a public water supply well under the permitted withdrawal rate (average annual) and average annual recharge conditions that can be anticipated based on historical data. It is bounded and may be influenced by the ground water divides which result from pumping the well and by the contact of the aquifer with less permeable geologic boundaries. In all cases, the Wellhead Protection District shall extend upgradient to its point of intersection with prevailing hydrogeologic boundaries (a ground water flow divide, a contact with geologic formations, or a recharge boundary), or be limited by time-of-travel. The Wellhead Protection District shall be reviewed and approved by MDE.

The Wellhead Protection District may include two (2) zones of protection, with Zone 1 being the most restrictive. Zone 1 is based on a fixed radius from the wellhead. Zone 2 is based on a the Source Water Assessment Area defined for well, based upon the methods for Fractured Bedrock, as defined in the Maryland Department of the Environment's Source Water Source Water Assessment Plan.

Q. **YARDING AREAS** shall be defined as a pen or other outdoor area used for the feeding and care of livestock or poultry.

Section 3.0 AUTHORITY

Section 3.1 Enabling Statute

WHEREAS, the Town of Woodsboro has duly adopted within the Comprehensive Plan, after public notice and hearing, a Sensitive Areas Plan element in accordance with §3.05 of Article 66B of the Annotated Code of Maryland; and

WHEREAS, § 3.05 of Article 66B requires protection of streams and their buffers, 100-year floodplains, habitats of threatened and endangered species (habitat), and steep slopes; and

WHEREAS, § 3.05 (a)(2) of Article 66B authorizes protection of additional types of sensitive areas; and

WHEREAS, the Town of Woodsboro the has determined through the Sensitive Areas element of the Comprehensive Plan that, in addition to streams and their buffers, 100-year floodplains, habitats of threatened and endangered species, and steep slopes, wellhead protection areas are in need of special protection; and

WHEREAS, § 4.01 of Article 66B empowers the Town of Woodsboro with the authority to regulate and restrict land use for the purpose of promoting the health, safety and general welfare of the community; and

WHEREAS, Section 1428 of the Federal Safe Drinking Water Act Amendments of 1986 requires that each state develop a wellhead protection program to protect public water supplies from contamination from contamination; and

WHEREAS, the Maryland Department of the Environment (MDE) has developed a wellhead protection program, approved by EPA, which identifies that local governments have

responsibility for developing programs, including regulations and management controls, to protect public water supplies from contamination.

Section 4.0 APPLICABILITY

A. This Ordinance applies to all land uses and activities located or proposed within the area delineated as the Wellhead Protection District in the Town of Woodsboro on a map available for inspection at the office of the Town of Woodsboro and as defined in the definitions section of the ordinance. The Wellhead Protection District consists of Zone 1, and Zone 2 as described in 5.0 below.

B. This Ordinance is supplementary to other laws and regulations. Where this Ordinance or any portion thereof imposes a greater restriction than is imposed by other regulations, the provisions of this Ordinance shall control.

Section 5.0 EXTENT AND DESIGNATIONS

A. The Wellhead Protection District includes differing zones of protection as recommended by MDE.

1. Zone 1 represents the area bounded by a fixed radius of 500 feet from the wellhead. MDE has indicated its approval of this area as being consistent with the requirements of Section 1428 of the Safe Drinking Water Act by letter dated _____.

2. Zone 2 represents an area based on a the Source Water Assessment Area defined for a well, based upon the methods for Fractured Bedrock, as defined in the Maryland Department of the Environment's Source Water Source Water Assessment Plan, as delineated in the Sourcewater Protection Plan for the Town of Woodsboro (2013, and subsequent updates). MDE has indicated its approval of this area as being consistent with the requirements of Section 1428 of the Safe Drinking Water Act by letter dated _____.

B. The maps delineating the Wellhead Protection District and Zone(s) (1&2) are entitled (title and date) and are incorporated herein and made a part of this Ordinance. The maps shall be on file and maintained by . Accurate copies of these maps shall be made available for review by the public.

C. In determining how properties within the Wellhead Protection District depicted on the (title and date of map) are affected by the requirements of this ordinance the following rules shall apply:

1. Properties located wholly within one zone as reflected on (title and date of map) shall be governed by the restrictions applicable to that Zone.

2. Properties having parts lying within more than one zone as reflected on the (title and date of map) shall be governed by the restrictions applicable in each zone.

3. Where the boundary line between two zones passes through a building, the entire building shall be considered to be in that zone in which more than fifty (50) percent of the floor space of the building is situated.

D. The boundary of the Wellhead Protection District or individual zones within the District may be modified should additional information or analysis be provided that shows that the current boundary lines no longer appropriately reflects the criterion which they purport to represent. Such evaluations will be made at a minimum every six years, coincident with preparation of the City's Comprehensive Plan and Water Resources Element.

Procedures for modification of such boundaries shall be as follows:

1. The applicant wishing a change in boundary shall provide the evidence to the Zoning Commissioner. The applicant shall petition the Zoning Commissioner for a special hearing/District Reclassification and be required to present detailed hydrogeologic and hydrologic information to the Board of Appeals indicating where in fact the new boundary line should be drawn. The applicant shall provide (No. of copies) copies of all reports and maps to the Zoning Commissioner for a technical review of geologic and hydrologic, and any other relevant information. Maps shall be submitted on the same scale or more detailed as the official Wellhead Protection District Maps.

2. The Zoning Commissioner shall seek competent technical advice of such a change request. The (name of community) wellhead protection planning team shall be given a copy of the information given to the zoning commissioner and be granted adequate time to comment on the proposed change.

3. The burden of proof shall be on the applicant to show that the current boundaries do not represent the criterion which they purport to represent.

4. If after receiving written advice from the Town of Woodsboro planning team and/or other technical advisors, and the Zoning Commissioner believes that the proposed change has merit, all property owners potentially affected by the changes shall be sent notices indicating the proposed change. An opportunity for public comment of sixty (60) days after notices are sent shall be provided.

5. After close of the comment period the Zoning Commissioner shall make his decision.

6. Any maps so revised shall be incorporated and made part of this Ordinance and kept on file and available to the public for review by (name of appropriate agency).

Section 6.0 USE REGULATIONS

Section 6.1 Permitted Uses

The following uses shall be permitted:

A. Conservation of soil, water, plants, and wildlife;

B. Outdoor recreation, nature study, boating, fishing, and hunting where otherwise legally permitted;

C. Foot, bicycle, and/or horse paths, and bridges;

D. Normal operation and maintenance of existing water bodies and dams, splash boards, and other water control, supply and conservation devices;

E. Maintenance, repair, and enlargement of any existing structure, subject to Section 6.2 prohibited uses;

F. Residential development, subject to Section 6.2 prohibited uses;

G. Farming, gardening, nursery, conservation, forestry, harvesting, and grazing, subject to Section 6.2 prohibited uses; and

H. Construction, maintenance, repair, and enlargement of drinking water supply related facilities such as, but not limited to, wells, pipelines, aqueducts, and tunnels. Underground storage tanks related to these activities are not categorically permitted.

Section 6.2 Prohibited Uses

The following uses are prohibited or conditional within the designated protection zone(s):

			Zone 1	Zone 2
A.		Bulk Storage of Hazardous Materials, except the following[2]	X	Cu
	1.	Materials needing for normal household use, outdoor maintenance, and heating of a structure;		
	2.	Waste oil retention facilities required by statute, rule, or regulation;		
	3.	Materials needed for emergency generators; or		
	4.	Materials used in Water Treatment Plants.		
B.		Dry Cleaning Establishments, Coin or Commercial Laundries	X	Cu
C.		Garage, Service Station	X	Cu
D.		Heavy Manufacturing Uses	X	X
E.		Junk Yard	X	X
F.		Yarding Area	X	Cu[3]
G.		Manure Piles, Animals Waste Pits, Lagoons, and Sewage Sludge Storage Facilities	X	Cu
H.		Metal Plating Establishments	X	X
I.		On-site Wastewater Disposal	X	Cu[4]
J.		Open Burning Sites and Dumps	X	X
K.		Quarries and Mining Operations	X	X

L.		Storage of Deicing Chemicals	X	Cu
M.		Disposal of Fuels or Hazardous Materials	X	X
N.		Sanitary Landfills and Rubble Fills	X	X
O.		Bulk Storage and Mixing of Pesticides and Fertilizers[5]	X	Cu
P.		Underground Injection Wells	X	Cu[6]
Q.		Underground Storage Tanks	X	Cu
R.		Uses which involve, as a principal activity, the manufacture, storage, use, transport, or disposal of hazardous materials	X	X
S.		Uses which involve hazardous materials in quantities greater than those associated with normal household use [8]	X[7]	Cu
T.		Underground pipelines [9] carrying hazardous materials	X	Cu
U.		Development with greater than 50% impervious surfaces	Cu	Cu

Key: X = Not Allowed, Cu = Conditional Use

[2]Secondary containment and release detection standards for in-ground tanks and above ground tanks found later in this manual apply to the exceptions permitted in Zone 1 of the wellhead protection district.

[3]Counties/municipalities may require nutrient management plans through local regulation or other non-zoning by law/ordinance. Local requirements must be consistent with MDA/SCD standards.

[4] Counties/municipalities should consider requiring commercial and residential developments within this Zone to be serviced by public sewer. For all lots subdivided which propose on-site wastewater disposal, the intention is to ensure that the nitrate-levels do not exceed 10 mg/l. In some instances on-site systems that maximize nitrogen removal may required. Process wastewater that contain hazardous materials above drinking water standards or otherwise to harm to the water supply should be prohibited from on-site disposal.

[5]New standards and guidelines adopted by Maryland Department of Agriculture should be referenced as a condition for special exception.

[6]Process wastewater that contain hazardous materials above drinking water standards or otherwise cause harm to the water supply should be prohibited from on-site disposal.

[7]This prohibition does not apply to uses permitted in Section 6.2.A.

[8]Normal household use does not imply that it is acceptable to dispose of hazardous material through the home's plumbing system.

[9] Counties and local governments may be pre-empted from regulating the location of pipelines used in interstate commerce.

Section 6.3 Conditional Uses

Activities that are defined as conditional uses will not be allowed within the Wellhead Protection District unless the property owner can show the use will not harm the ground water and is able to meet the conditions described in 6.3.B and 6.7 of this ordinance.

A. The landowner or representative shall submit to the Town of Woodsboro an application for a Conditional Use. The application shall include:

1. A list of all hazardous materials which are to be stored, handled, used, or produced in the activity being proposed.

2. A description of the quantities and containers for the storage, handling, use, or production of hazardous materials by the proposed activity.

3. A site plan illustrating the location of all operations involving hazardous materials, spill containment structures and showing all points of potential discharge to ground water including dry wells, infiltration ponds, septic tanks and drainfields.

4. Documentation of approval by MDE of any industrial waste treatment or disposal system or any wastewater treatment system over 5,000 gallons per day (gpd) capacity.

5. Documentation of MDE permit or approval for any discharge via an underground injection well.

6. A description and estimate of the average and maximum number of poultry livestock animals that will be yarded within the Wellhead Protection District. Evidence that a nutrient management plan for nitrogen has been completed for all livestock or poultry wastes to be generated by the activity. This plan must incorporate adequate waste holding facilities and show any application sites within the wellhead protection district.

7. Plans showing secondary containment, for all underground and above ground tanks and lines containing hazardous material.

8. A description of the best management practices which will be followed during the construction of the facility to ensure that hazardous materials are not released to the ground water.

9. An emergency plan indicating the procedures which will be followed in the event of a spill of a hazardous material to control and collect the spilled material to prevent the substance from reaching the ground water.

10. A hydrologic assessment for properties with greater than 50% planned impervious surfaces (building footprints, sidewalks, and transportation surfaces) to determine the ground water recharge rate after site development is completed. The assessment will also estimate the ground water recharge rate prior to development.

B. The Town of Woodsboro shall obtain advice from all appropriate local agencies to assess whether the wellhead protection area will be protected from contaminants which pose an adverse effect on the health or comfort of persons. In making their determination, the Town of Woodsboro shall give consideration to the simplicity, reliability, and feasibility of the control measures proposed and the degree of threat to drinking water quality which would result if the control measures failed. Town of Woodsboro shall then issue a written decision. In order for the area to be approved, it must be shown that the use:

1. Will protect the water supply from contaminants used on the property which pose an adverse effect on the health or comfort of persons;

2. Will not cause the average ground water quality on the property to violate drinking water standards promulgated by MDE and the EPA; or

3. Will maintain recharge of water to the water supply aquifer consistent with rates prior to development. A request may not be approved until all comments provided by

local agencies have been addressed by the applicant to the satisfaction of the Town of Woodsboro.

C. The Town of Woodsboro may deny the Conditional Use if it is determined that the Conditional Use would not meet the requirements outlined in 6.3.B. above. The Town of Woodsboro's decision shall be made in writing to the applicant.

Section 6.4 Nonconforming Uses

Non-conforming uses lawfully in existence within the Wellhead Protection District may continue to exist in the form in which they existed at the time on this Ordinance is adopted. Changes in title or right to possession shall not effect continuation of an existing use.

In the event a non-conforming use poses a direct hazard to the public water supply, the Town of Woodsboro may take any action permitted by law to abate the hazard.

Section 6.5 Variances

Variances to the provisions of this ordinance may be granted by the Town of Woodsboro, following a public hearing, provided that a strict interpretation of the Ordinance deprives such property of privileges or safety enjoyed by other similarly situated property within the Wellhead Protection District. Applications for Variances must be presented to the Town of Woodsboro.

Section 6.6 Exemptions

The following activities are exempt from regulation under this ordinance:

1. Transportation of Hazardous Material- The transportation of any Hazardous Material through the Wellhead Protection District shall be exempt from the provisions of this ordinance.

2. Application of Pesticides- The application of pesticides in recreation, agriculture, pest control, and aquatic weed control activities shall be exempt from the provisions of this ordinance provided that:

a. The application is in strict conformity with the use requirement as set forth in the substances EPA registries. A pesticide can only be used according to its labeling and according to pertinent federal and state laws.

b. The application of pesticides shall be noted in the records of an applicator certified by the Maryland Department of Agriculture. Records shall be kept of the date and amount of these substances applied at each location and said records shall be available for inspection.

3. Underground Storage of Oil(s)- The underground storage of oil(s) used for heating fuel shall be exempt from the provisions of this ordinance if the tank used for storage is located within an enclosed structure (i.e., secondary containment or any currently approvable containment technology) sufficient to contain leakage of oil from the environment and to provide routine access for visual inspection (e.g., cement-floored basement), and sheltered to prevent the intrusion of precipitation. Any tank used for the underground storage of oil that is

out of service for more than one year shall be removed. Liquid residue shall be removed and all connecting piping securely capped or plugged.

4. Aboveground Storage of Oil(s)- The aboveground storage of oil(s) used for heating fuel shall be exempt from the provisions of this ordinance provided that the tank used for storage is: 1) located on an impervious pad or container of sufficient volume to capture and contain spills and leakage of oil from entering the environment, 2) sheltered to prevent the intrusion of precipitation and, 3) located in a manner that allows for routine visual inspection. Aboveground storage of oil shall be located as far away from the public water supply wells as possible.

Section 6.7 Performance Plan Standards

All activities that are designated conditional uses shall meet the following design and operation guidelines. The intent of this section is to encourage the use of Best Management Practices (BMPs) for all potentially hazardous activities in Zones 1 and 2.

A. Containment of hazardous materials. Leak-proof trays under containers, floor curbing, or other containment systems to provide secondary liquid containment shall be installed. The containment shall be of adequate size to handle all spills, leaks, overflows, and precipitation until appropriate action can be taken. The specific design and selection of materials shall be sufficient to contain any hazardous material at the location and prevent escape to the environment. These requirements shall apply to all areas of use, production, and handling, to all storage areas, to loading and off-loading areas, and to aboveground and underground storage areas. Because State and federal governments already regulate hazardous materials nothing in this ordinance shall be applied in a way to prevent a person from complying with State and federal requirements.

B. All underground tanks(s) and piping systems shall meet the requirements of COMAR 26.10.05.03.C 1-4 for secondary containment, double wall tanks, liners, vaults and underground piping.

C. Dry cleaning establishments shall not discharge to the ground or subsurface any wastewater that was in contact with the organic solvents used in dry cleaning process. As specified in A. above, secondary containment is required for areas when dry cleaning solvent is stored, used and transferred.

D. Infiltration of stormwater runoff that has come in contact with the pavement surfaces shall not be permitted at gasoline service stations. Waste from service stations' work areas is not permitted to be discharged to the ground or subsurface.

E. All sewage sludge and animal waste holding facilities shall be constructed so as not to allow the waste material to leach into the ground water. All in-ground facilities shall use low permeability liners constructed to meet one of the standards specified below:

a. one foot of clay with a permeability less than 10^{-7} cm/sec, or

b. two feet of clay with a permeability less than 10^{-6} cm/sec or

c. two feet of compacted soil with a permeability less than 10^{-5} cm/sec, and a manmade liner, 30 mil thick, and permeability less than 10^{-7} cm/sec.

F. Agricultural operations with yarding areas shall follow nutrient management plans for nitrogen. Waste application rates for all sites within the wellhead protection district are to be

designed to not exceed not exceed crop requirements and therefore minimize nitrate discharge to ground water.

G. All facilities with wastewater disposal greater than 5,000 gpd shall have a State discharge permit. All developments with on-site disposal shall be designed so that the average NO_3-N concentration of the water recharging the surficial ground water aquifer under the property shall not exceed 10 milligrams per liter.

H. All de-icing chemicals (salt piles and sand/salt mixes) must be stored under roof and protected from precipitation by a permanent cover. Runoff from mixing and loading areas may not be discharged to the subsurface.

I. All facilities with bulk storage of pesticides must show evidence of compliance with Maryland Department of Agriculture requirements.

J. All tanks of liquid fertilizers must have secondary containment of at least 110% of the largest tank within the contained area. All dry fertilizer storage must be under a permanent cover and protected from rainfall.

K. All facilities with underground injection wells must show evidence of compliance with all applicable MDE permits, consent orders, or other State actions, regarding the underground disposal of wastes.

L. All underground pipelines carrying hazardous materials shall be equipped with operable secondary release detection equipment and be protected against corrosion.

M. All excess hazardous materials from the construction of any facility shall not be released to the environment and shall be removed from the property, unless such materials are incorporated into a contained hazardous materials storage area.

N. At all facilities practicing stormwater infiltration the following design standards shall apply:

1. Stormwater management facilities including drainage swales, detention ponds, and retention ponds shall be designed in a manner to provide optimal protection of the ground water resources. Uses of grass swales, open shoulder roads and grass filter strips shall be considered as first options in plan development.

2. At least four feet of soil material is required between the top of bedrock surface or high water table (whichever is higher) and the bottom of any stormwater infiltration pond or system.

3. Stormwater infiltration shall be prohibited in areas receiving runoff from handling and mixing areas of hazardous materials.

4. At least 80% of the predevelopment recharge rate shall be preserved following development. The design shall be made to ensure that this rate can be maintained over the life of the facility.

O. Reporting of Spills. Any spill of a hazardous material shall be reported by the facility owner by telephone to the water supplier, within two (2) hours of discovery of the spill. Clean-up shall commence immediately upon discovery of the spill. A written report detailing the steps taken to contain and clean up the spill and preventing a recurrence shall be submitted to the water supplier within five (5) working days of the spill.

P. Monitoring for Hazardous Materials in Ground Water. If required by the Town of Woodsboro, ground water monitoring well(s) shall be installed at the expense of the facility owner or operator in accordance with an approved ground water monitoring plan. The permittee shall be responsible for developing an approved ground water monitoring system. Samples shall be analyzed by a State-certified laboratory and the results reported to the Town of Woodsboro

Q. Alterations and Expansion. The Town of Woodsboro shall be notified in writing prior to the expansion, alteration, or modification of any activity that is subject to a Conditional Use. Approval by the Town of Woodsboro is required before the activity subject to a Conditional Use can begin. The landowner or representative shall submit an explanation of the change in activity and the information as required by this ordinance above.

R. Facilities required by Federal and/or State Law to maintain a Spill Prevention, Control, and Countermeasure Plan (SPCC; e.g. those facilities storing more than 1,320 gallons of oil or petroleum-based liquid above ground, or 42,000 gallons of oil underground, per the Clean Water Act of 1990) will be required to provide copies of these plans with the Town of Woodsboro, and to provide updates to the Town when any substantive changes are made, when land use changes, or when the property changes ownership.

Section 7.0 ADMINISTRATION REQUIREMENTS

Section 7.1 Subdivision and Land Development Review

All subdivision proposals and other proposed new development plans within the Wellhead Protection District shall be reviewed by for compliance with the provisions of this ordinance. It shall be the responsibility of the Town of Woodsboro to recommend approval, disapproval, or approval with modifications of the proposed subdivision or development plan.

Section 7.2 Notice of Violation

Whenever it is determined that there is a violation of this ordinance, A Notice of Violation shall be issued. The Notice of Violation shall:

1. Specify the violation or violations in writing.
2. Specify the length of time available to correct the violation.
3. Clearly state any penalties associated with the subject violation.
4. Provide a description of any rights of appeal.

Section 7.3 Stop Work Orders

The Town of Woodsboro is authorized to issue cease and desist orders whenever it becomes aware of violations of this ordinance.

Section 7.4 Penalties

All costs incurred by the Town of Woodsboro, including engineering and attorney's fees for enforcing this ordinance shall be paid by the owner who violated the provisions of this ordinance. A penalty of up to $1,000 may be levied for any violation of this ordinance.

Section 8.0 FEES

All fees for review of Subdivision and Land Development Plans shall be established by resolution of the appropriate local governing body. Fees established shall be reviewed annually and adjusted as required. The fees shall include reasonable costs involved with the implementation of this ordinance and may include Administrative and professional staff review costs.