



Final

Source Water Assessment

for 30 Transient Water Systems in

Garrett County, Maryland

Prepared for:

Maryland Department of the Environment
Water Management Administration
Water Supply Program
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230-1719

Prepared by:

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February 2004

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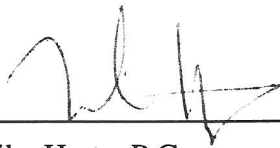
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February 2004

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LIST OF ACRONYMS AND ABBREVIATIONS

AST	Aboveground Storage Tank
BMP	Best Management Practice
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
CHS	Controlled Hazardous Substances
COMAR	Code of Maryland Regulations
CREP	Conservation Reserve Program
DWEL	Drinking Water Equivalent Level
ft	Foot/Feet
gal	Gallon(s)
gpd	Gallon(s) Per Day
gpm	Gallon(s) Per Minute
GPS	Global Positioning System
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
mg/L	Milligram(s) Per Liter
NPL	National Priorities List
PCB	Polychlorinated Biphenyl
PWSID	Public Water System Identification
SDWA	Safe Drinking Water Act
SDWR	Secondary Drinking Water Regulations
SWAP	Source Water Assessment Plan
SWPA	Source Water Protection Area
TCE	Trichloroethene
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
UV	Ultraviolet
WHPA	Well Head Protection Area

EXECUTIVE SUMMARY

EA Engineering, Science, and Technology was tasked to perform a Source Water Assessment for 91 Transient Non-Community water systems in Garrett County, Maryland. This report contains the Source Water Assessment for 30 of the 91 systems. Each water system is identified by a Public Water System Identification (PWSID) by the Maryland Department of the Environment (MDE). EA has performed this study under Purchase Order No. U00P3200205, as authorized by MDE.

The required components of this report as described in Maryland's Source Water Assessment Plan (SWAP) are delineation of the area that contributes water to the source; identification of potential sources of contamination; determination of the susceptibility of the water supply to contamination; and recommendations for protecting the drinking water supply.

Thirty-eight (38) wells and 1 spring are used to supply water to the 30 Transient Non-Community water systems. All system wells are completed in unconfined aquifers with the exception of the Hen House (1111081), which is spring-fed. The source waters of these 38 transient system wells are derived from six aquifers: Conemaugh, Greenbrier, Hampshire, Pocono, Pottsville-Allegheny, and the Jennings Formation. The Source Water Protection Area (SWPA) for the 38 ground-water supply wells was determined as a 1,000-ft radius from the supply wells, except for the spring-fed system where a watershed drainage area delineation method was used.

Potential point and non-point sources of contamination within the assessment area were identified based on site visits, a review of MDE databases, and a review of sewer service area and land use maps for each system. Features and facilities including, but not limited to septic systems, inactive wells, potential polychlorinated biphenyl (PCB) containing transformers, agricultural fields, underground storage tanks (USTs), aboveground storage tanks (ASTs), or leaking underground storage tank (LUST) sites were observed and considered contaminant sources to the SWPA.

Available well information, water quality data, identified potential sources of contamination, land use in the SWPAs, source integrity, and aquifer characteristics were evaluated to complete a susceptibility analysis for each transient system. Based on these criteria, 28 systems have a low susceptibility to nitrate and 2 systems have a high susceptibility to nitrate. Sixteen (16) systems have a low susceptibility to microbiological contaminants, 6 systems have a moderate susceptibility, and 8 have a high susceptibility to microbiological contaminants.

Recommendations to protect the ground-water supply include County awareness of the SWPA and coordination with system owners, system owner awareness of the SWPA, understanding measures to maintain source integrity, and communication with County officials about future planning and land use.

1. INTRODUCTION

EA Engineering, Science, and Technology was tasked to perform a Source Water Assessment for 91 transient water supply systems in Garrett County, Maryland. This report contains the Source Water Assessments for 30 of the 91 systems. EA has performed this study under Purchase Order No. U00P3200205, as authorized by the Maryland Department of the Environment (MDE).

Maryland's Source Water Assessment Plan (SWAP) defines a Transient Non-Community water system as any non-community system that does not regularly serve at least 25 of the same individuals over 6 months per year. Each water system reviewed serves a transient population at commercial businesses (restaurants, gas stations, movie theaters, retail stores), private clubs, recreation vehicle parks, seasonal campgrounds, public park facilities, or lodging facilities in Garrett County. Thirty-eight (38) wells and 1 spring serve the 30 transient systems. Collectively, the 30 transient systems serve a population of 1,726 with 54 connections. Table 1 lists the transient water systems reviewed as part of this investigation.

Transient systems are required to regularly collect ground-water samples for coliform bacteria and nitrogen (nitrate/nitrite) analysis. If a positive coliform bacteria sample is identified, additional sampling and analysis is performed on the system. This SWAP study is centered on these two contaminants, but a discussion of other potential sources of contamination to the aquifer is also included in the SWA.

1.1 GROUND-WATER SUPPLY SYSTEM INFORMATION

Well and water system information was obtained from information contained within the MDE water supply database, MDE non-community water supply sanitary surveys, Garrett County Health Department non-community water supply sanitary surveys, discussions with Garrett County Health Department personnel, and site visits.

A review of the well construction data and available sanitary surveys of the transient water systems indicates that 3 of the 38 wells were drilled prior to the implementation of the State's current well construction standards in 1973, and 23 wells were drilled after 1973 in accordance with well construction standards. There are 12 wells for which no information was available regarding well age.

A review of available Groundwater Appropriation Permits, the 30 Transient systems can utilize 200 to 7,500 gpd of ground water. No Groundwater Appropriation Permit information was available for review for 14 of the 30 Transient systems.

TABLE 1. TRANSIENT WATER SYSTEMS

PWSID	System Name
1111030	Annies Kitchen
1111117	Big Run State Park
1111131	Brennemans Store
1111016	Camp Sunrise Mountain
1111126	Casselman Lumber
1111019	Cindys Place
1111145	Friendsville I-68 Rest Area (Info Bldg)
1111028	Friendsville I-68 Rest Area (Restroom)
1111091	Fuel City/Burger King
1111132	Funny Farm
1111134	Garrett County Roads
1111133	Garrett County Roads (Accident Garage)
1111081	Hen House
1111034	Hilltop Delite
1111035	Hilltop Inn
1111036	Holiday Inn
1111093	Keysers Ridge Truck Stop
1111050	Little Brown Lake Camp
1111124	Little Meadows Campground
1111103	McDonalds Keysers Ridge
1111135	Maryland State Highway (Finzel Scales)
1111008	New Germany State Park (Cabin Area)
1111048	New Germany State Park (Camping Area)
1111052	Penn Alps Inc.
1111147	Savage Mountain River Cabins
1111146	Savage Mountain River Lodge
1111118	State Highway Admin. (Cove Rest Area)
1111106	Subway Shop
1111072	Western Maryland 4-H Center
1111074	Wild Water Inn

Table 2 contains a summary of the active wells associated with each water system. Each active well was observed to be secure and in good repair unless otherwise noted in Table 2. Wells recommended for abandonment are presented in Table 3.

1.1.1 Water Treatment

Sixteen (16) of the water systems have water treatment in place to treat the ground water in their system; and 14 of the water systems have no water treatment.

Five different treatment methods are utilized on the transient systems, and some systems may utilize up to three methods on a given well. The treatment methods utilized are hypochlorite, ion exchange, pH adjustment, ultraviolet (UV) radiation, and filtration. A description of the treatment method utilized on ground water from each well is presented in Table 4. Twelve (12) system wells are equipped with ion exchange treatment, 13 wells in 7 systems are equipped with hypochlorite treatment, 3 wells in 3 systems are equipped with pH adjustment treatment, 3 wells in 3 systems are equipped with UV radiation treatment, 6 wells in 4 systems are equipped with filtration.

1.2 HYDROGEOLOGY

Garrett County is the westernmost county in Maryland and is completely located within the Allegheny Mountain Section of the Appalachian Plateau Physiographic Province. Pleistocene terraces and recent flood plains found along the larger streams and consolidated sedimentary rocks of the mid-Paleozoic (Devonian, Mississippian, and Pennsylvanian age) dominate the surface and subsurface geology. The Mid-Paleozoic units are folded into broad anticlines and synclines that trend northeast-southwest. The anticlinal structures are underlain by Devonian rocks and contain three distinct gas fields. The synclinal structures form the coal basins of the region and are underlain by Pennsylvanian rocks (Nutter 1980).

The ground water used by the transient systems is derived from aquifers in the Pocono Group, Pottsville-Allegheny Formation, Jennings Formation, Greenbrier Formation, and Conemaugh Formation (Table 2). Eight (8) wells in 8 systems derive water from the Pocono Group aquifer, 24 wells and 1 spring from 17 systems utilize the Conemaugh formation, 1 well from 1 system utilizes the Greenbrier Formation, 3 wells from 3 systems utilize the Hampshire formation, 1 well from 1 system utilizes the Jennings Formation and 1 well from 1 system utilizes the Pottsville-Allegheny formation. Additional detail regarding these formations is presented in Table 4, Formation Description.

The source of the ground water in Garrett County is from precipitation in the form of rainfall or snowmelt that infiltrates into the subsurface. The ground-water table in the aquifer generally mimics the surface topography. The availability of ground water in the predominantly sedimentary bedrock aquifers of Garrett County depends on the lithology of the rock, the permeability of the substrate, the size of intergranular pore space, and the presence or absence of secondary openings from fracturing and weathering. Average well yields for each geologic unit are included in Table 5.

TABLE 5. FORMATION DESCRIPTION

Geologic Formation / Unit	Formation Description
Conemaugh Formation	This formation is a sandstone, shale, and siltstone, with red beds, laminar clay, shaley limestone, and coal beds. This is an important water-bearing unit in the coal basins (Nutter 1980).
Greenbrier Formation	This formation is composed of "red and green shale with lenticular limestone and limy sandstone." The Greenbrier Formation is an important aquifer along the anticlinal flanks basins (Nutter 1980).
Hampshire Formation	This formation is composed of "brown and green sandy shale with shale, thin-bedded sandstone and red beds." This is an important water-bearing unit in the Deer Park and Accident anticlines (Nutter 1980).
Jennings Formation	This formation is composed of "gray and green shale and sandy shale, sandy silt-stone, tin-bedded sandstone" (Nutter 1980).
Pocono Group	This formation is composed of "coarse-grained sandstone (locally conglomeritic), shale and sandy shale." This is an important aquifer in the Deer Park and Accident anticlines. Many wells and springs in the Pocono formation are fairly high-yielding water sources. (Nutter 1980).
Pottsville-Allegheny Formation	This formation is composed of "sandstone (locally conglomeritic, sandy shale and siltstone with clay beds and thin coal seams". It is an important aquifer in the coal basins and moderately important along the flanks of the basins (Nutter 1980).

TABLE 6. WELL YIELD INFORMATION

Geologic Unit / Formation	Number of Wells in Data Set	Average Well Yield (gpm)
Conemaugh Formation	273	13.3
Greenbrier Formation	48	32.6
Hampshire Formation	165	12
Jennings Formation	186	8.7
Pocono Group	132	13.1
Pottsville-Allegheny Formation	127	13.1

2. DELINEATION OF THE AREA CONTRIBUTING WATER TO SOURCE

For ground-water systems, a wellhead protection area (WHPA) is considered to be the source water protection area (SWPA) for the system.

Consistent with the recommended delineation in the Maryland SWAP (MDE 1999), for the 29 systems that use less than 10,000 gpd, a 1,000-ft radius from the supply wells was used to determine the SWPA. As designated by the State, this radius is based on calculating the land area needed to provide a yield of 10,000 gpd assuming a 400 gpd/acre recharge rate, which is a drought year recharge condition, and a safety factor. These delineations were also modified by surface water features.

One system, Hen House (1111081), is a spring-fed water system and, therefore, the watershed drainage area method was utilized. The delineation was then modified by ground-water divides, surface water features, and topography.

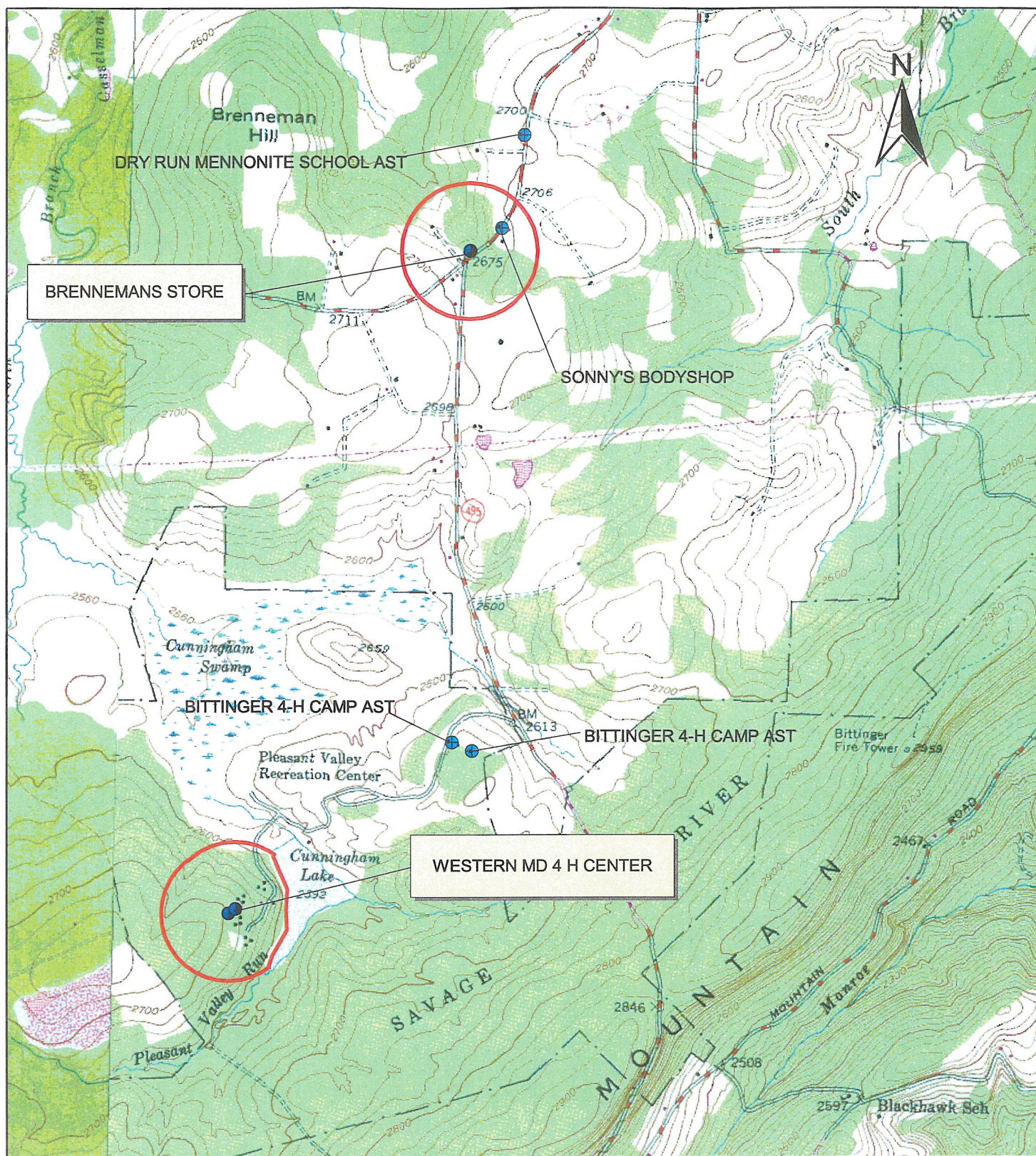


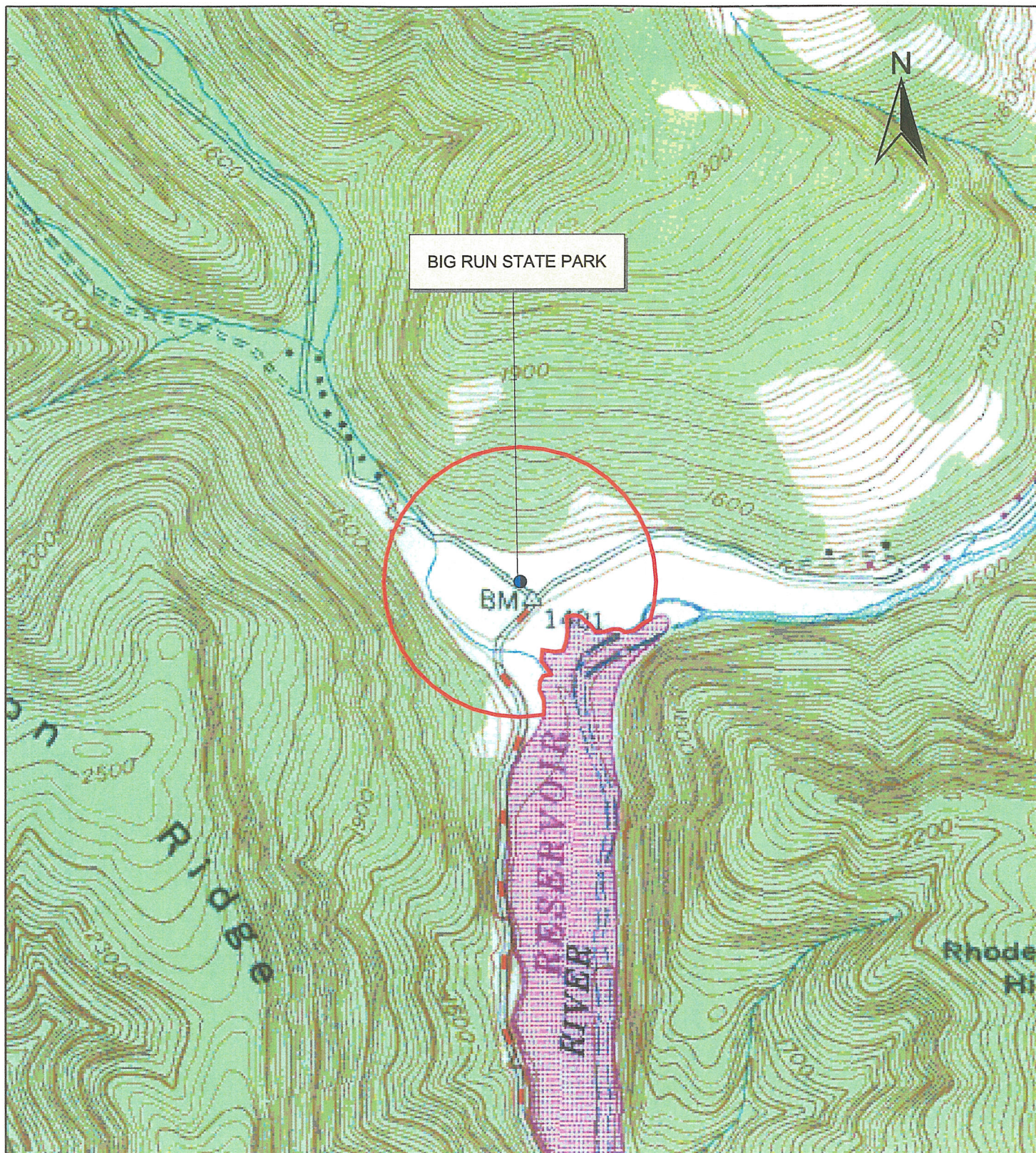
Figure 2-1. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program 2003

Legend:

- Transient Supply Well
- SWPA Boundary
- Miscellaneous

Scale:
1000 0 1000 2000 Feet

Source: United States Geologic Survey. 1947 (photorevised 1974, photoinspected 1979). 7.5-Minute Series Topographic Map for Bittinger, Maryland.
United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for McHenry, Maryland.

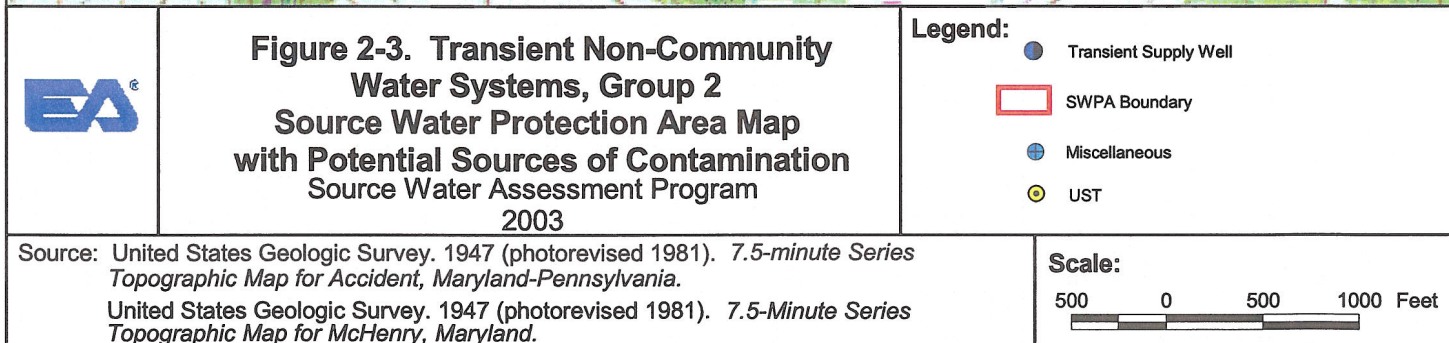


**Figure 2-2. Transient Non-Community
Water Systems, Group 2
Source Water Protection Area Map
with Potential Sources of Contamination**
Source Water Assessment Program
2003





Legend: ● Transient Supply Well
□ SWPA Boundary

Source: United States Geologic Survey. 1947 (photorevised 1974, photinspected 1979).
7.5-Minute Series Topographic Map for Bittinger, Maryland.

Scale:
500 0 500 1000 Feet




Legend:

-  Transient Supply Well
-  SWPA Boundary
-  Miscellaneous
-  UST

Source: United States Geologic Survey. 1947 (photorevised 1981). *7.5-minute Series Topographic Map for Accident, Maryland-Pennsylvania*.
United States Geologic Survey. 1947 (photorevised 1981). *7.5-Minute Series Topographic Map for McHenry, Maryland*.

Scale:



500 0 500 1000 Feet

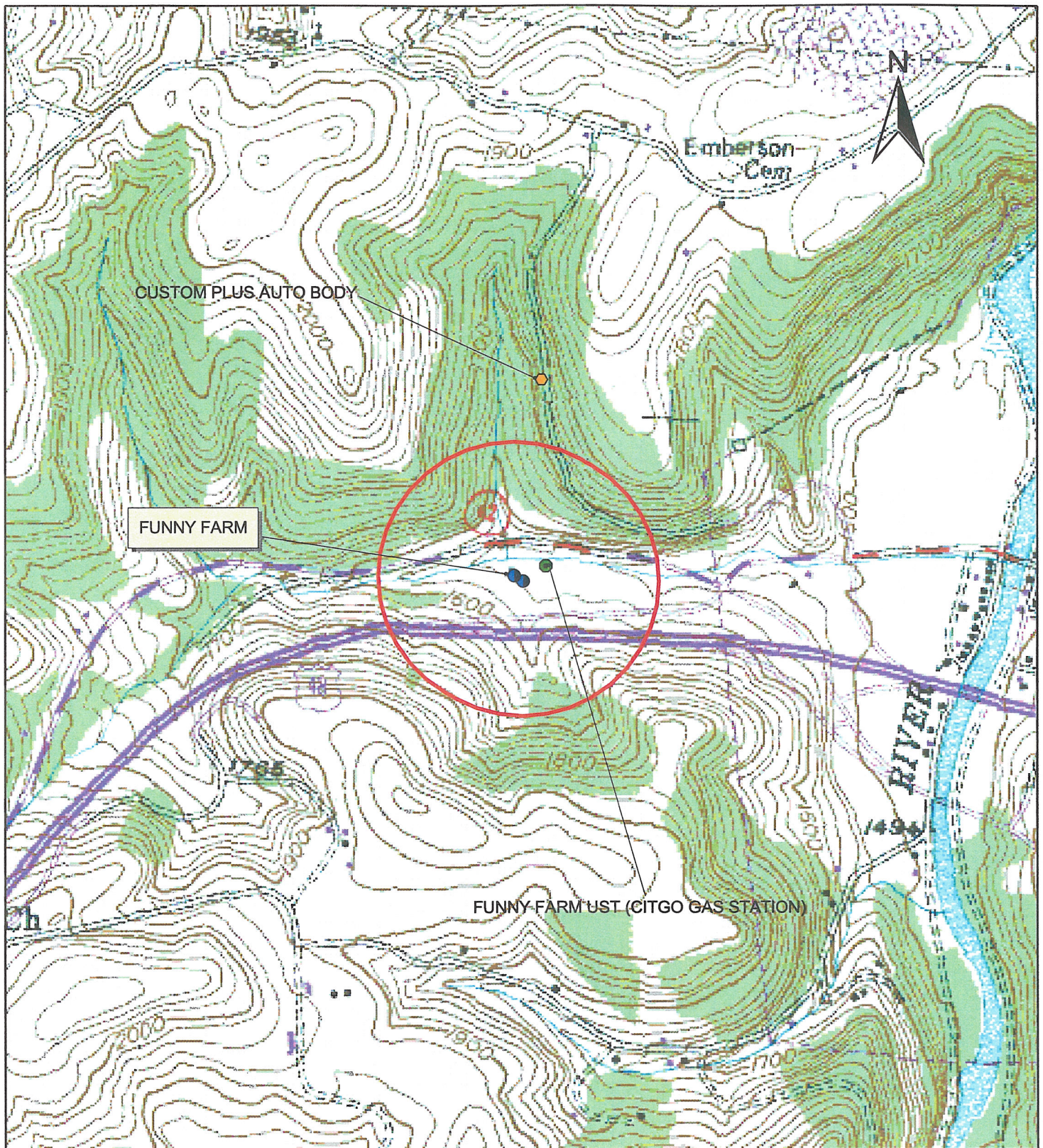


Figure 2-4. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program 2003

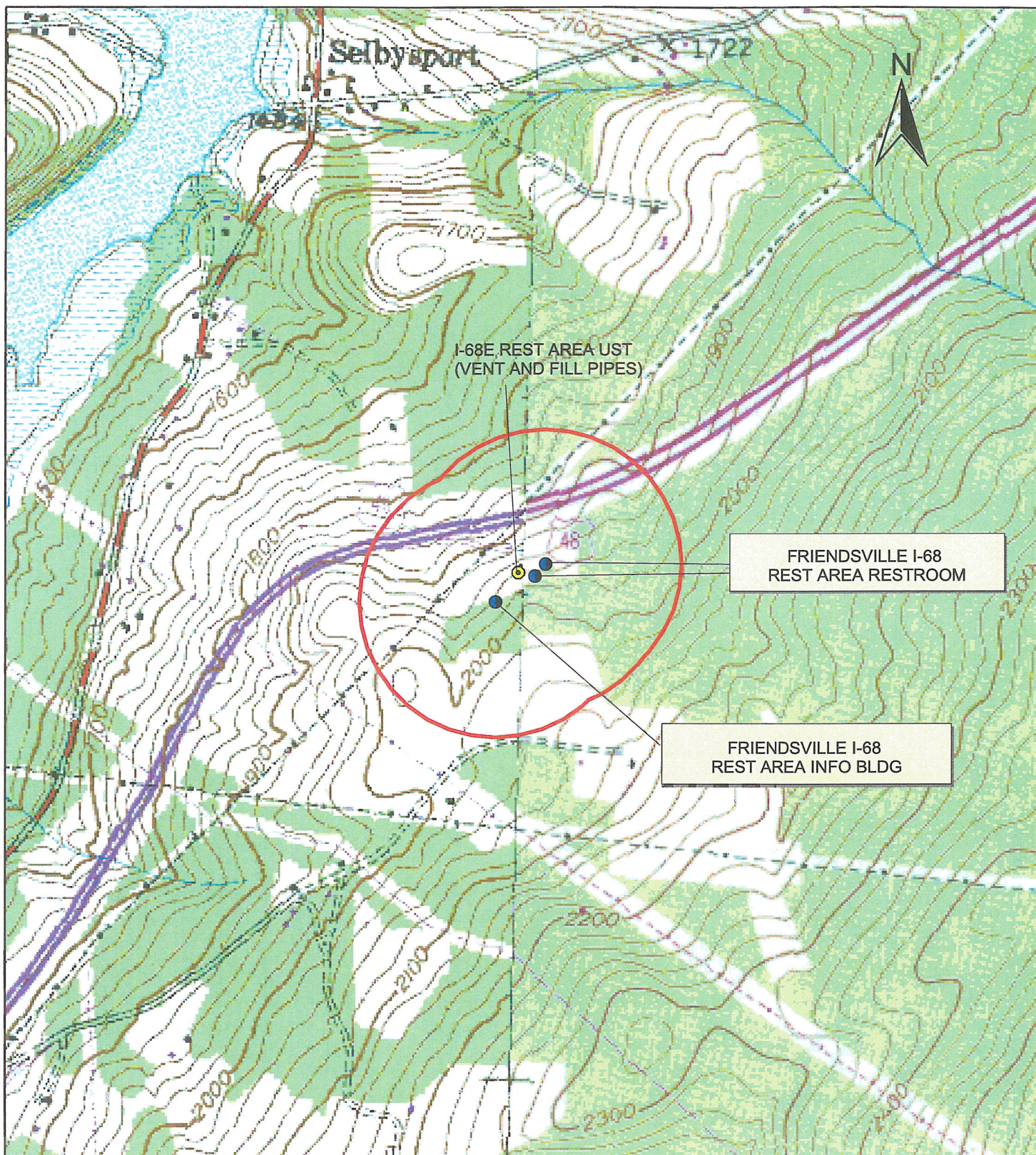
Legend:

- Transient Supply Well
- SWPA Boundary
- LUST
- CHS Generator

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-minute Series Topographic Map for Friendsville, Maryland-Pennsylvania-West Virginia.

Scale:

500 0 500 1000 Feet



**Figure 2-6. Transient Non-Community
Water Systems, Group 2
Source Water Protection Area Map
with Potential Sources of Contamination**
Source Water Assessment Program
2003

Legend:

- Transient Supply Well
- SWPA Boundary
- UST

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-minute Series Topographic Map for Friendsville, Maryland-Pennsylvania-West Virginia.
United States Geologic Survey. 1947 (photorevised 1981). 7.5-minute Series Topographic Map for Accident, Maryland-Pennsylvania.

Scale:

500 0 500 1000 Feet

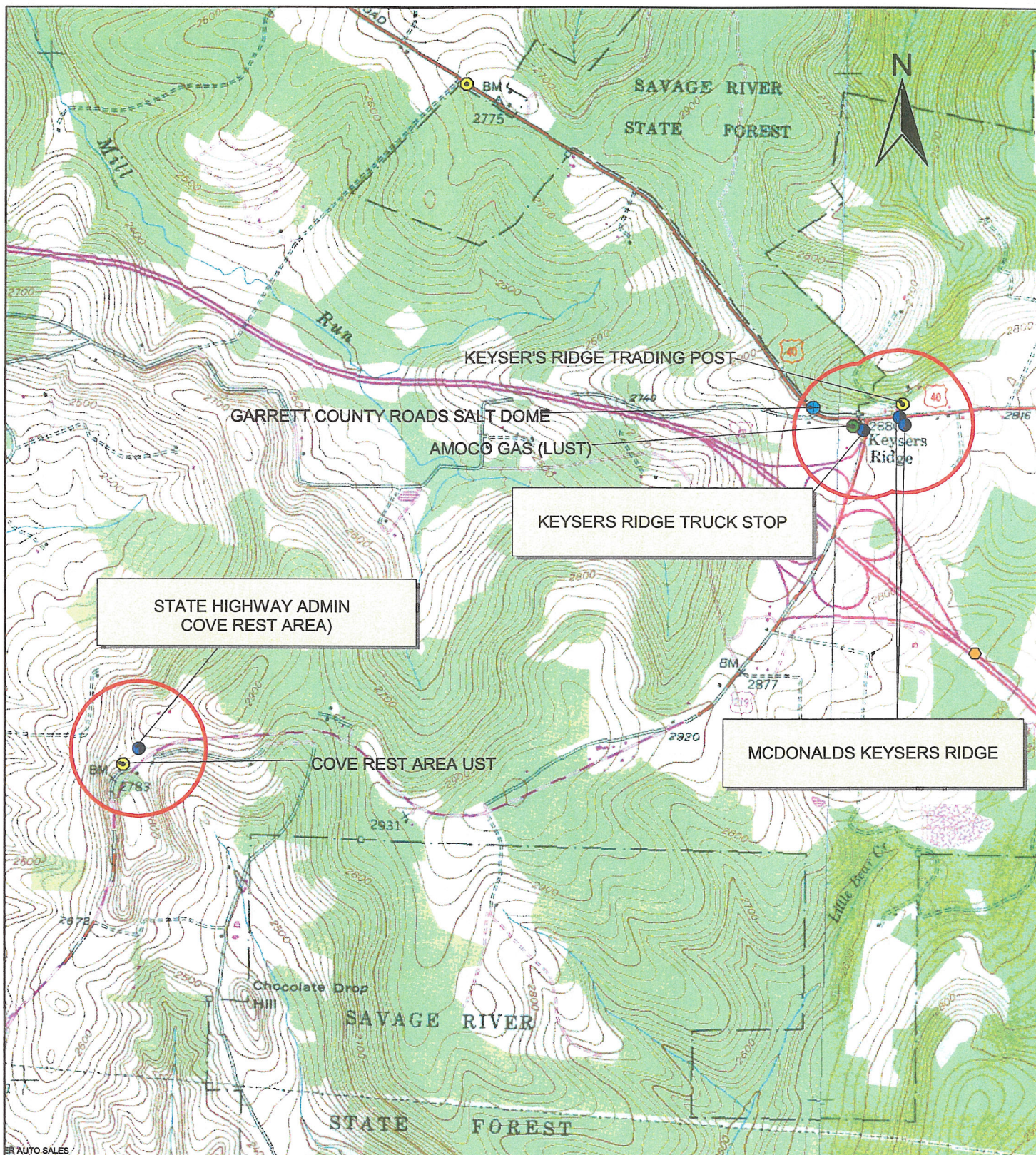


Figure 2-7. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program 2003

Legend:

- Transient Supply Well
- SWPA Boundary
- ⊕ Miscellaneous
- UST
- LUST

Scale:
1000 0 1000 2000 Feet

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Accident, Maryland-Pennsylvania.
United States Geologic Survey. 1994. 7.5-Minute Series Topographic Map for Grantsville, Maryland-Pennsylvania.

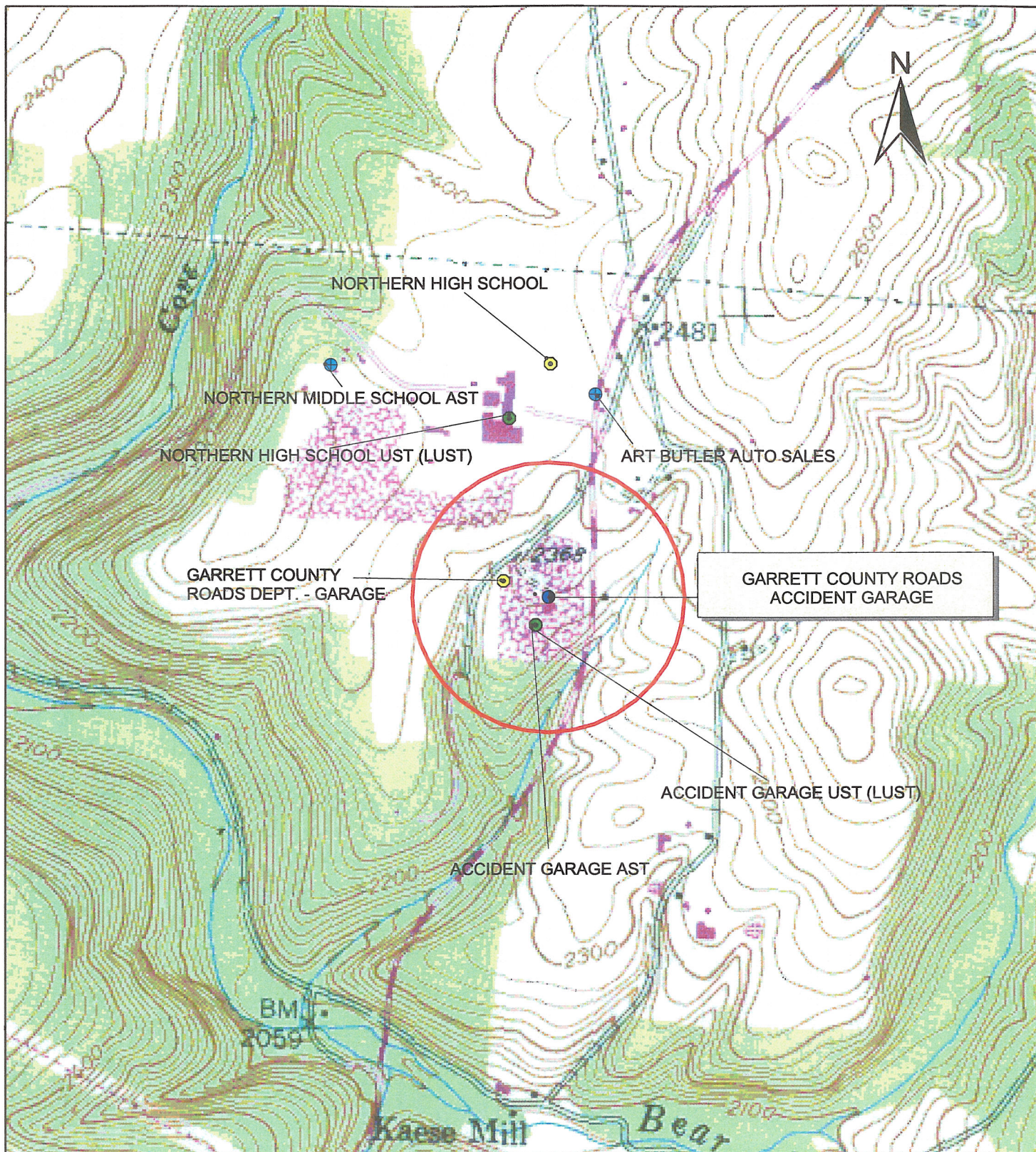


Figure 2-8. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program
2003

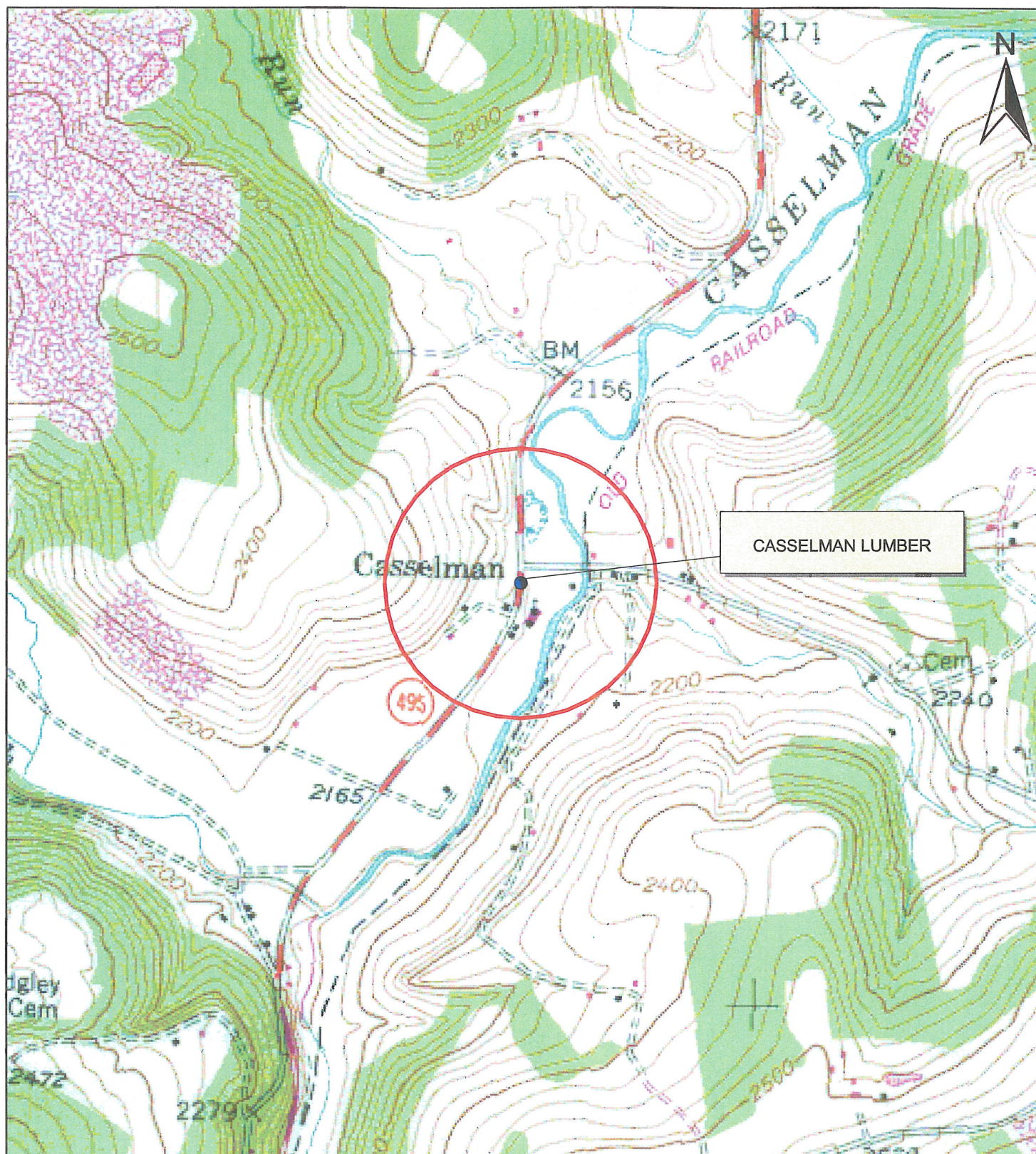
Legend:

- Transient Supply Well
- SWPA Boundary
- LUST
- Miscellaneous
- UST

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Accident, Maryland-Pennsylvania.

Scale:

500 0 500 1000 Feet



**Figure 2-9. Transient Non-Community
Water Systems, Group 2
Source Water Protection Area Map
with Potential Sources of Contamination**
Source Water Assessment Program
2003

Legend: ● Transient Supply Well
□ SWPA Boundary

Source: United States Geologic Survey. 1994. 7.5-Minute Series
Topographic Map for Grantsville, Maryland-Pennsylvania.

Scale:

500 0 500 1000 Feet

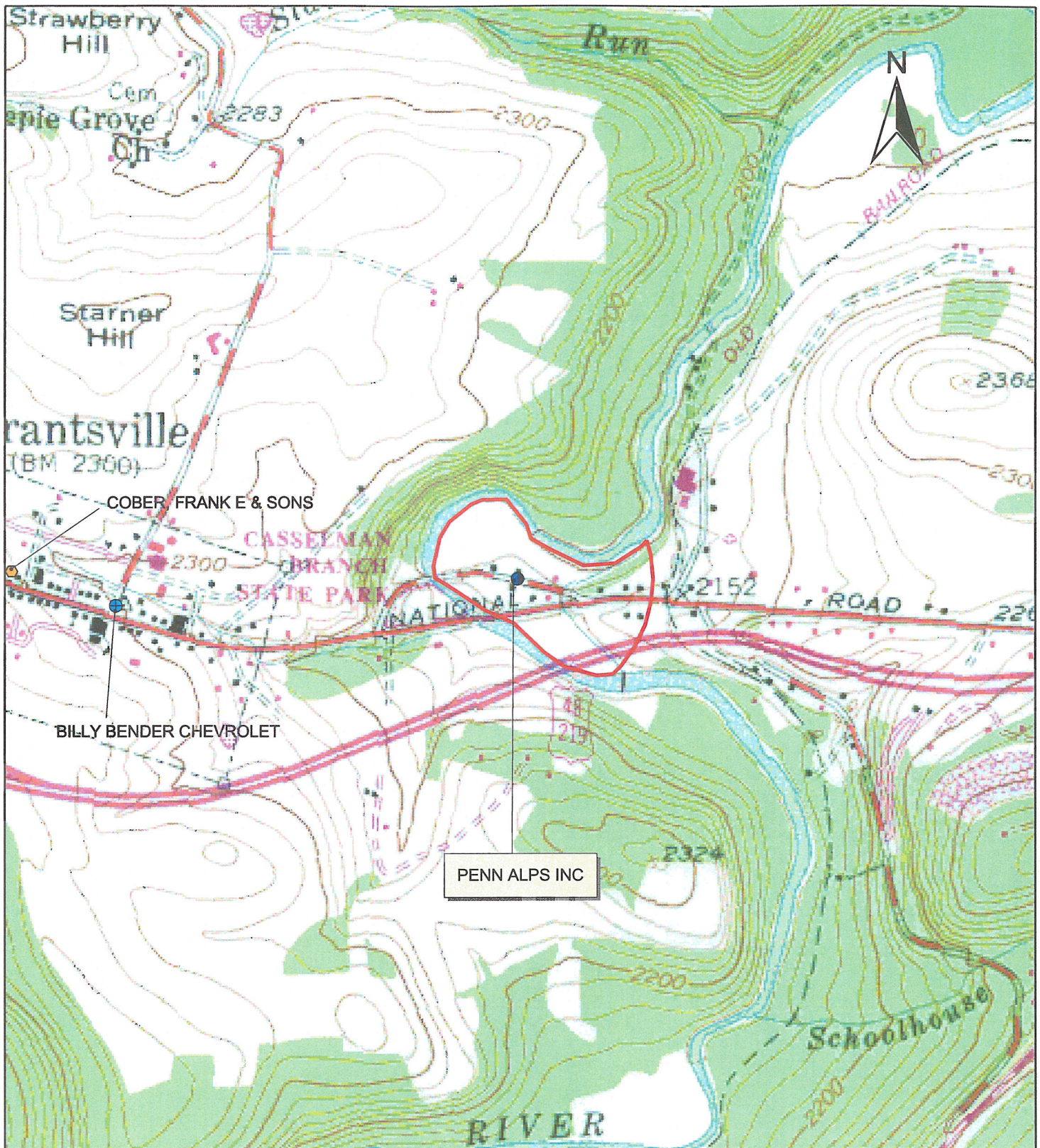


Figure 2-10. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program
2003

Legend:

- Transient Supply Well
- SWPA Boundary
- CHS Generator
- Miscellaneous

Source: United States Geologic Survey. 1994. *7.5-Minute Series Topographic Map for Grantsville, Maryland-Pennsylvania.*

Scale:

500 0 500 1000 Feet

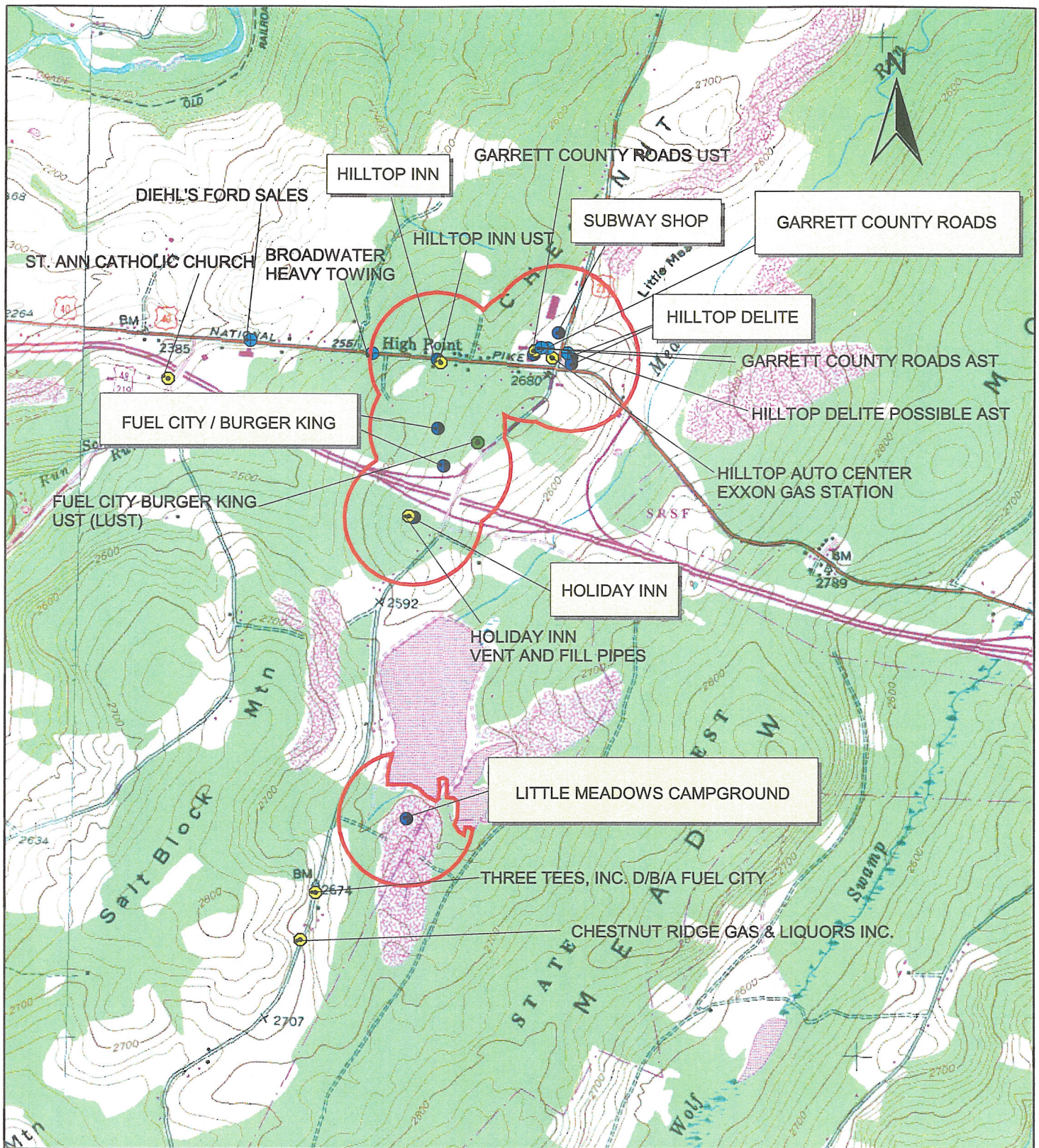


Figure 2-11. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination

Source Water Assessment Program 2003

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Avilton, Maryland-Pennsylvania.

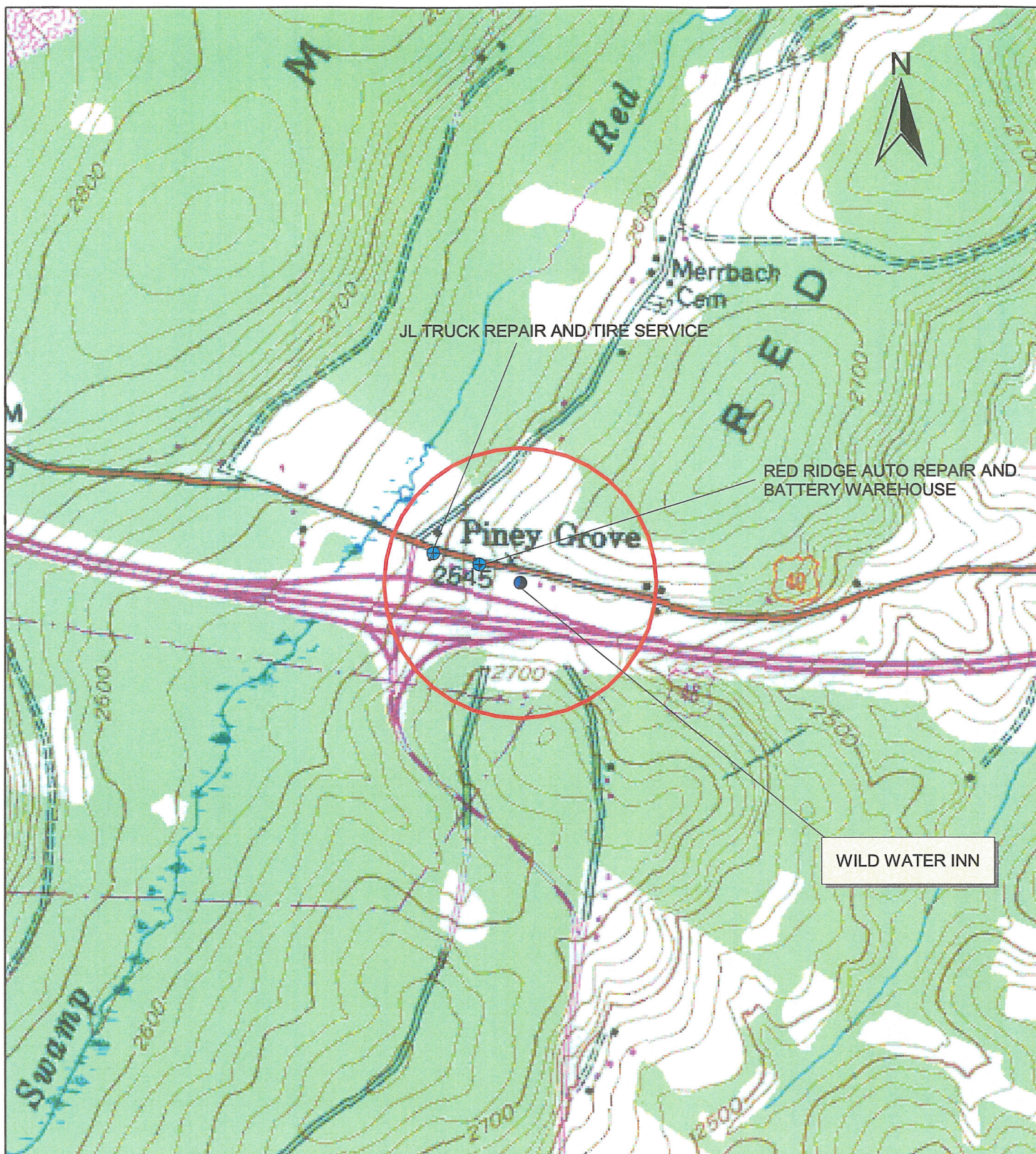


Figure 2-12. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program
2003

Legend:

- Transient Supply Well
- SWPA Boundary
- Miscellaneous

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Avilton, Maryland-Pennsylvania.

Scale:

500 0 500 1000 Feet

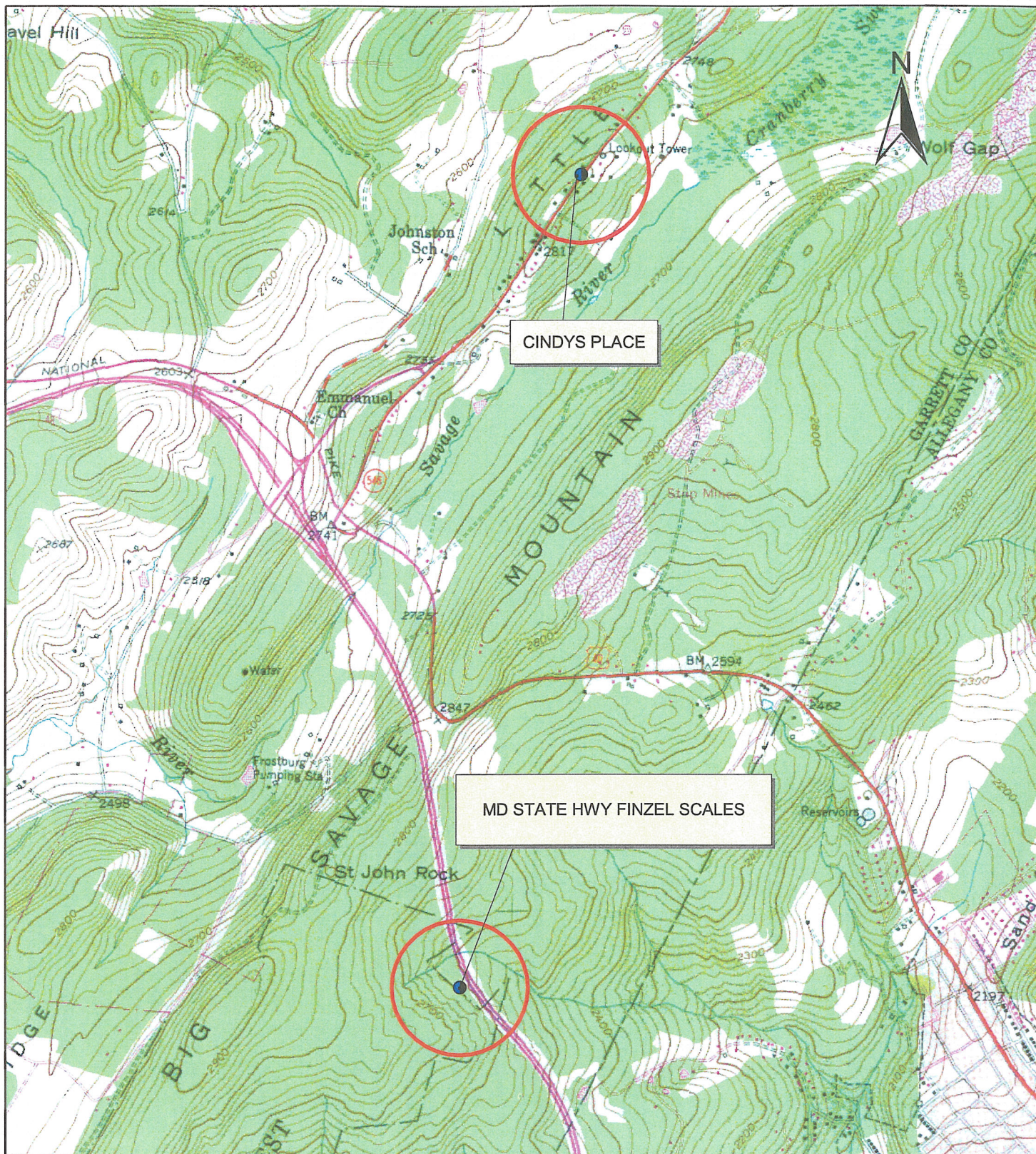


Figure 2-13. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program
2003

Legend: ● Transient Supply Well
□ SWPA Boundary

Source: United States Geologic Survey. 1949 (photorevised 1981). 7.5-Minute Series Topographic Map for Frostburg, Maryland-Pennsylvania.

Scale:
1000 0 1000 2000 Feet

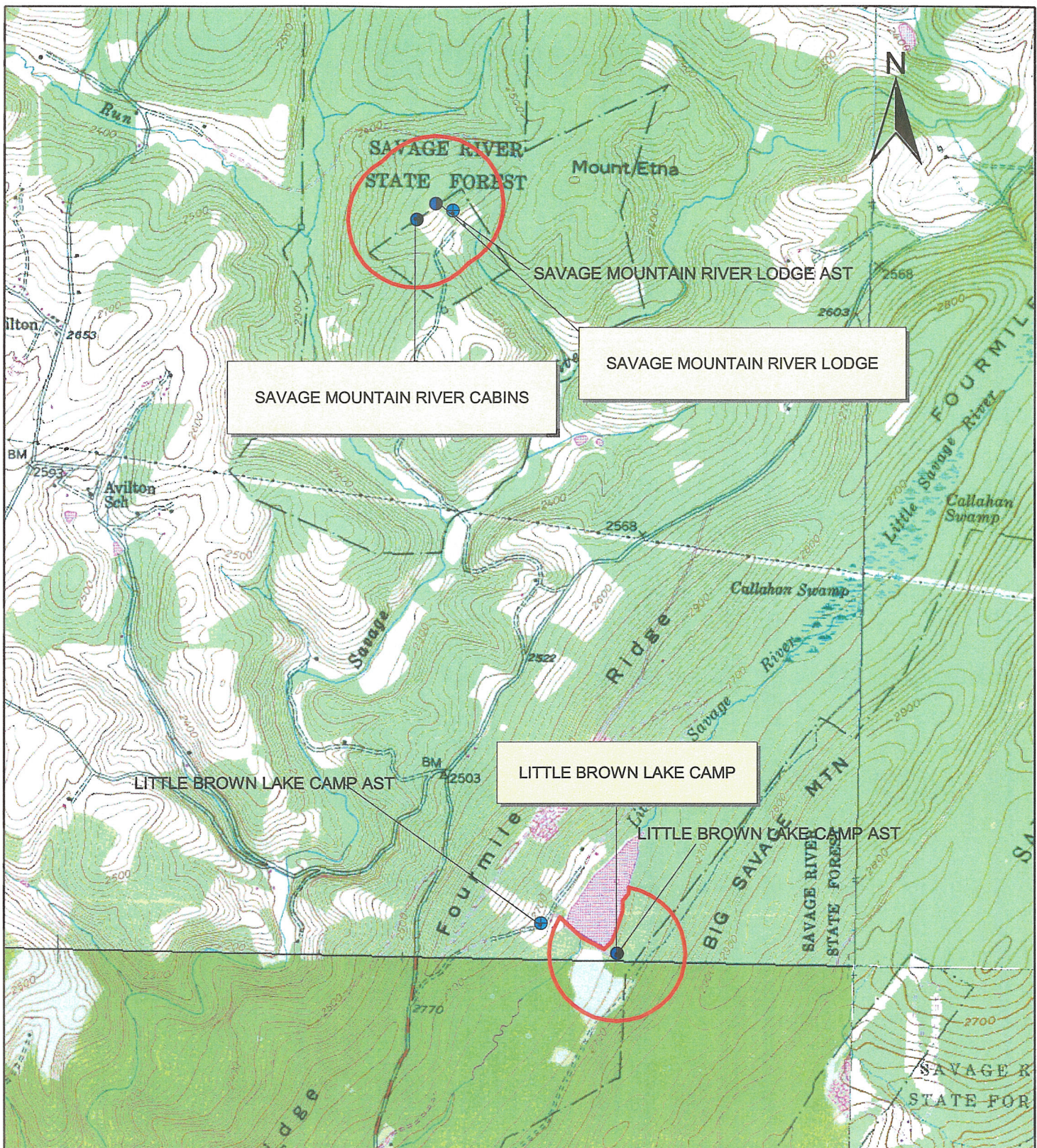


Figure 2-14. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program 2003

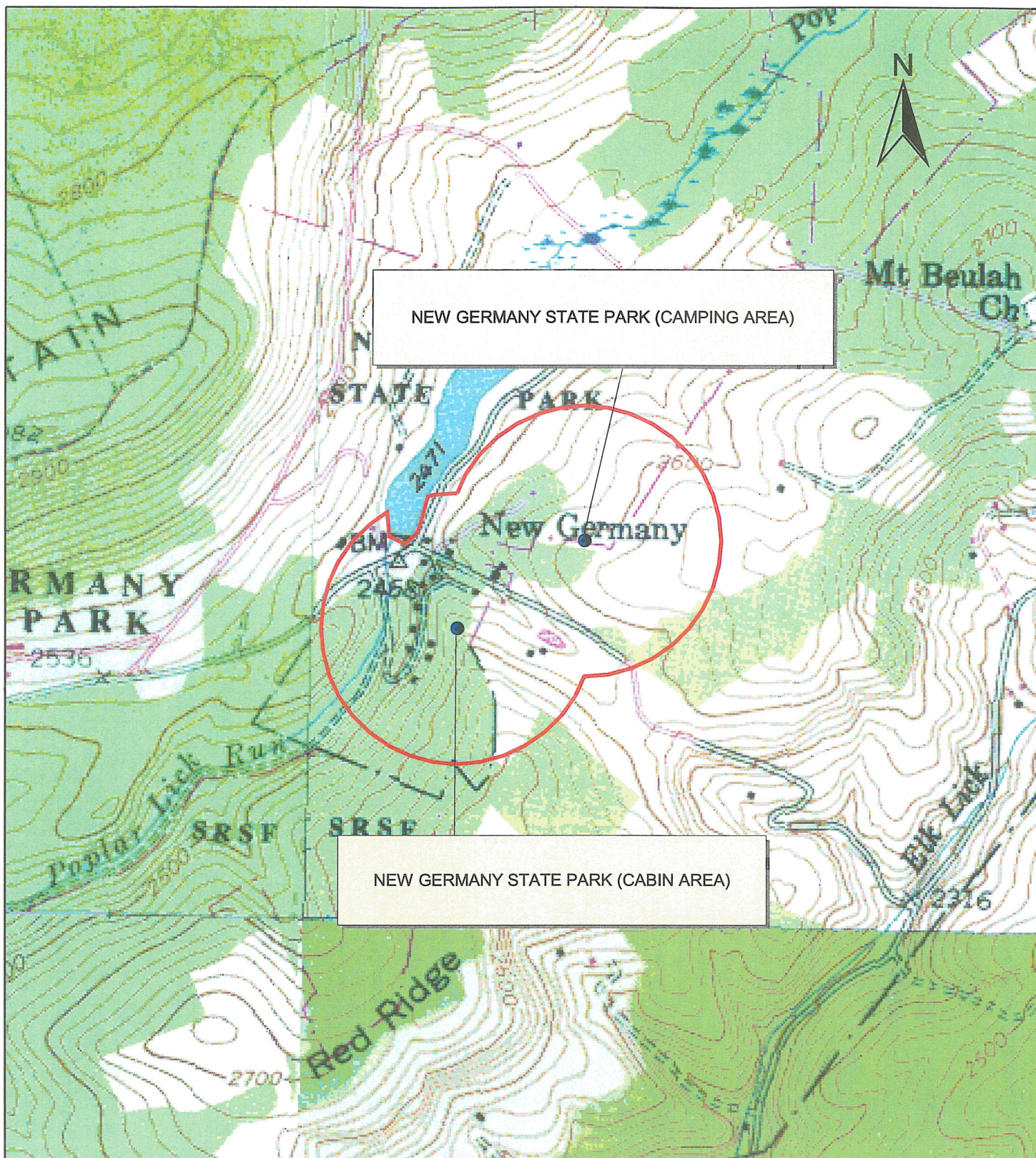
Legend:

- Transient Supply Well
- SWPA Boundary
- Miscellaneous

Scale:

1000 0 1000 2000 Feet

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Avilton, MD-PA.
United States Geologic Survey. 1949 (photorevised 1981). 7.5-Minute Series Topographic Map for Frostburg, MD-PA.
United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Barton, MD.
United States Geologic Survey. 1950 (photorevised 1981). 7.5-Minute Series Topographic Map for Lonaconing, MD-WV.



**Figure 2-15. Transient Non-Community
Water Systems, Group 2
Source Water Protection Area Map
with Potential Sources of Contamination**
Source Water Assessment Program
2003

Legend: ● Transient Supply Well
□ SWPA Boundary

Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Avilton, MD-PA.
United States Geologic Survey. 1994. 7.5-Minute Series Topographic Map for Grantsville, MD-PA.
United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Barton, MD.
United States Geologic Survey. 1947 (photorevised 1974, photoinspected 1979). 7.5-Minute Series Topographic Map for Bittinger, MD.

Scale:

500 0 500 1000 Feet

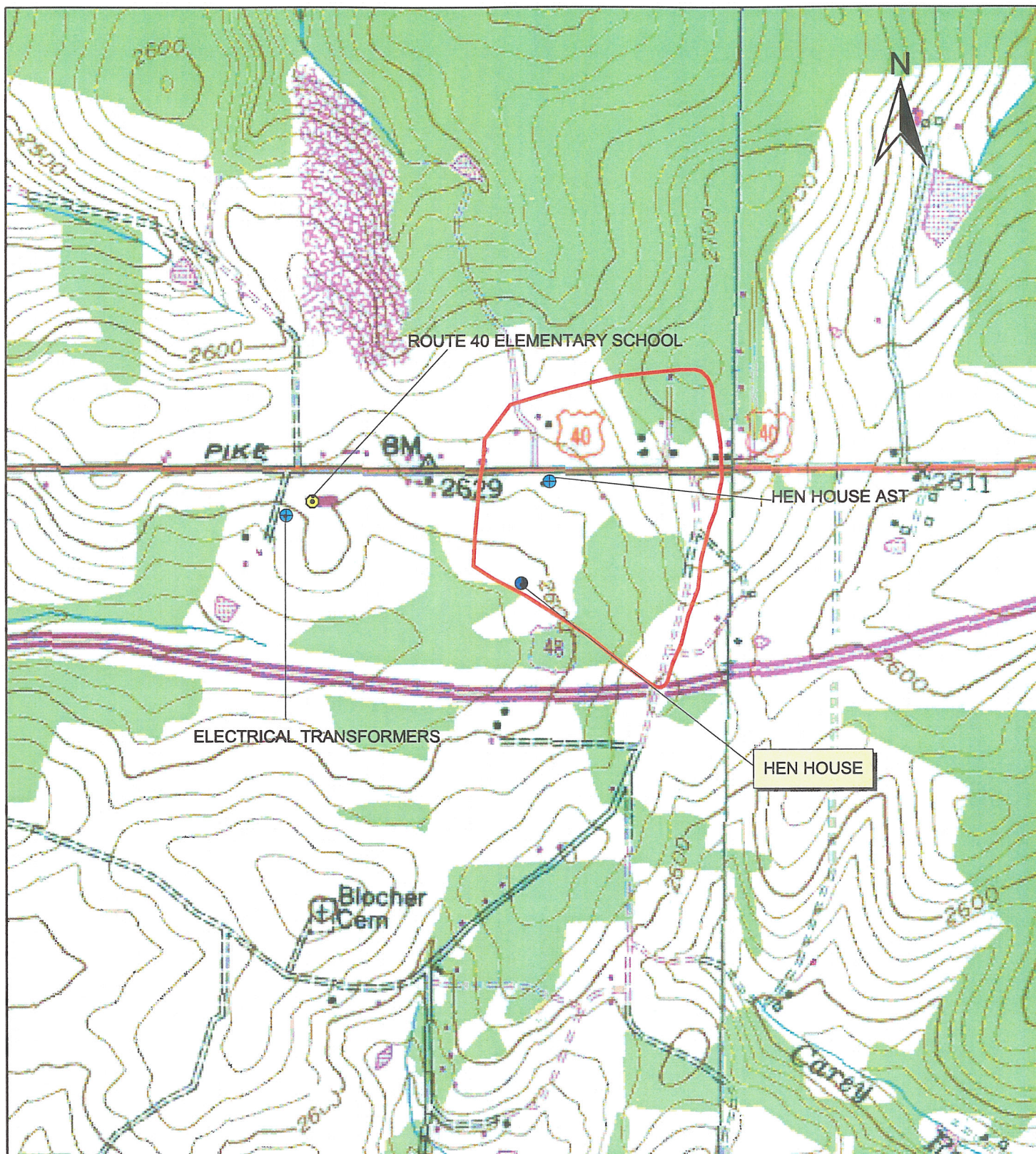


Figure 2-16. Transient Non-Community Water Systems, Group 2 Source Water Protection Area Map with Potential Sources of Contamination
Source Water Assessment Program
2003

Legend:

- Transient Supply Well
- SWPA Boundary
- ⊕ Miscellaneous
- UST



Source: United States Geologic Survey. 1947 (photorevised 1981). 7.5-Minute Series Topographic Map for Avilton, Maryland-Pennsylvania.
United States Geologic Survey. 1949 (photorevised 1981). 7.5-Minute Series Topographic Map for Frostburg, Maryland-Pennsylvania.

Scale:
500 0 500 1000 Feet

3. INVENTORY OF POTENTIAL CONTAMINANTS WITHIN THE DELINEATED AREA

Field surveys were performed from 2 December to 20 December 2002 to confirm potential sources of contamination identified in MDE databases and to document the presence of additional potential point and non-point sources of contaminants within the SWPA. A point source of contamination is one that is considered to occur from a single point, as opposed to a non-point source, which could be an agricultural field or other land use. These MDE databases include the Comprehensive Environmental Response, Compensation, and Liability Act Information System the (CERCLIS), which includes National Priorities List (Superfund) sites, Maryland Registered Underground Storage Tank (UST) sites, Maryland Leaking Underground Storage Tank (LUST) sites, landfills, pesticide dealers, ground-water discharge permits, and Controlled Hazard Substances (CHS) generator sites.

During the field survey, any potential contaminant point sources not in the MDE databases were surveyed using a global positioning system (GPS) receiver for mapping purposes (Figures 2-1 through 2-8).

3.1 POINT SOURCES

Point sources such as USTs, aboveground storage tanks (ASTs), electrical transformers, engine repair facilities, road salt storage areas, and gas stations observed within the SWPA were identified during the site visits. Inactive, neglected, and/or improperly abandoned wells in the area were also considered point sources because these wells can become pathways for contaminants to enter the ground-water aquifer. Detail regarding those wells that occur within the delineation area, are no longer used as supply wells, and are not planned for reuse are shown in Table 3.

TABLE 7. POINT SOURCES

PWSID	System Name	VOC	SOC	IOC	Microbiological	Detail
1111030	Annie's Kitchen	X	X			UST
1111117	Big Run State Park					No Point Sources Observed
1111131	Brennemans Store	X	X			Body shop
1111016	Camp Sunrise MT	X		X		Inactive well, AST
1111126	Casselman Lumber					No Point Sources Observed
1111019	Cindy's Place					No Point Sources Observed
1111145	Friendsville I-68 Rest Area Info Building					UST
1111028	Friendsville I-68 Rest Area Restroom	X				UST
1111091	Fuel City/ Burger King	X	X	X		UST, AST, LUST, engine repair
1111132	Funny Farm	X	X			USTs
1111134	Garrett County Roads	X	X	X		UST, AST, LUST, engine repair
1111133	Garrett County Roads Accident Garage	X	X			UST, AST, LUST, engine repair
1111081	Hen House	X				UST, AST
1111034	Hilltop Delite	X	X	X		UST, AST, LUST, engine repair
1111035	Hilltop Inn	X	X	X		UST, AST, LUST, engine repair
1111036	Holiday Inn	X	X	X		UST, AST, LUST, engine repair
1111093	Keysers Ridge Truck Stop	X		X		Salt dome, LUST, UST, AST
1111050	Little Brown Lake Camp	X				ASTs
1111124	Little Meadows Campground			X	X	Inactive well
1111103	McDonald's Keysers Ridge	X		X		LUST, UST, AST, salt
1111135	MD State HWY Finzel Scales	X		X		Salt, engine repair
1111008	New Germany State Park (Cabin Area)					No Point Sources Observed
1111048	New Germany State Park (Camping Area)					No Point Sources Observed
1111052	Penn Alps Inc.					No Point Sources Observed
1111147	Savage River Cabins	X				AST
1111146	Savage River Lodge	X				AST
1111118	State HWY Admin. (Cove Rest Area)	X				UST
1111106	Subway Shop	X	X	X		UST, AST, LUST, engine repair
1111072	Western Maryland 4-H Center					No point sources observed
1111074	Wild Water Inn	X	X			Engine repair

Transformers potentially containing polychlorinated biphenyl (PCB) oil were observed within the SWPA as part of overhead electric wiring. Prior to 1977, many transformers and electrical equipment contained PCB as dielectric fluid. It is possible that the observed equipment may contain PCB. If the equipment leaks, the PCB oil could eventually leach through the soil overburden into the ground-water aquifer.

Several USTs were observed within the SWPA as noted on Figures 2-1 through 2-16 and in Table 7. The observed USTs are associated with heating fuel storage, storage for use with electrical generators, or were associated with a gasoline fuel station. Heating oil USTs typically contain waste oil, or various grades of heating oil. Gasoline station USTs typically contain gasoline, diesel fuel, or kerosene. These petroleum-based fuels generally contain ground-water contaminants such as benzene, toluene, ethylbenzene, xylenes, and methyl-tert-butyl ether (MTBE). Additional USTs not observed during the site visit may be present inside facilities that engage in automobile sales or service or other commercial operations such as dry cleaners or automobile rental facilities. These potential additional USTs may contain solvents, petroleum products, or other substances.

No evidence of leaking USTs was observed during the site visits; however, four facilities including the Fuel City/Burger King (1111091), the Amoco gas station at the Keyser's Ridge Truck Stop (1111093), the Funny Farm Citgo, and Garrett County Roads-Accident Garage (1111133) are listed in the LUST database. It should be noted that these facilities exist within the SWPA of Hilltop Delite (1111034), the Hilltop Inn (1111035), the Subway Shop (1111106), the Garrett County Roads (1111134), the Keyser's Ridge McDonalds (1111103), Funny Farm (1111132), and the Holiday Inn (1111036). From a conversation with a representative of the MDE's Waste Management Division-Oil Control Program in Hagerstown, Maryland, it was reported that all four are open cases. The ground water at the Fuel City/Burger King LUST site was last sampled on 22 May 2000 for volatile organic compounds (VOCs) and MTBE. No concentrations of these contaminants were reported in the ground-water sample(s). The last routine site inspection for the Amoco gas station was performed on 21 March 1997. No visible product was observed in the LUST site monitoring wells. The last routine site inspection for the Funny Farm Citgo was performed on 16 April 1999. No visible product was observed in the LUST site monitoring wells. The ground water at the Garrett County Roads-Accident Garage LUST site was last sampled on 17 October 2003 for VOCs. No concentrations of these contaminants were reported in the ground-water sample(s).

Several ASTs were observed throughout the area of the SWPA (Table 7). Failure of an AST may result in the impact of ground water with petroleum hydrocarbons. Additional ASTs not observed during the site visit, may be present inside facilities that engage in automobile sales or service or other commercial operations such as pesticide dealers.

3.2 NON-POINT SOURCES

Examples of non-point sources of contamination include agricultural land, urban runoff, or over-fertilized lawns. Using the Maryland Office of Planning's 2000 Land Use/Land Cover map for Garrett County, potential non-point sources within the SWPA were also evaluated by land use designation (Figures 3-1 through 3-16). A summary of the percent and acreage of each type of land use is presented in the graphs at the end of this section. The dominant land use type is forested land (56 percent or 973 acres) with cropland as the second highest percentage at 12 percent or 205 acres. Approximately three percent of the total SWPA near Camp Sunrise Mountain was located in Pennsylvania. Cropland and forests were the observed land use. The remaining areas contain commercial, agricultural, feeding operations, wetlands, pastures, extractive uses, open urban land and residential lands. No high-density residential areas were noted with the study area.

Synthetic organic compounds such as fertilizers (i.e., lawn conditioners), pesticides (i.e., ant sprays, herbicides (i.e., weed killer), insecticides (i.e., flying insect killer), rodenticides (i.e., rat poisons), gardening treatments (i.e., bulb powder) have the potential to impact ground water through residential use or at commercial sales facilities as mentioned in the previous section. Residential routine use of these substances in high-density areas can lead to contamination of the ground water, just as overuse in low or medium density areas could have a similar impact.

Improperly directed surface water, where it can infiltrate into a well, also can be a source of microbiological contamination of ground water.

Nitrogen compounds are often a component in small-scale residential and large-scale agricultural fertilizers. In addition, nitrogen is found in manure and sewage sludge, both common agricultural crop applications.

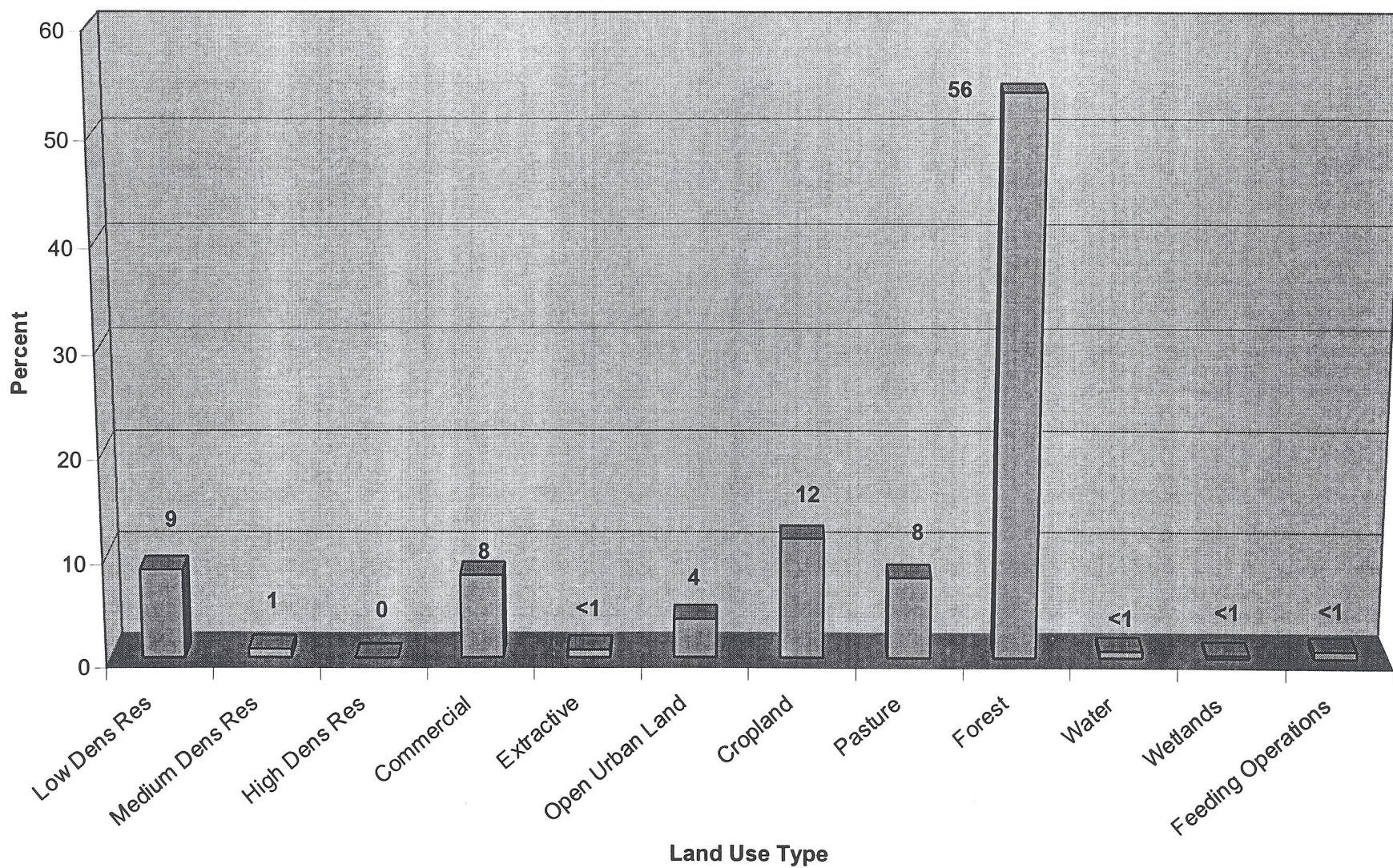
Septic system drain fields were observed during the site visits at many of the 30 transient systems due to the limited coverage area of public sewage infrastructure in the area. Septic system effluent contains nitrogen compounds, pathogenic organisms, and coliform bacteria. Septic systems placed in areas where there is insufficient overburden to allow for proper treatment or are malfunctioning can contribute excessive contamination to the ground water. In addition, septic system discharge could also contain contaminants that the systems were not designed to treat, such as solvents and fuels.

From an evaluation of the Maryland Office of Planning Sewer Service Coverage Maps (Figure 4), sewer service is available or under construction in less than one percent of the SWPA. No

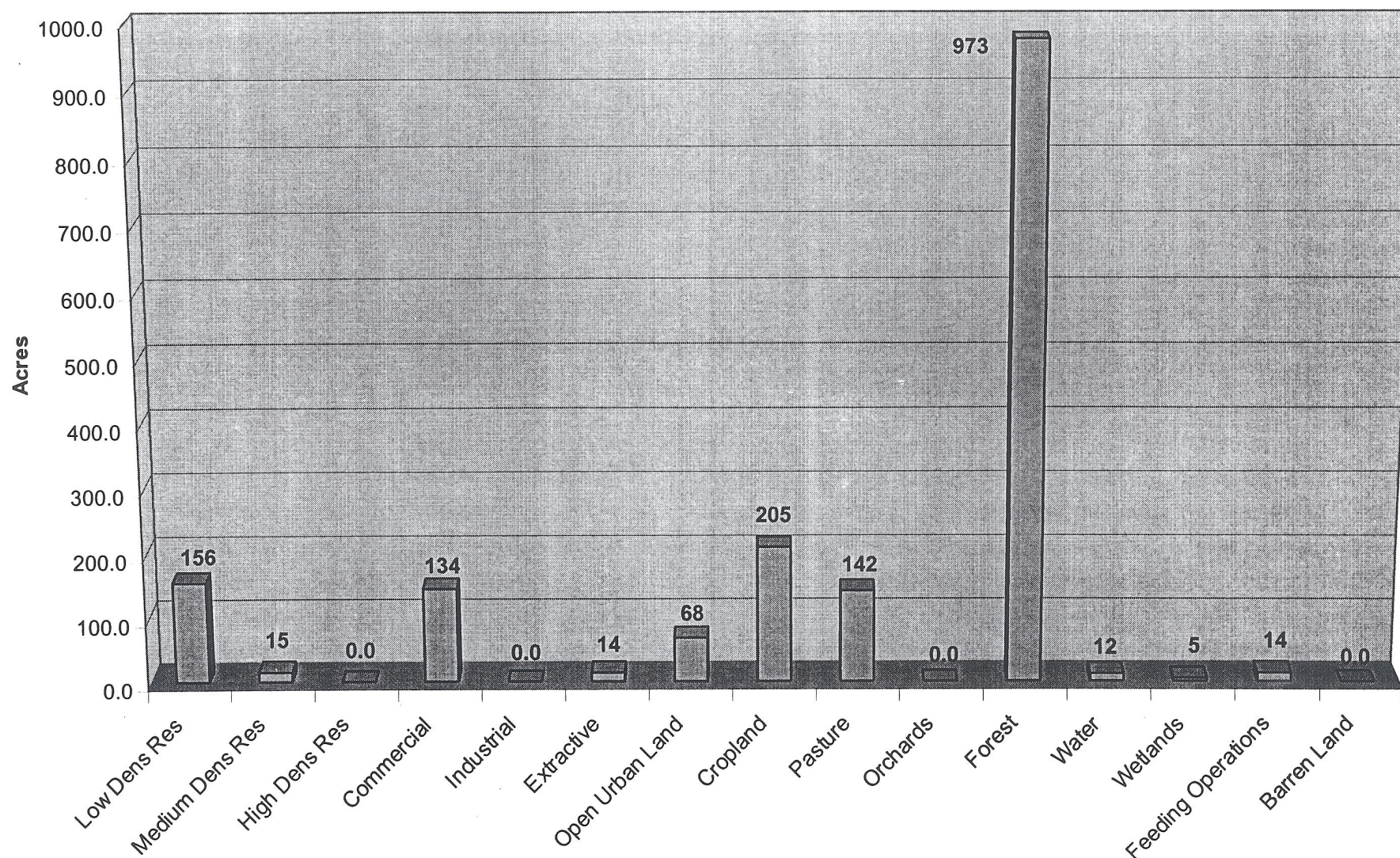
service is planned for approximately 88 percent of the SWPA. The remaining 12 percent of the SWPA has been designated as an area where service is planned to be available within 3 to 7 years. Approximately three percent of the SWPA is located in Pennsylvania and did not appear to have public sewers.

More than 35 percent of the total SWPA is designated as residential, commercial, croplands, and pastures. These land uses indicate the potential for non-point sources of contamination, specifically from nitrogen and/or microbiological contaminants.

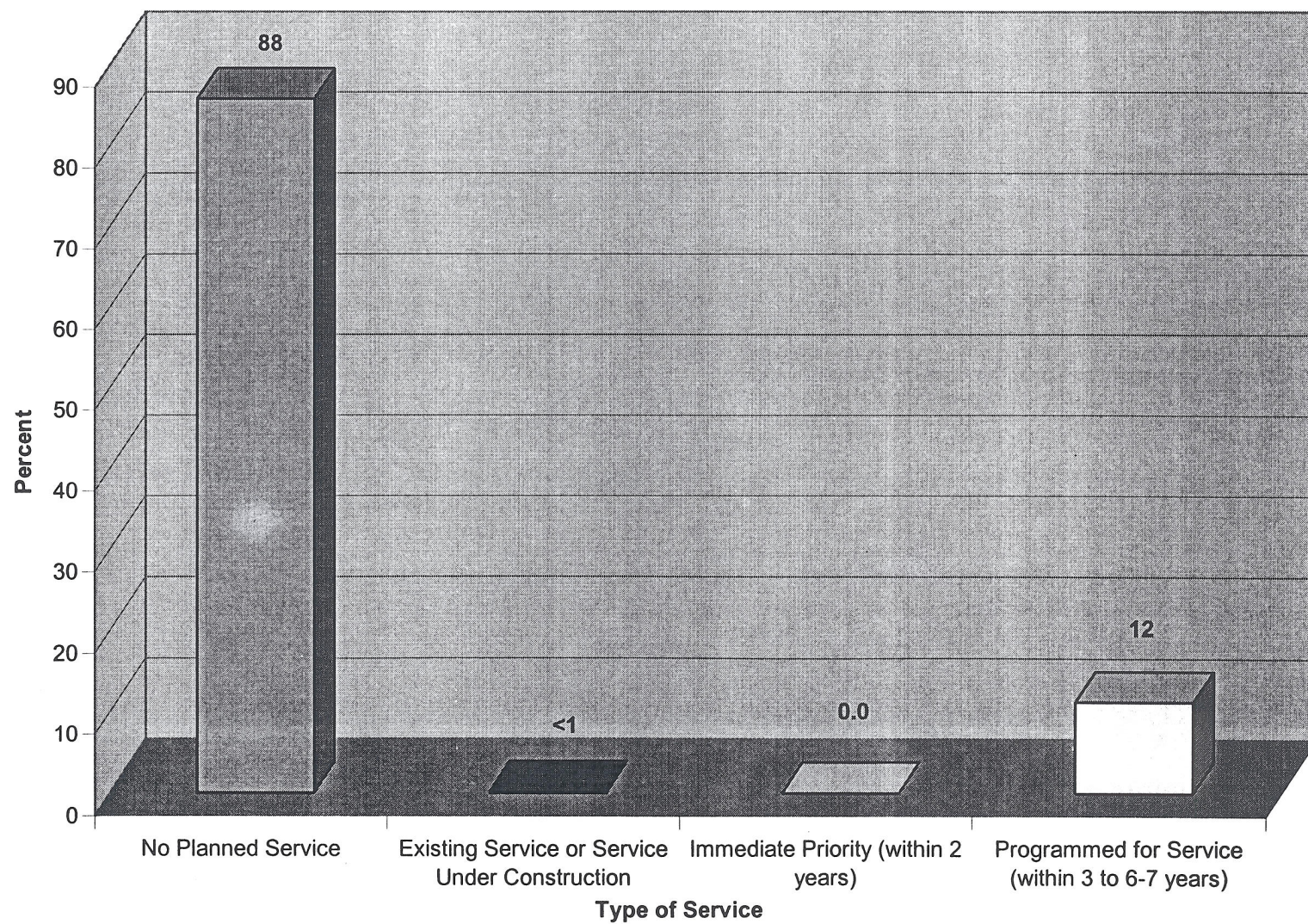
Percentage of Land Use

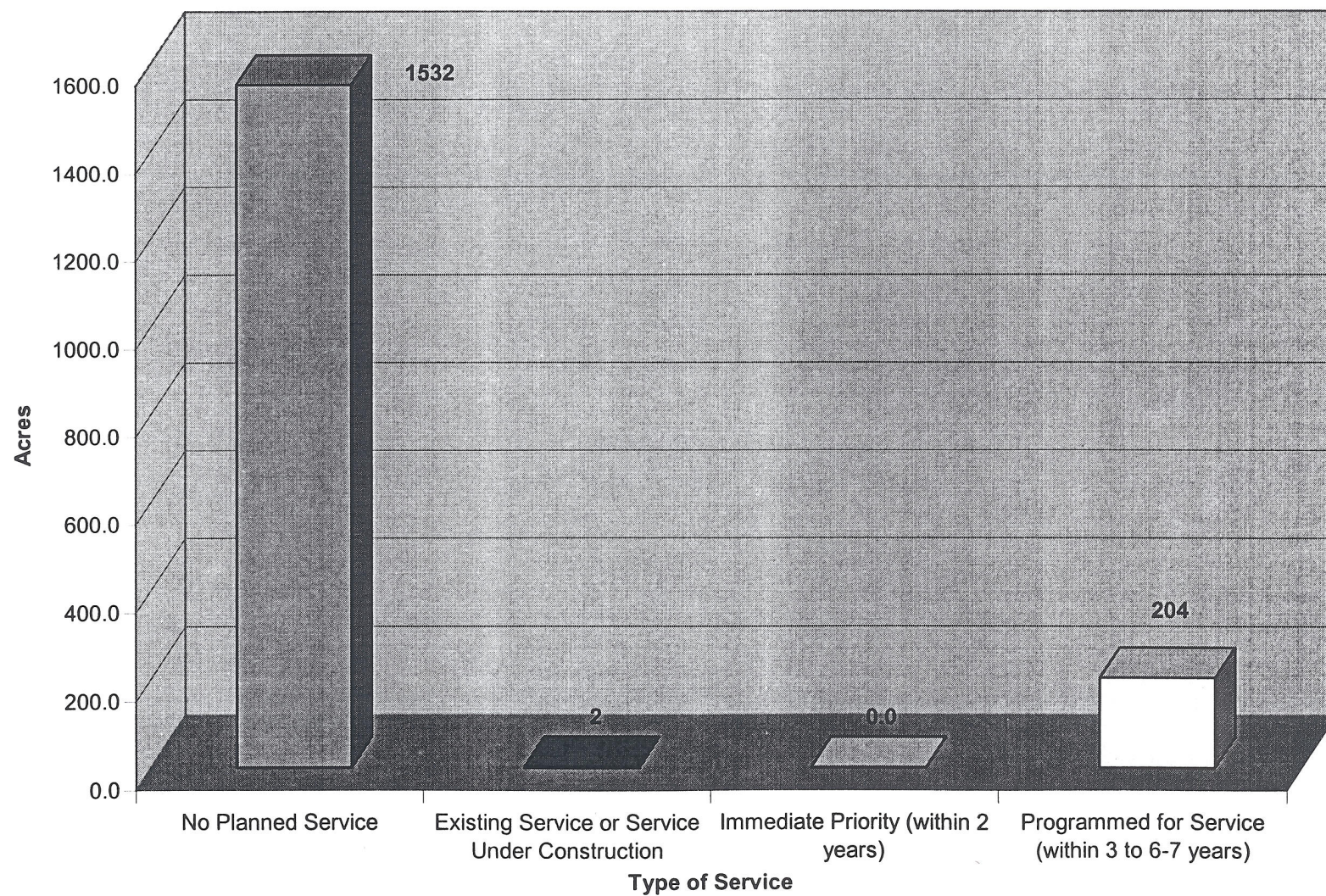


Acreage of Land Use



Percentage of Sewer Service Areas



Acreage of Sewer Service Areas



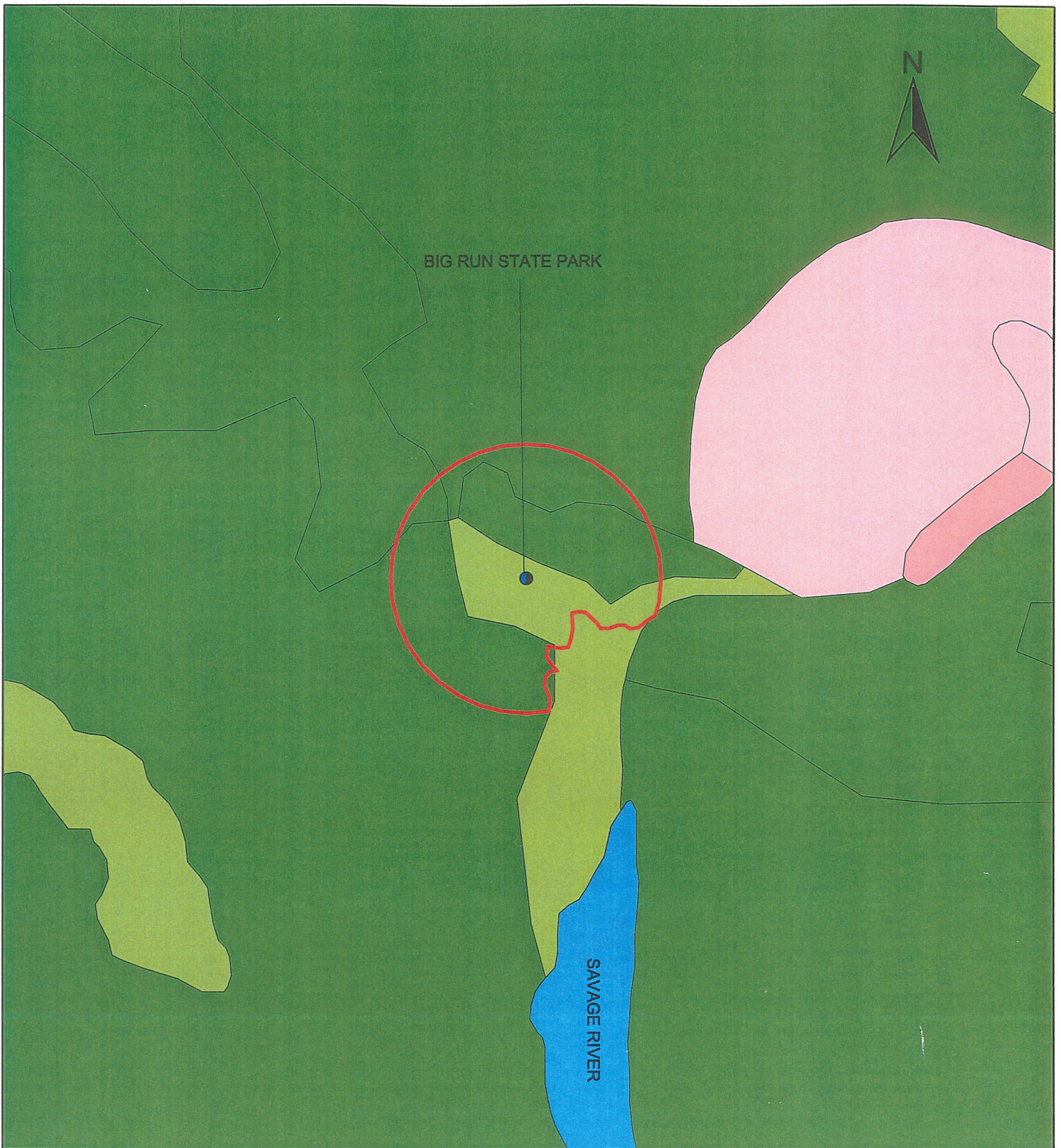
**Figure 3-1. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**

Scale: 1000 0 1000 2000 Feet

Legend:

- Transient Supply Well
- SWPA Boundary
- Major Roads
- Land Use**
- Low Density Residential
- Commercial
- Extractive
- Cropland
- Pasture
- Forest
- Water
- Wetlands

Source: Maryland Office of Planning, 2000.



**Figure 3-2. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

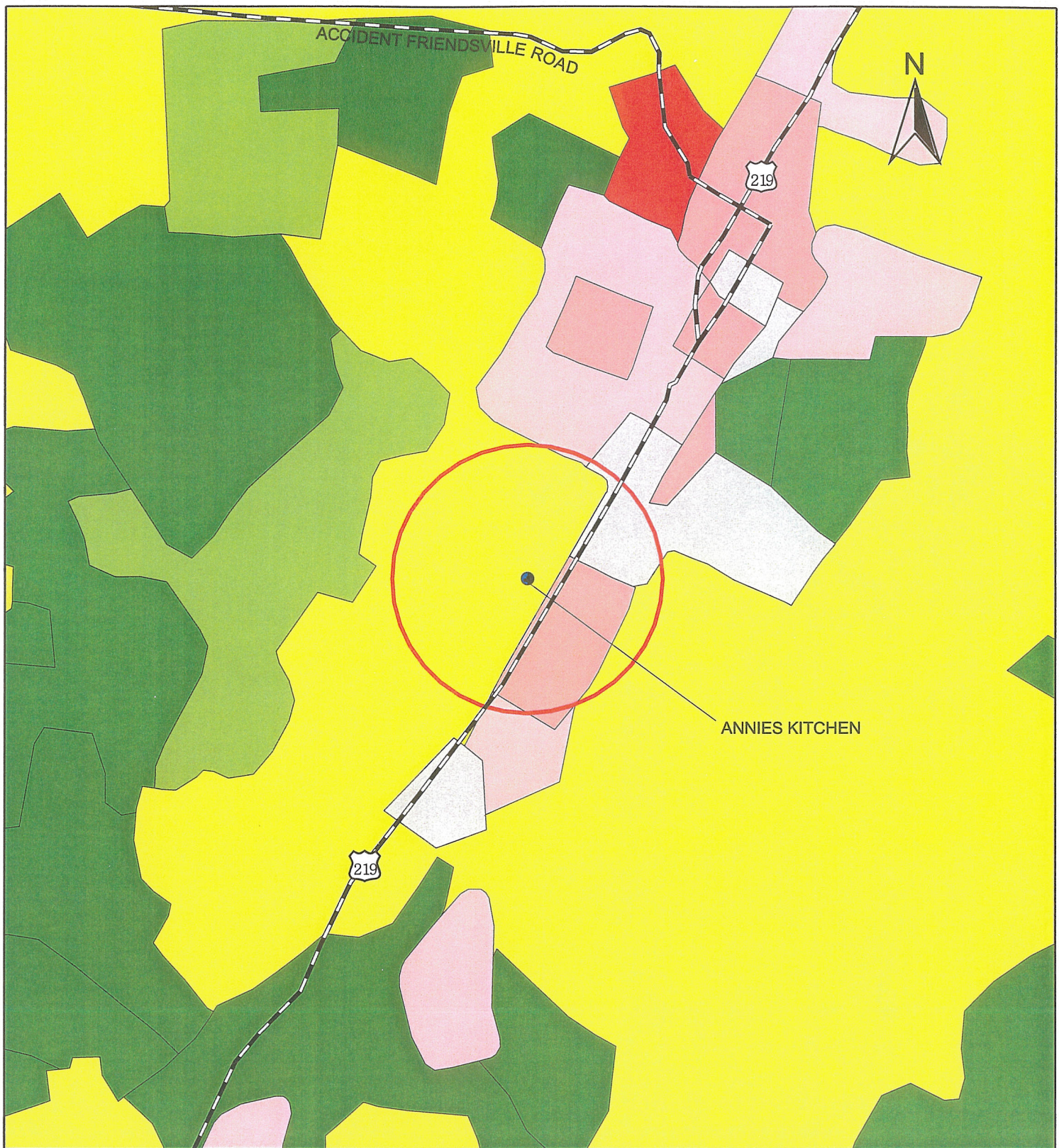
□ Medium Density Residential

□ Pasture

□ Forest

□ Water

Source: Maryland Office of Planning, 2000.



**Figure 3-3. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Medium Density Residential

□ High Density Residential

□ Commercial

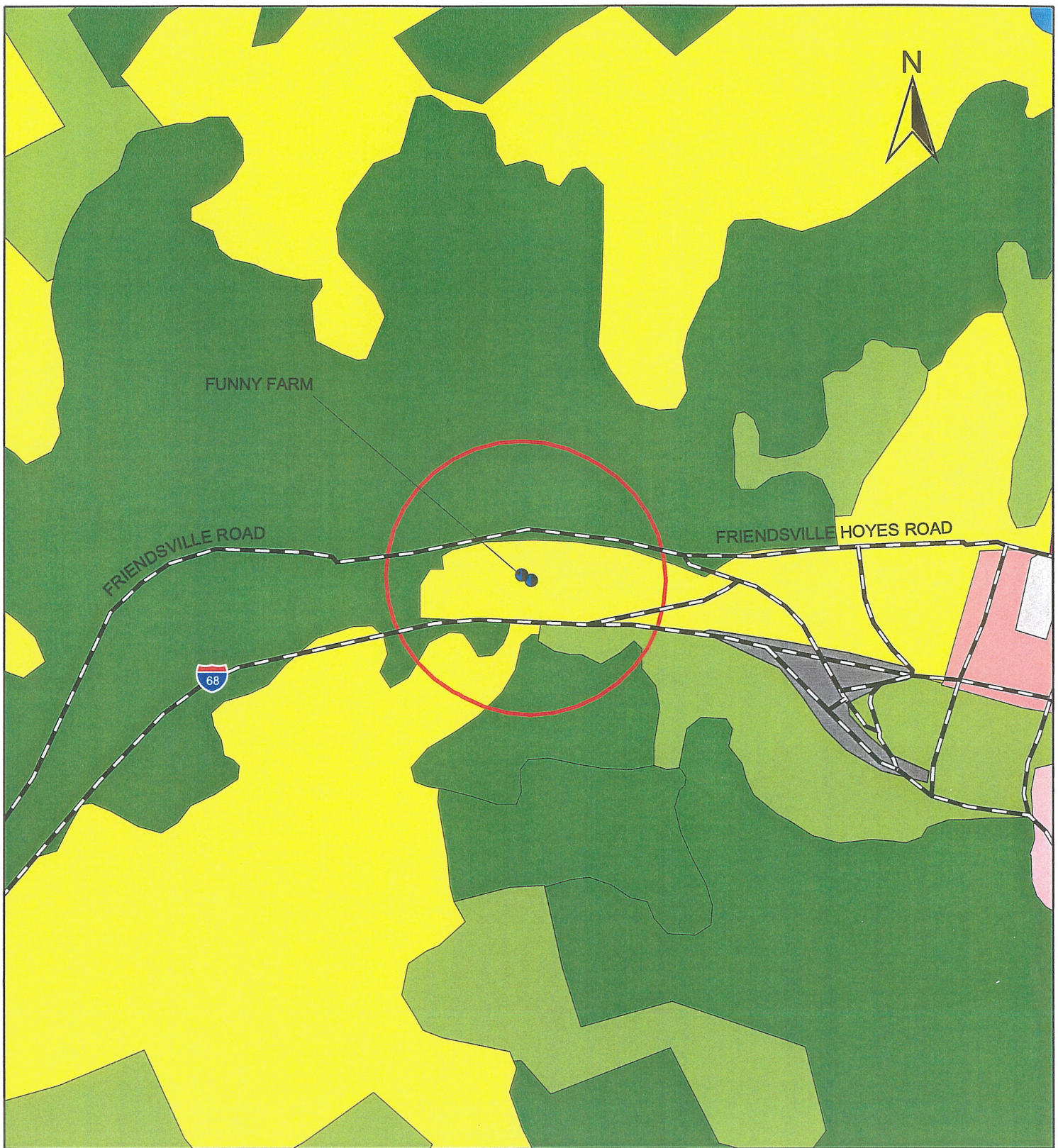
□ Cropland

□ Pasture

□ Orchards

□ Forest

Source: Maryland Office of Planning, 2000.



**Figure 3-4. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Medium Density Residential

□ Commercial

□ Open Urban Land

□ Cropland

□ Pasture

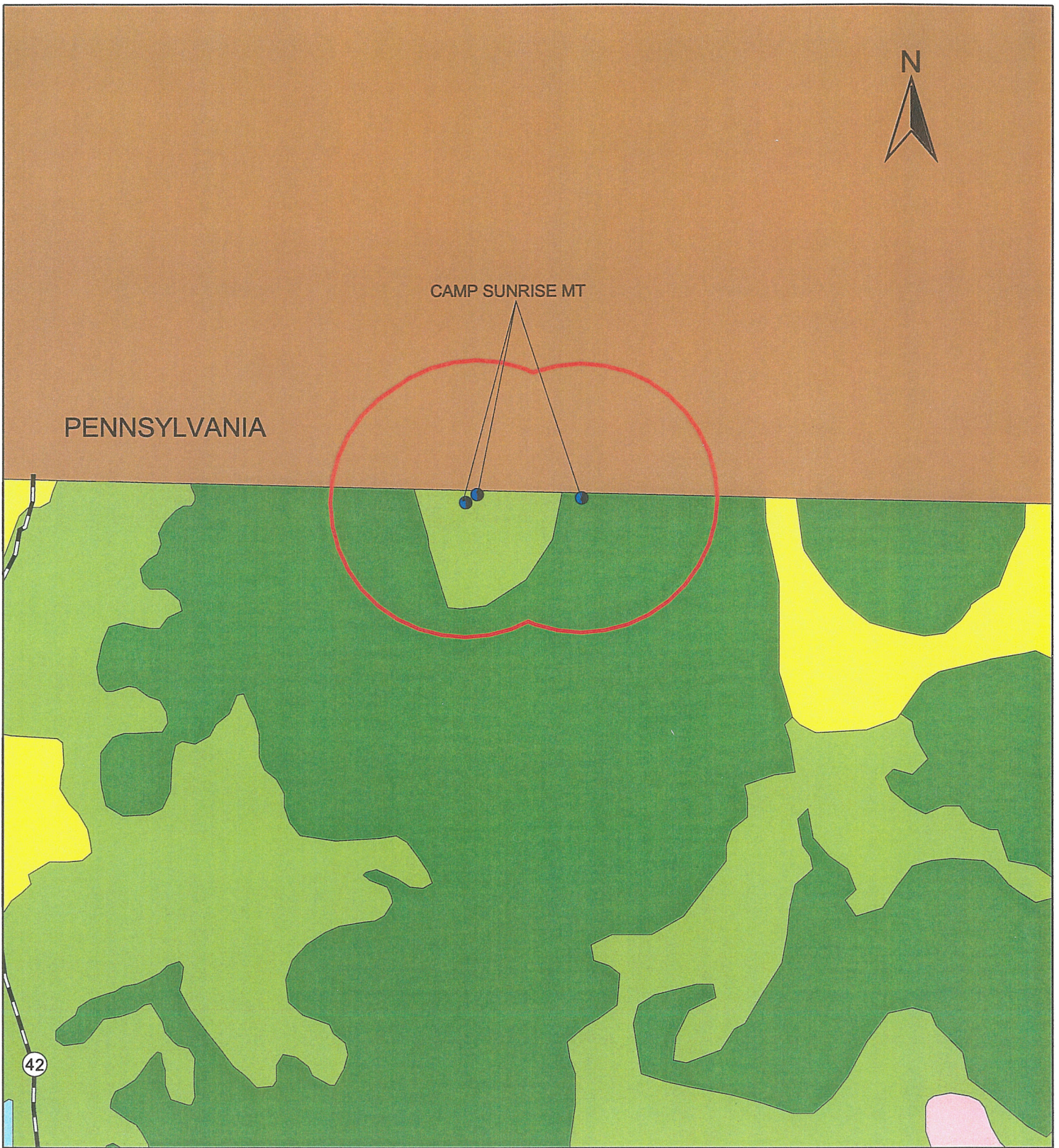
□ Forest

□ Water

Scale: 500 0 500 1000 Feet



Source: Maryland Office of Planning, 2000.



**Figure 3-5. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Cropland

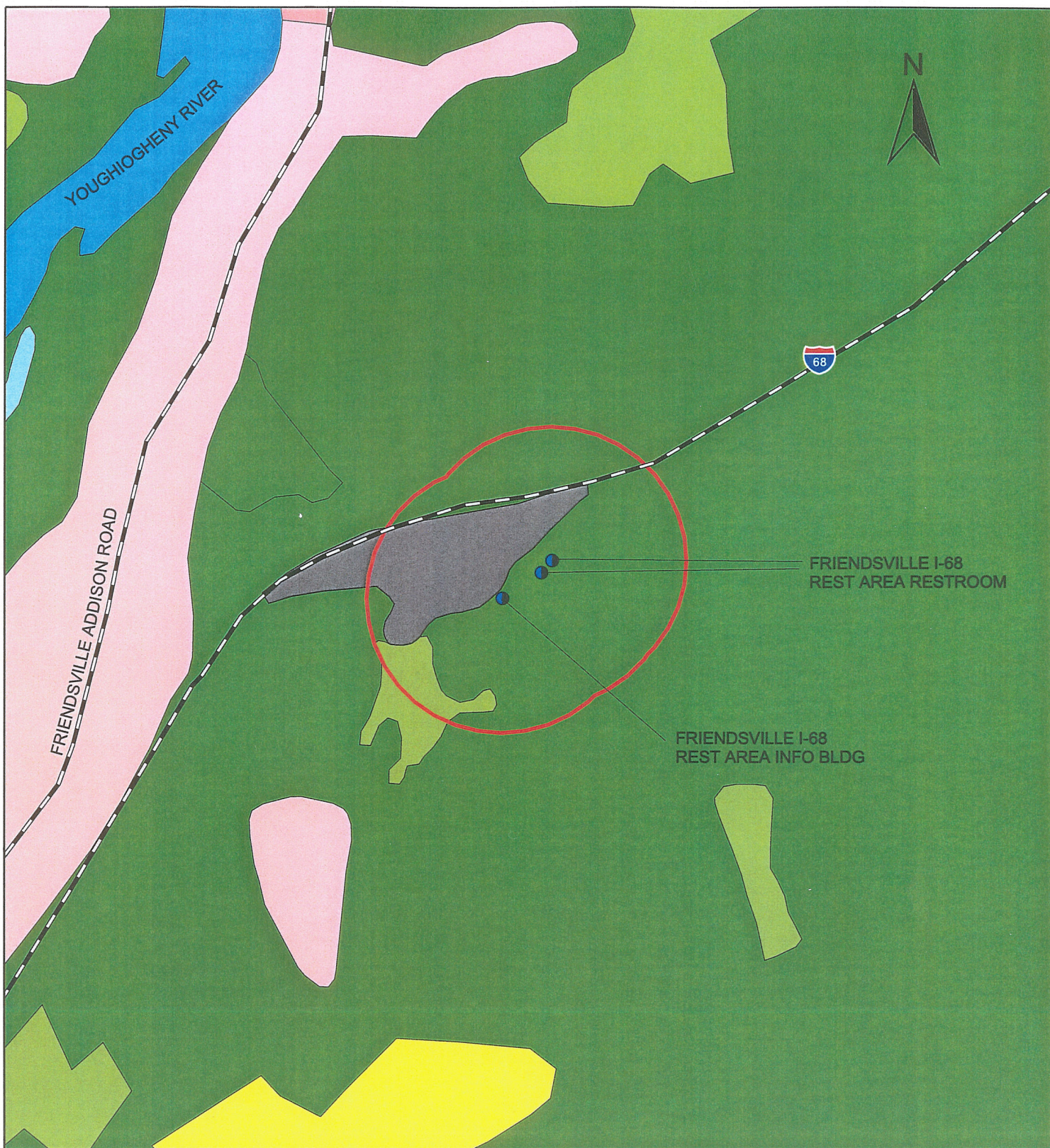
□ Pasture

□ Forest

□ Wetlands

□ Information Not Available

Source: Maryland Office of Planning, 2000.



**Figure 3-6. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area**
Source Water Assessment Program
2003

Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Medium Density Residential

□ Open Urban Land

□ Pasture

□ Forest

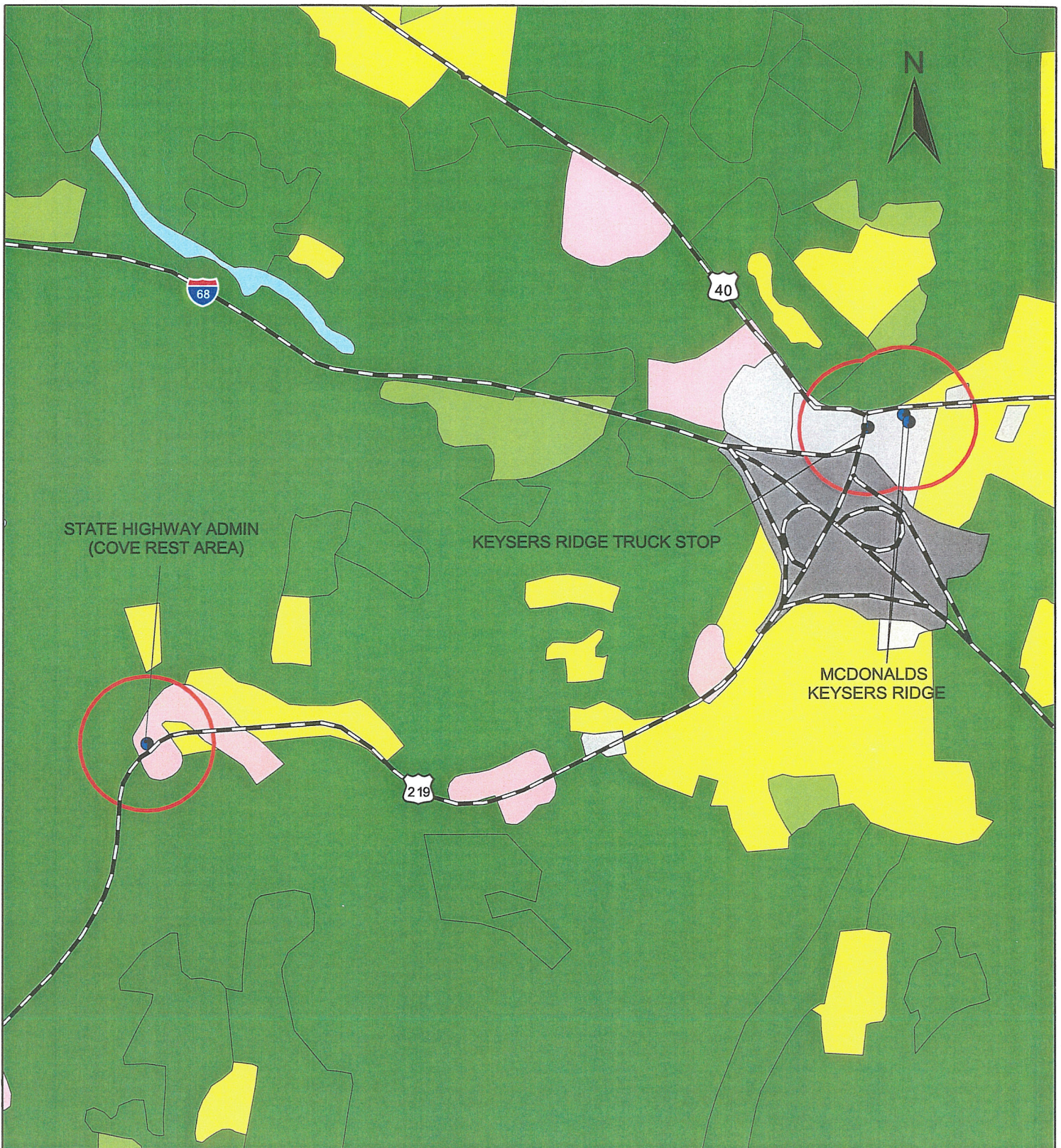
□ Water

□ Wetlands

□ Cropland



Source: Maryland Office of Planning, 2000.



**Figure 3-7. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**

Scale: 1000 0 1000 2000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Commercial

□ Open Urban Land

□ Cropland

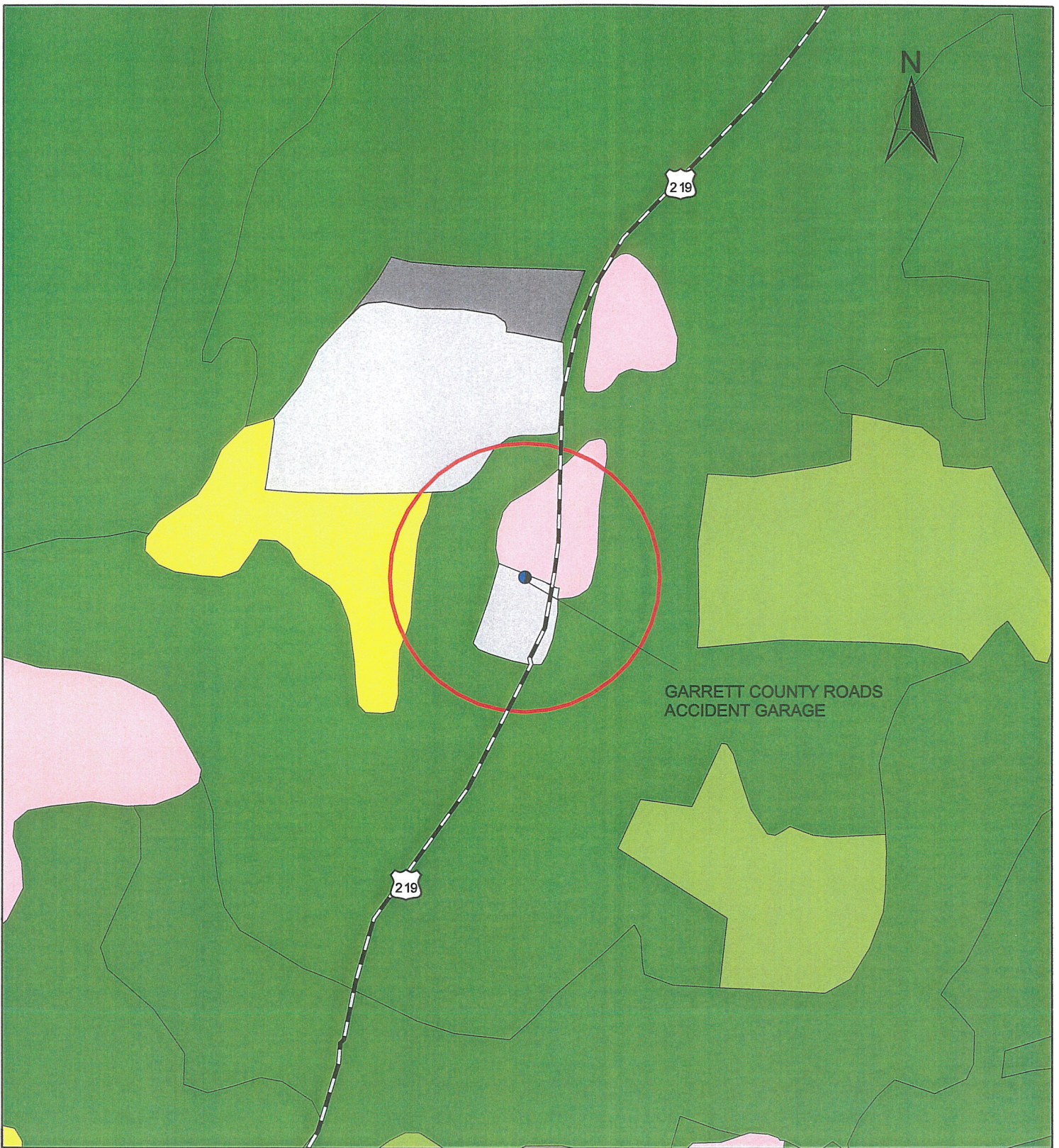
□ Pasture

□ Forest

□ Wetlands



Source: Maryland Office of Planning, 2000.



**Figure 3-8. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**

Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Commercial

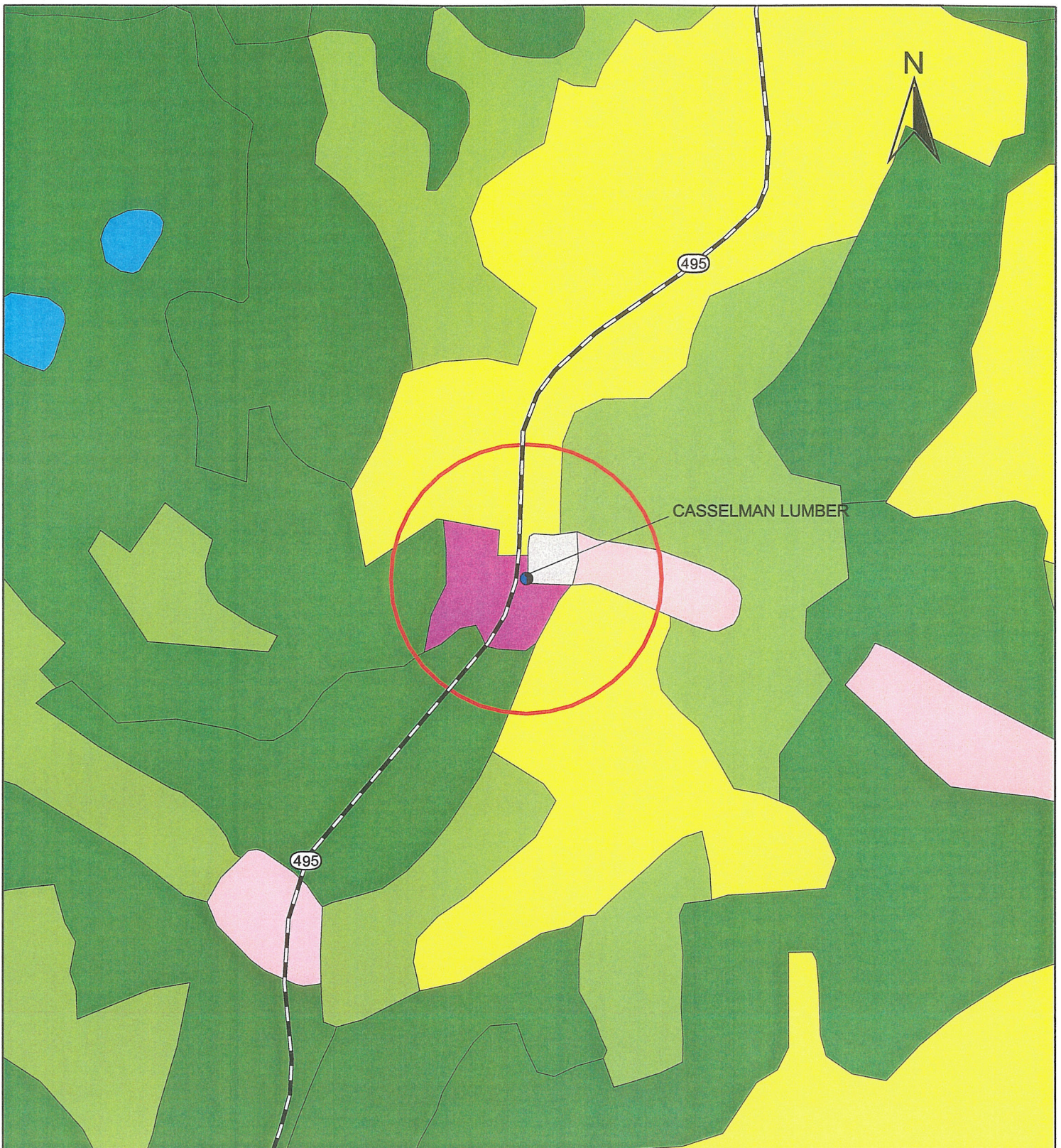
□ Open Urban Land

□ Cropland

□ Pasture

□ Forest





**Figure 3-9. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Commercial

□ Cropland

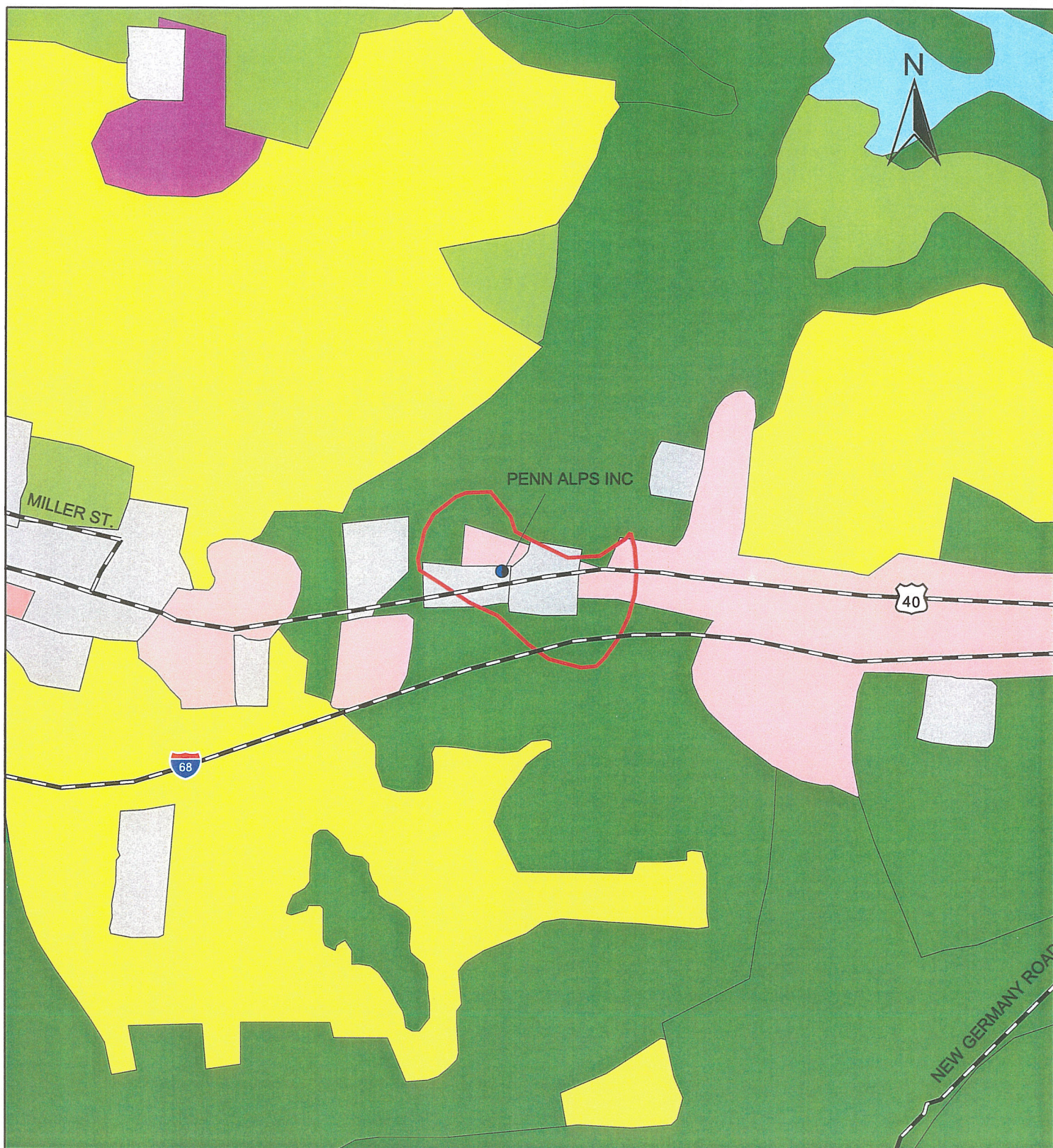
□ Pasture

■ Forest

■ Water

■ Feeding Operations

Source: Maryland Office of Planning, 2000.



**Figure 3-10. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**

Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

▭ SWPA Boundary

▬ Major Roads

Land Use

▭ Low Density Residential

▭ Medium Density Residential

▭ Commercial

▭ Cropland

▭ Pasture

▭ Forest

▭ Wetlands

▭ Feeding Operations



Source: Maryland Office of Planning, 2000.

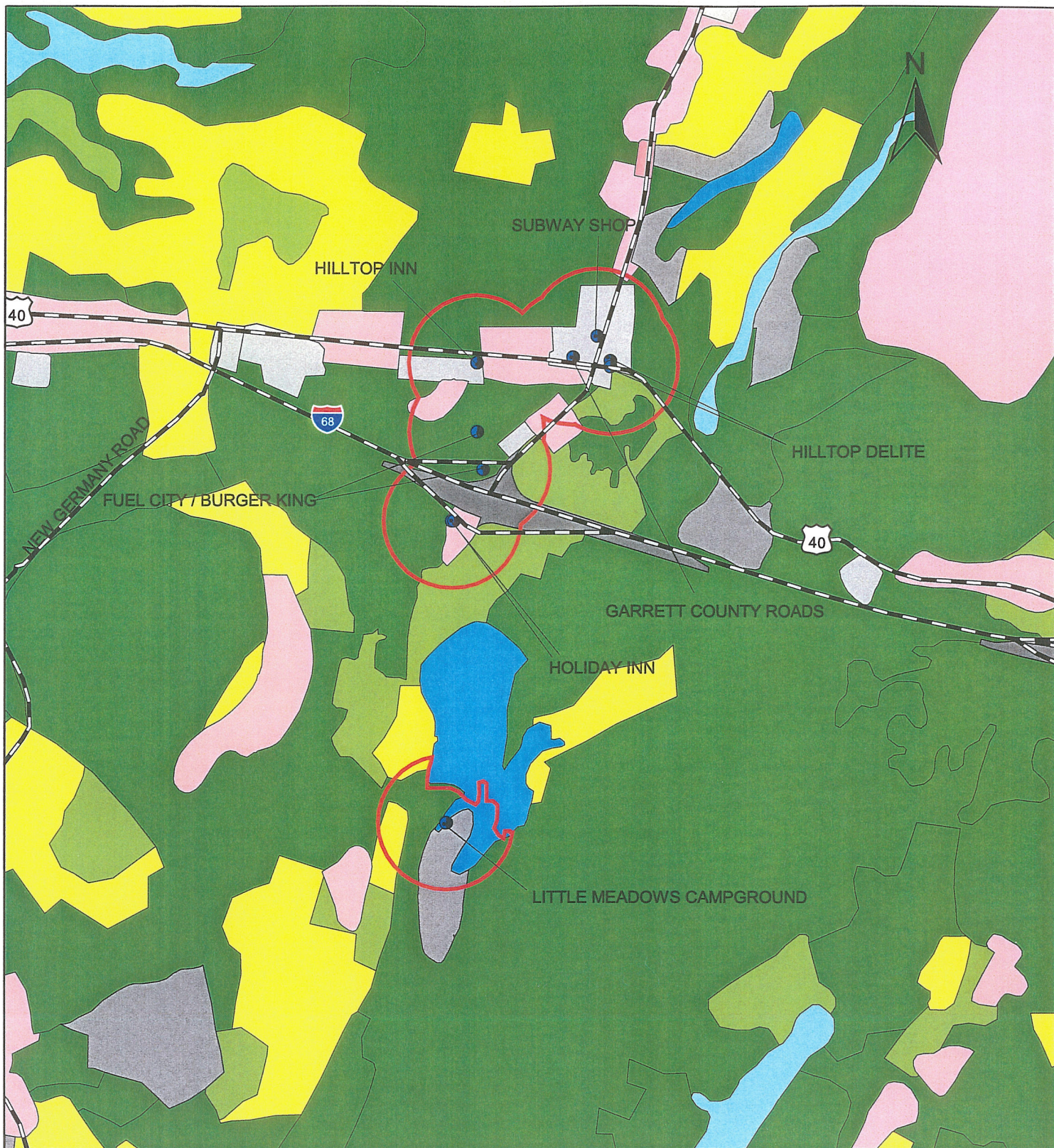


Figure 3-11. Transient Non-Community Water Systems, Group 2 Land Use Map of the Source Water Protection Area Source Water Assessment Program 2003



Scale: 1000 0 1000 2000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

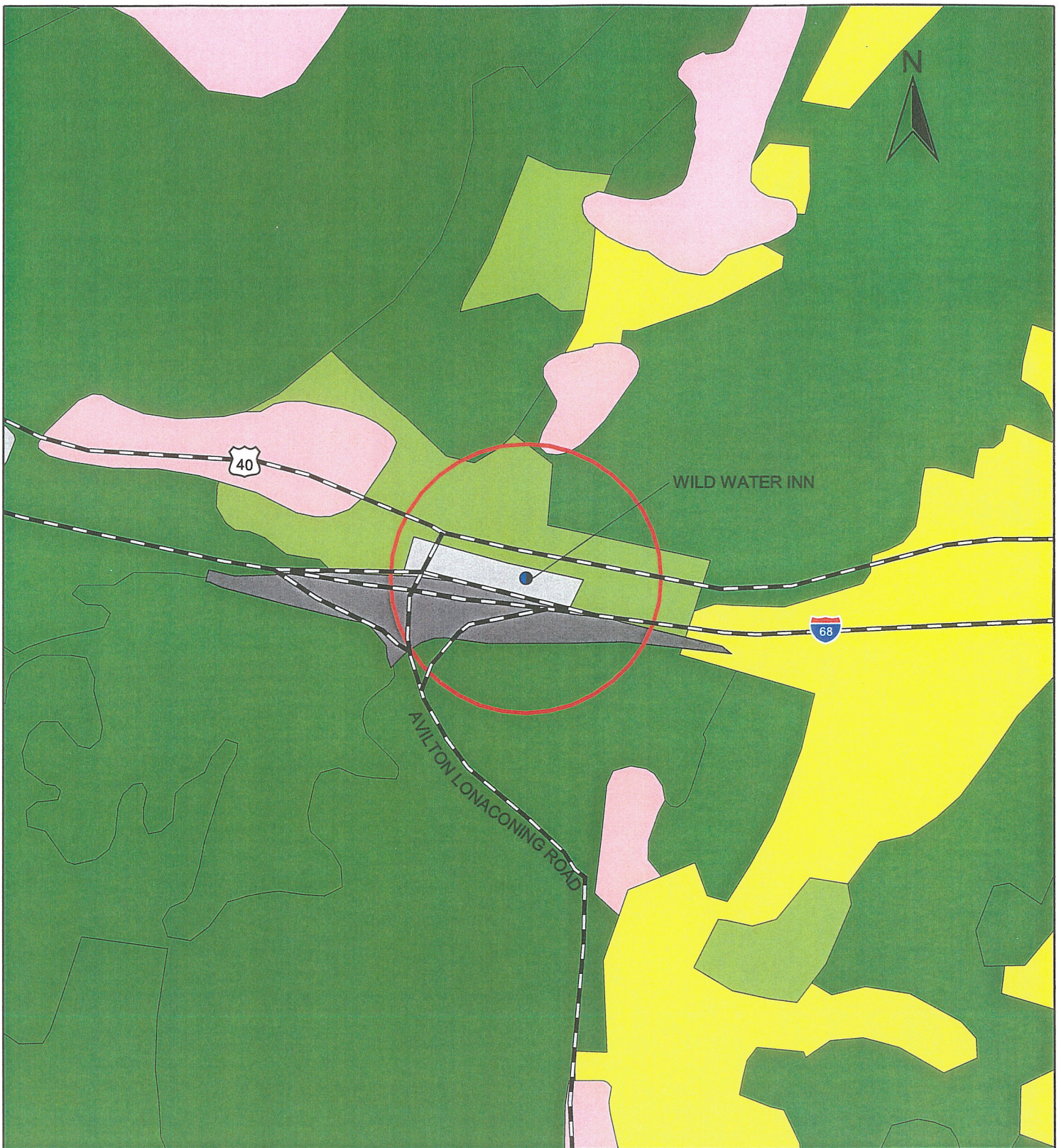
— Major Roads

Land Use

Low Density Residential
Medium Density Residential
Commercial
Extractive
Open Urban Land

Cropland
Pasture
Forest
Water
Wetlands

Source: Maryland Office of Planning, 2000.



**Figure 3-12. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Commercial

□ Open Urban Land

□ Cropland

□ Pasture

□ Forest

Source: Maryland Office of Planning, 2000.

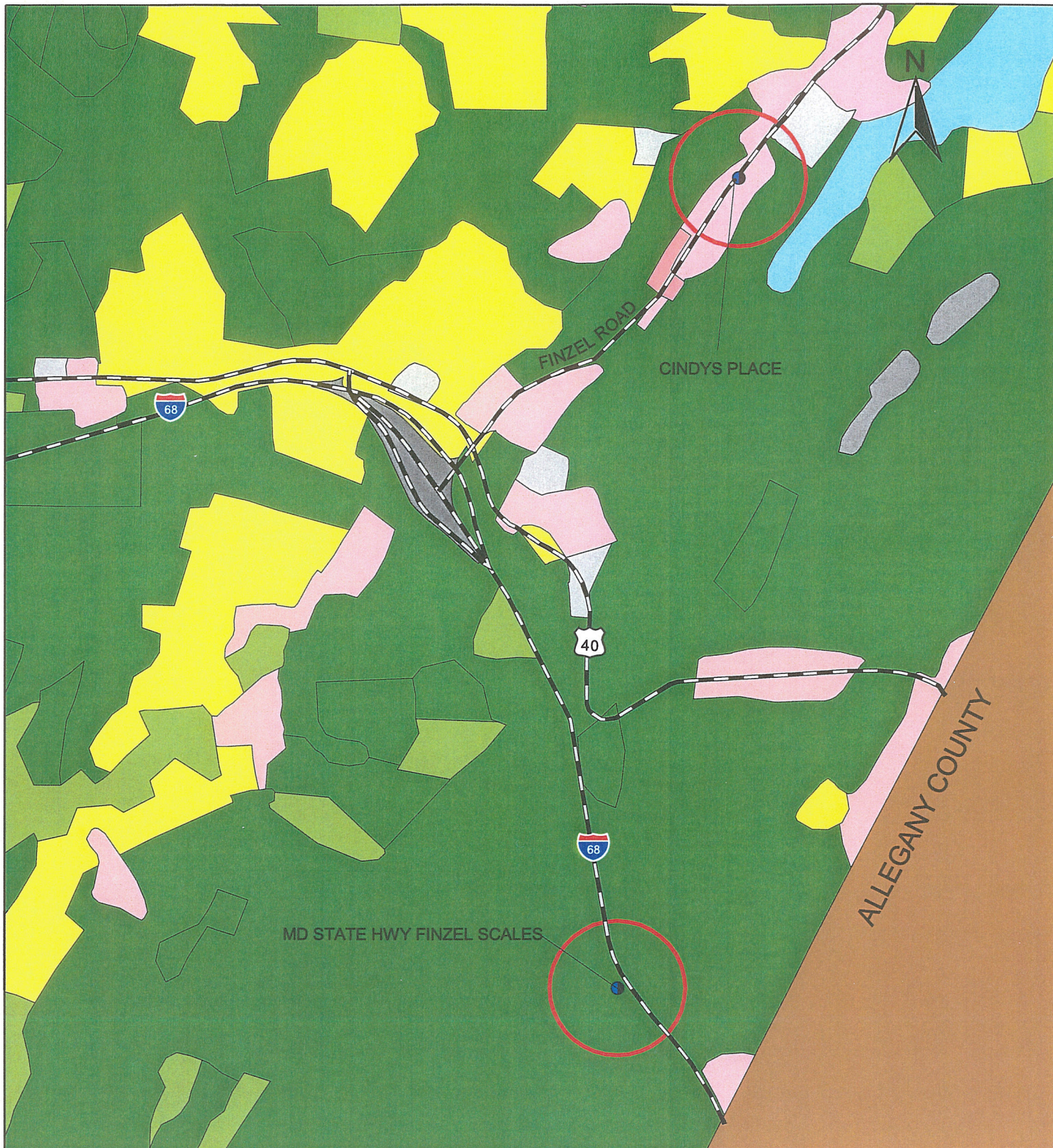


Figure 3-13. Transient Non-Community Water Systems, Group 2 Land Use Map of the Source Water Protection Area Source Water Assessment Program 2003

Scale: 1000 0 1000 2000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

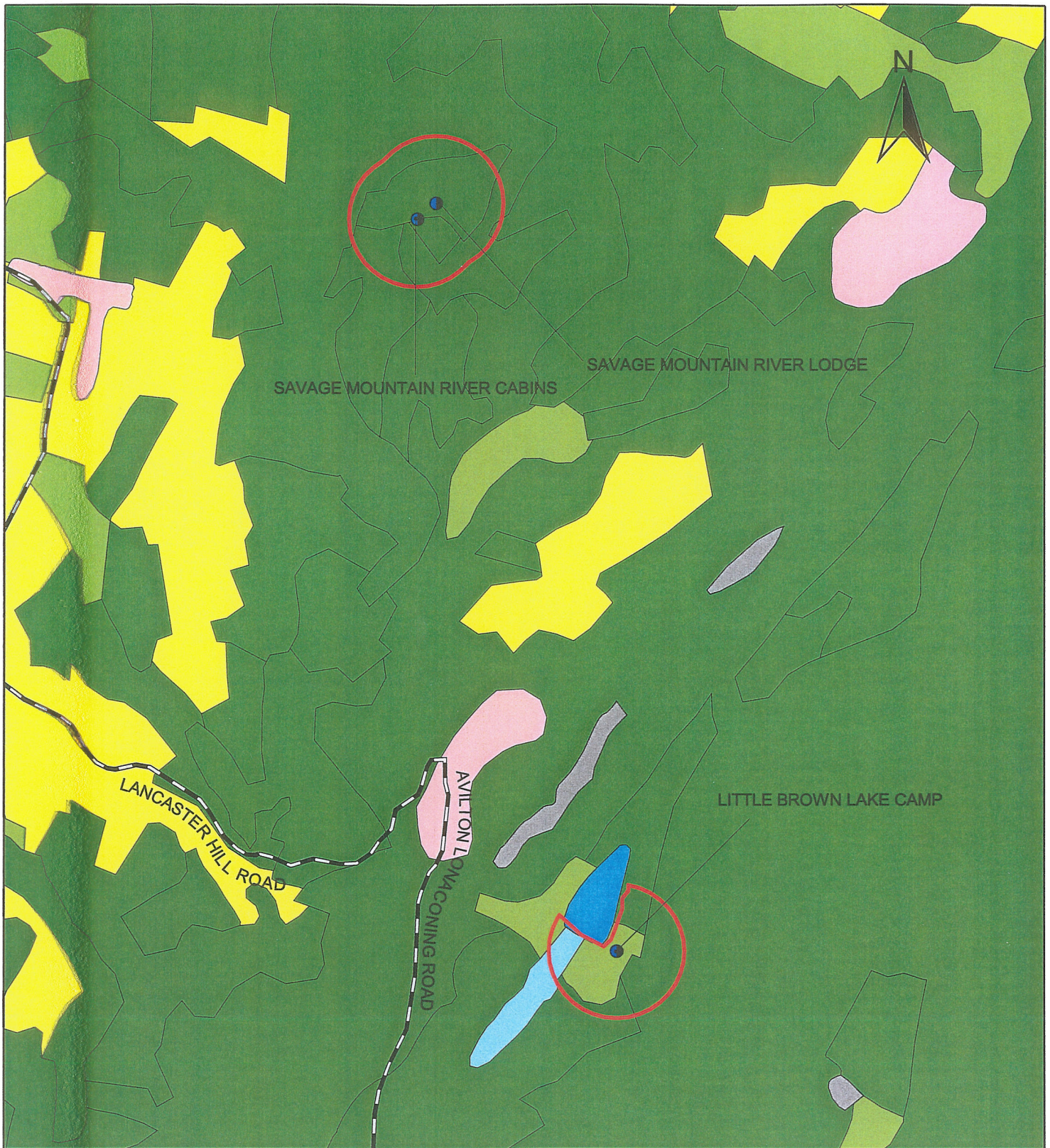
— Major Roads

Land Use

Low Density Residential
Medium Density Residential
Commercial
Extractive
Open Urban Land

Cropland
Pasture
Forest
Wetlands
Information Not Available

Source: Maryland Office of Planning, 2000.



**Figure 3-14. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**

Scale: 1000 0 1000 2000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

□ Extractive

□ Cropland

□ Pasture

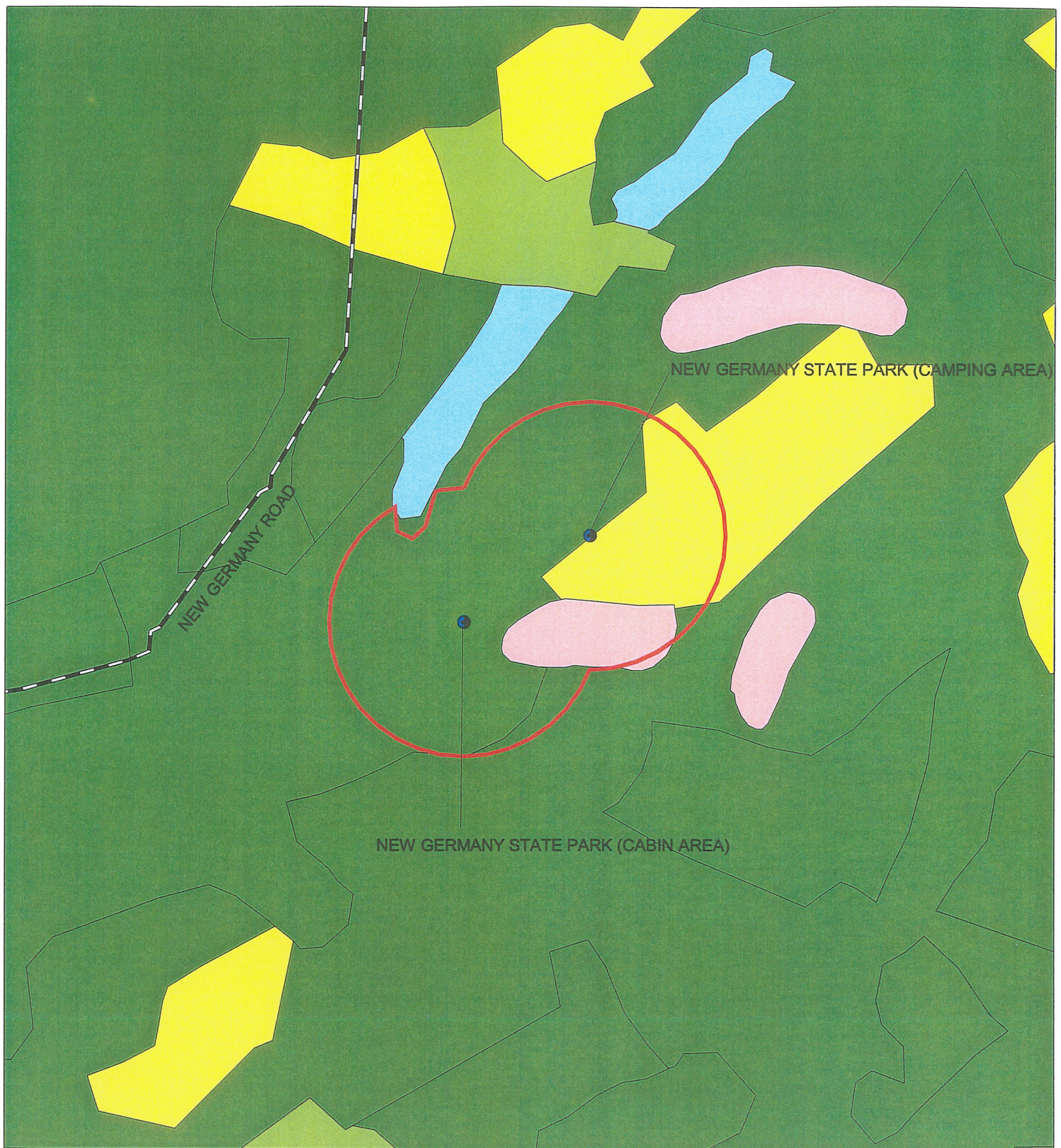
□ Forest

□ Water

□ Wetlands



Source: Maryland Office of Planning, 2000.



**Figure 3-15. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

□ SWPA Boundary

— Major Roads

Land Use

□ Low Density Residential

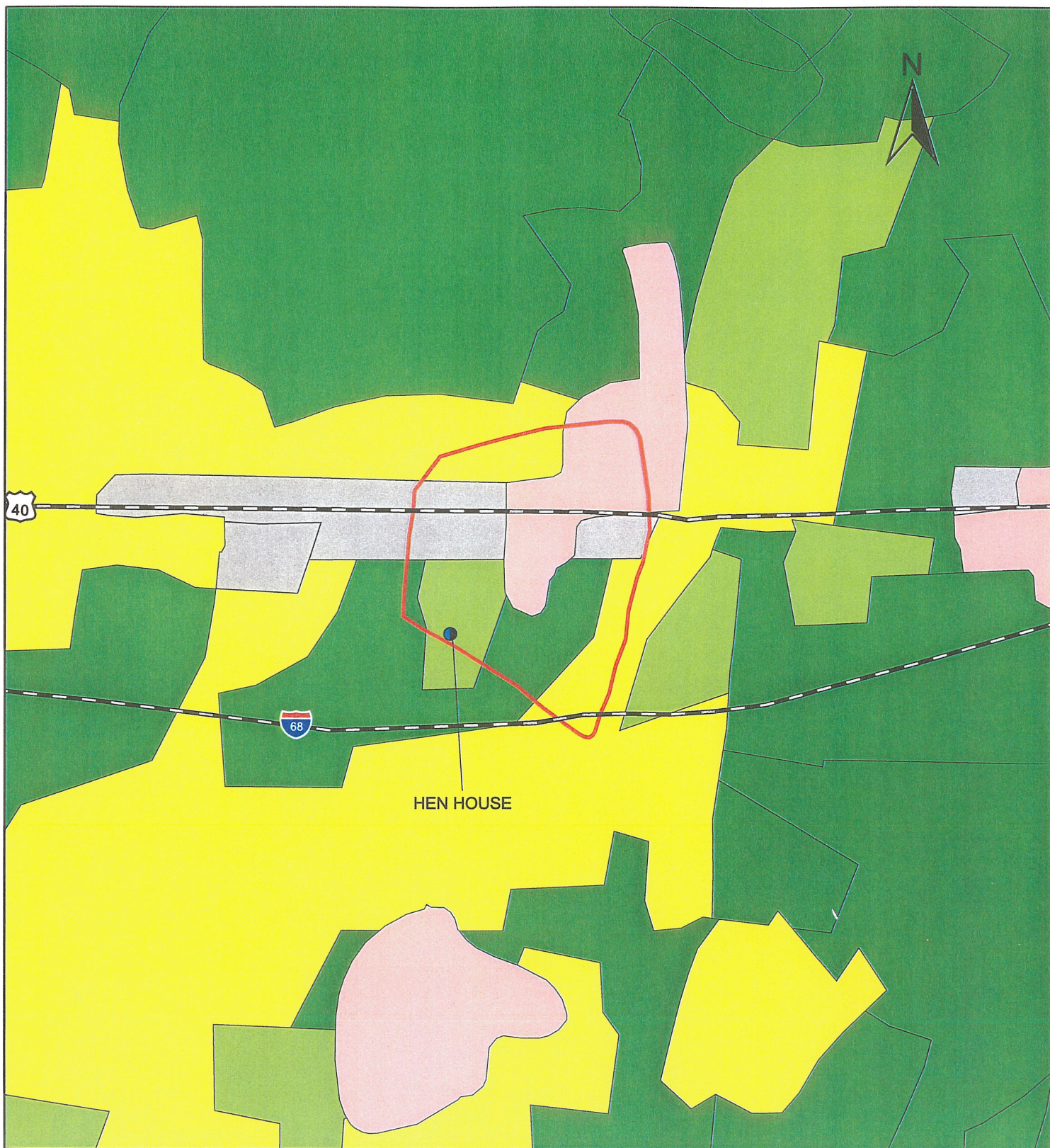
□ Cropland

□ Pasture

□ Forest

□ Wetlands

Source: Maryland Office of Planning, 2000.



**Figure 3-16. Transient Non-Community
Water Systems, Group 2
Land Use Map of the
Source Water Protection Area
Source Water Assessment Program
2003**



Scale: 500 0 500 1000 Feet

Legend:

● Transient Supply Well

▭ SWPA Boundary

--- Major Roads

Land Use

▭ Low Density Residential

▭ Commercial

▭ Cropland

▭ Pasture

▭ Forest

Source: Maryland Office of Planning, 2000.

4. REVIEW OF WATER QUALITY DATA

Water quality data were obtained from the MDE Water Supply Program database of Safe Drinking Water Act (SDWA) contaminants. The results reported are for finished (treated) ground water (unless noted).

A review of the water quality data from April 1993 to March 2000 has been performed for the transient systems finished water samples. As per transient water system requirements, ground-water samples were submitted for analysis of inorganic and microbiological compounds. For inorganic compounds, samples were analyzed for one or more of the following compounds: nitrate, nitrite, conductivity, alkalinity, turbidity, sulfate, total dissolved solids, chloride, iron, manganese, hardness, and pH. All nitrate, nitrite, and microbiological sample results from the collected ground-water samples are included in Appendix A.

Ground-water analytical results were compared to 50 percent of the United States Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCLs) or the USEPA Secondary Drinking Water Regulations (SDWR). If no MCL or SDWR was available, the Drinking Water Equivalent Level (DWEL) was substituted as recommended by the USEPA Office of Water.

The MCL is the highest level of a contaminant that is allowed in drinking water. MCLs are enforceable standards. SDWRs are a non-enforceable Federal guidelines regarding cosmetic effects (such as tooth and skin discoloration) or aesthetic effects (such as taste, odor, or color) of drinking water. The DWEL is a lifetime exposure concentration protective of adverse, non-cancer health effects, which assumes all of the exposure to a contaminant is from drinking water.

4.1 INORGANIC COMPOUNDS

There were no concentrations of inorganic compounds reported at a concentration greater than 50 percent of the MCL of the ground-water samples collected. Nitrate samples for the 30 transient systems were collected from April 1993 to May 2002. Nitrite samples were collected April 1993 through July 2002. The number of nitrate samples collected (199), the number of nitrate detections (77) are compared in Table 8. There were no nitrate detections greater than 50 percent of the MCL for the transient systems. The number of nitrite samples collected (91), the number of nitrite detections (23) are compared in Table 9. There were no nitrite detections greater than 50 percent of the MCL for the transient systems.

Nitrate is a primary drinking water standard parameter. Elevated levels of nitrates may occur due to the influx of agricultural animal waste, agricultural chemicals or fertilizers, and/or septic system effluent into the drinking water.

Reported nitrite concentrations in the water samples collected from April 1993 through July 2002 were below 50 percent of the MCL of 1 mg/L. These low-level detections of nitrite in the ground water of the 30 transient systems do not appear to be a ground-water quality concern in the area.

4.2 MICROBIOLOGICAL CONTAMINANTS

Total and fecal coliform was detected in several of the water systems' finished water samples. Table 11 below presents the number of total coliform detections and the number of fecal coliform detections for each of the water systems. The reviewed coliform sample collection dates ranged from January 1996 to July 2002. Frequency of sample collection varied for each individual system as noted in Table 11.

The positive bacteriological samples reported in the finished water do not necessarily indicate that the source water is contaminated. The presence of bacterial growth within a distribution system could also be attributed to dead ends, cross connections, breaks in piping or storage, improper chlorination after system repairs, or other conditions favorable to growth of opportunistic bacterial colonies.

TABLE 8. SUMMARY OF NITRATE WATER QUALITY ANALYSIS

PWSID	PWS Name	# of Nitrate Samples	# Nitrate Detections	# of Nitrate Detections >50% MCL	Percentage of Nitrate Samples to Detections >50% MCL
1111030	Annie's Kitchen	8	7	0	0 %
1111117	Big Run State Park	6	1	0	0 %
1111131	Brennemans Store	3	3	0	0 %
1111016	Camp Sunrise MT	7	5	0	0 %
1111126	Casselman Lumber	3	0	0	0 %
1111019	Cindy's Place	4	2	0	0 %
1111145	Friendsville I-68 Rest Area Info Building	3	1	0	0 %
1111028	Friendsville I-68 Rest Area Restroom	11	1	0	0 %
1111091	Fuel City/ Burger King	10	5	0	0 %
1111132	Funny Farm	4	0	0	0 %
1111134	Garrett County Roads	6	4	0	0 %
1111133	Garrett County Roads – Accident Garage	8	8	0	0 %
1111081	Hen House	8	8	0	0 %
1111034	Hilltop Delite	6	4	0	0 %
1111035	Hilltop Inn	6	6	0	0 %
1111036	Holiday Inn	9	0	0	0 %
1111093	Keysers Ridge Truck Stop	7	2	0	0 %
1111050	Little Brown Lake Camp	3	1	0	0 %
1111124	Little Meadows Campground	5	1	0	0 %
1111103	McDonald's Keysers Ridge	8	0	0	0 %
1111135	MD State HWY Finzel Scales	6	0	0	0 %
1111008	New Germany State Park (Cabin Area)	12	5	0	0 %
1111048	New Germany State Park (Camping Area)	16	2	0	0 %
1111052	Penn Alps Inc.	7	0	0	0 %
1111147	Savage River Cabins	3	0	0	0 %
1111146	Savage River Lodge	4	1	0	0 %
1111118	State HWY Admin. (Cove Rest Area)	6	5	0	0 %
1111106	Subway Shop	9	2	0	0 %
1111072	Western MD 4-H Center	7	2	0	0 %
1111074	Wild Water Inn	4	1	0	0 %
TOTAL		199	77	0	

TABLE 9. SUMMARY OF NITRITE WATER QUALITY ANALYSIS

PWSID	PWS Name	# of Nitrite Samples	# Nitrite Detections	# of Nitrite Detections >50% MCL	Percentage of Nitrite Samples to Detections >50% MCL
1111030	Annie's Kitchen	4	3	0	0 %
1111117	Big Run State Park	1	0	0	0 %
1111131	Brenneman's Store	1	0	0	0 %
1111016	Camp Sunrise MT	3	1	0	0 %
1111126	Casselman Lumber	2	0	0	0 %
1111019	Cindy's Place	2	1	0	0 %
1111145	Friendsville I-68 Rest Area-Info Building	1	1	0	0 %
1111028	Friendsville I-68 Rest Area-Restroom	5	0	0	0 %
1111091	Fuel City/Burger King	3	1	0	0 %
1111132	Funny Farm	2	0	0	0 %
1111134	Garrett County Roads	2	2	0	0 %
1111133	Garrett County Roads – Accident Garage	2	1	0	0 %
1111081	Hen House	1	1	0	0 %
1111034	Hilltop Delite	1	0	0	0 %
1111035	Hilltop Inn	2	2	0	0 %
1111036	Holiday Inn	6	0	0	0 %
1111093	Keysers Ridge Truck Stop	3	1	0	0 %
1111050	Little Brown Lake Camp	1	0	0	0 %
1111124	Little Meadows Campground	2	0	0	0 %
1111103	McDonald's Keysers Ridge	5	0	0	0 %
1111135	MD State Highway Finzel Scales	4	0	0	0 %
1111008	New Germany State Park (Cabin Area)	5	2	0	0 %
1111048	New Germany State Park (Camping Area)	11	1	0	0 %
1111052	Penn Alps Inc.	4	0	0	0 %
1111147	Savage River Cabins	2	0	0	0 %
1111146	Savage River Lodge	2	0	0	0 %
1111118	State Highway Admin. (Cove Rest Area)	1	1	0	0 %
1111106	Subway Shop	5	2	0	0 %
1111072	Western MD 4-H Center	5	0	0	0 %
1111074	Wild Water Inn	2	0	0	0 %
TOTAL		91	23	0	

TABLE 10. SUMMARY OF MICROBIOLOGICAL ANALYSIS

Pwsid	Pws Name	Prescribed Sample Frequency	Number of Total Coliform Samples	Number of Total Coliform Detections	Total Coliform Detection Percentage	Number of Fecal Coliform Samples	Number of Fecal Coliform Detections	Fecal Coliform Detection Percentage
1111030	Annies Kitchen	Yearly	34	10	29 %	34	1	3 %
1111117	Big Run State Park	Quarterly	6	0	0 %	6	0	0 %
1111131	Brennemans Store	Yearly	8	0	0 %	8	0	0 %
1111016	Camp Sunrise MT	Yearly	9	0	0 %	9	0	0 %
1111126	Casselman Lumber	Yearly	4	0	0 %	4	0	0 %
1111019	Cindys Place	Yearly	5	0	0 %	5	0	0 %
1111145	Friendsville I-68 Rest Area Info Bldg	Quarterly	2	0	0 %	2	0	0 %
1111028	Friendsville I-68 Rest Area Restroom	Quarterly	20	4	20 %	20	0	0 %
1111091	Fuel City / Burger King	Yearly	19	1	5 %	19	0	0 %
1111132	Funny Farm	Yearly	4	0	0 %	4	0	0 %
1111134	Garrett County Roads	Quarterly	7	0	0 %	7	0	0 %
1111133	Garrett County Roads - Accident Garage	Yearly	12	2	17 %	12	1	8 %
1111081	Hen House	Quarterly	31	7	23 %	31	1	3 %
1111034	Hilltop Delite	Yearly	20	4	20 %	20	0	0 %
1111035	Hilltop Inn	Yearly	19	9	47 %	19	0	0 %
1111036	Holiday Inn	Quarterly	32	4	13 %	32	1	3 %
1111093	Keysers Ridge Truck Stop	Yearly	10	3	30 %	10	0	0 %
1111050	Little Brown Lake Camp	Yearly	3	0	0 %	3	0	0 %
1111124	Little Meadows Campground	Quarterly	19	11	58 %	19	0	0 %
1111103	Mcdonalds Keysers Ridge	Quarterly	11	2	18 %	11	0	0 %
1111135	Md State Hwy Finzel Scales	Quarterly	4	0	0 %	4	0	0 %
1111008	New Germany State Park (Cabin Area)	Yearly	15	1	7 %	15	1	7 %
1111048	New Germany State Park (Camping Area)	Yearly	18	2	11 %	18	0	0 %
1111052	Penn Alps Inc	Yearly	8	0	0 %	8	0	0 %
1111147	Savage River Cabins	Quarterly	2	0	0 %	2	0	0 %
1111146	Savage River Lodge	Quarterly	3	0	0 %	3	0	0 %
1111118	State Highway Admin (Cove Rest Area)	Yearly	10	3	30 %	10	0	0 %
1111106	Subway Shop	Yearly	11	0	0 %	11	0	0 %
1111072	Western Md 4 H Center	Yearly	17	3	18 %	17	0	0 %
1111074	Wild Water Inn	Quarterly	11	1	9 %	11	0	0 %

5. SUSCEPTIBILITY ANALYSIS

To evaluate the susceptibility of each ground-water source to contamination, the following criteria were used:

1. Available water quality data
2. Presence of potential contaminant sources in the SWPA
3. Aquifer characteristics
4. Well integrity
5. Likelihood of change to the natural conditions

The ground water that is used to supply the 30 transient systems (from 38 wells and 1 surface spring) is from unconfined aquifers. In general, unconfined aquifers are more susceptible to contamination from surface activities than confined aquifers, which are naturally protected by a layer of generally impermeable material such as clay. The unconfined aquifers utilized by these Garrett County systems are overlain by relatively thick soil overburden, which serve as a natural microbiological and chemical filter for contaminants. According to the Soil Survey of Garrett County, Maryland [U.S. Department of Agriculture (USDA) 1974], the soils in Garrett County are generally stoney to silty loams, which both generally have a high organic carbon content. Depending on the physical properties of the contaminant, the depth of the overburden, and the size of the spill, contaminants could partition to the organic carbon in the soil before reaching the ground-water aquifer. In addition, naturally occurring microorganisms in the soil can also degrade some contaminants such as benzene and trichloroethene (TCE) to produce energy.

For the Susceptibility Analysis in this report, rankings of “high,” “moderate,” and “low” susceptibility to contamination were utilized after a review of current information. However, other SWAP reports for the State of Maryland also utilized rankings of “is,” “may be,” and “is not” susceptible to contamination. For consistency between the ranking systems, the following details their equivalence. The ranking of “highly susceptible” is equivalent to “is susceptible,” “moderately susceptible” is equivalent to “may be susceptible,” and “low susceptibility” is equivalent to “is not susceptible.”

5.1 INORGANIC COMPOUNDS

Nitrate was reported in 77 of the 199 samples collected from the 30 systems over the period of April 1993 to July 2002. Of the 77 reported nitrate concentrations, none of the samples were

reported with nitrate concentration greater than 50 percent of the MCL of 10 mg/L. Reported nitrite concentrations ranged from less than detection limits to 0.3 mg/L in the water samples collected from April 1993 to July 2002.

Nitrate and nitrite concentrations in ground water can generally be traced back to land use. Sources of nitrate can include over-application of nitrogen-based fertilizers used on residential lawns and agricultural fields, excessive manure from animal grazing areas (pastures), and effluent from septic systems used in residential and commercial areas. From the land use mapping, approximately 20 percent of the total SWPA is agricultural and approximately 18 percent is residential and commercial. The majority of the systems were located in low-density population areas. No nitrate concentrations have been reported above 50 percent of the MCL in the ground-water samples submitted, therefore it is unlikely that septic system discharge or land use has impacted the regional ground-water quality with nitrogen compounds.

Based on the water quality review, site visits, an evaluation of the land use areas in the SWPA, and the integrity of the source(s), the susceptibility to nitrate for each of the 30 transient water supply systems were evaluated (Table 12). Twenty-eight (28) systems have a low susceptibility to nitrate and 2 systems have a high susceptibility to nitrate.

The two systems that were identified as highly susceptible to nitrate contamination include Garrett County Roads – Accident Garage and the Hen House.

Nitrate was detected in each of the ground-water samples collected from Garrett County Roads – Accident Garage with the an average concentration of approximately 2.9 mg/L. This is significantly higher than the reported nitrate concentrations in ground-water samples from other transient systems in Garrett County. The cause of the elevate nitrate in the ground-water is most likely the result of nearby septic system discharge.

The Hen House currently utilizes a surface spring for its drinking water. Upgradient of the spring are commercial and residential lands, which rely on septic systems for wastewater treatment. Nitrate has been reported in each of the ground-water samples collected with an average concentration of 1.4 mg/L. This is significantly higher than the reported nitrate concentrations in ground-water samples from other transient systems in Garrett County.

TABLE 11. NITRATE SUSCEPTIBILITY

PWSID	PWS Name	No. of Samples	No. of Detections	Percentage Over 50% MCL	Land Use of Concern in SWPA	Public Sewer Service in SWPA	Nitrate Susceptibility Ranking
1111030	Annie's Kitchen	8	7	0%	Croplands, Residential, Commercial	No planned service	Low
1111117	Big Run State Park	6	1	0%	Pastures	No planned service	Low
1111131	Brennemans Store	3	3	0%	Residential, Cropland	No planned service	Low
1111016	Camp Sunrise MT	7	5	0%	Croplands, Pastures	No planned service	Low
1111126	Casselman Lumber	3	0	0%	Residential, Commercial, Feeding Operations, Croplands	No planned service	Low
1111019	Cindy's Place	4	2	0%	Residential, Commercial	No planned service	Low
1111145	Friendsville I-68 Rest Area Info Building	3	1	0%	Pastures	No planned service	Low
1111028	Friendsville I-68 Rest Area Restroom	11	1	0%	Pastures	No planned service	Low
1111091	Fuel City/ Burger King	10	5	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Low
1111132	Funny Farm	4	0	0%	Croplands, Pastures	No planned service	Low
1111134	Garrett County Roads	6	4	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Low
1111133	Garrett County Roads Accident Garage	8	8	0%	Residential, Commercial	No planned service	High
1111081	Hen House	8	8	0%	Residential, Commercial, Pastures	No planned service	High
1111034	Hilltop Delite	6	4	0%	Commercial, Residential, Pastures	No planned service	Low
1111035	Hilltop Inn	6	6	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Low
1111036	Holiday Inn	9	0	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Low
1111093	Keysers Ridge Truck Stop	7	2	0%	Commercial, Pastures	No planned service	Low
1111050	Little Brown Lake Camp	3	1	0%	Pastures	No planned service	Low
1111124	Little Meadows Campground	5	1	0%	Cropland, Commercial	No planned service	Low
1111103	McDonald's Keysers Ridge	8	0	0%	Commercial, Pastures	No planned service	Low
1111135	MD State HWY Finzel Scales	6	0	0%	None	No planned service	Low
1111008	New Germany State Park (Cabin Area)	12	5	0%	Cropland, Residential	No planned service	Low
1111048	New Germany State Park (Camping Area)	16	2	0%	Cropland, Residential	No planned service	Low
1111052	Penn Alps Inc.	7	0	0%	Commercial, Residential	Majority of SWPA has service	Low
1111147	Savage River Cabins	3	0	0%	None	No planned service	Low
1111146	Savage River Lodge	4	1	0%	None	No planned service	Low
1111118	State HWY Admin. (Cove Rest Area)	6	5	0%	Residential, Cropland	No planned service	Low
1111106	Subway Shop	9	2	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Low
1111072	Western Maryland 4-H Center	7	2	0%	None	No planned service	Low
1111074	Wild Water Inn	4	1	0%	Commercial, Pastures	No planned service	Low

5.2 MICROBIOLOGICAL CONTAMINANTS

Sixteen (16) of the 30 systems had at least one ground-water sample reported to contain total coliforms. Five (5) of the 30 systems (Annie's Kitchen, Garrett County Roads – Accident Garage, the Hen House, Holiday Inn, and New Germany State Park) had a ground-water sample reported to contain fecal coliform. The Hen House currently uses a spring as a source of ground water.

Microbiological contamination in ground water can be the result of septic system effluent (which contains fecal coliform) that has not been properly treated, surface water runoff impacted with coliforms from land use activities, direct ground-water recharge from the surface due to well construction deficiencies, or insect or animal infiltration due to well construction deficiencies.

Many finished water total coliform samples that are positive are a result of a well or distribution deficiency. Something as simple as a cracked well cap or broken conduit can allow insects to enter the well and cause total and/or fecal coliform problems. After any repair is made to the well or distribution system the entire water system must be properly chlorinated to prevent coliform problems.

Based on the water quality review, site visits, an evaluation of the land use areas in the SWPA, and the integrity of the source(s), the susceptibility to microbiological contaminants for each of the 30 transient water supply systems were evaluated (Table 13). Sixteen (16) systems have a low susceptibility to microbiological contaminants, 6 systems have a moderate susceptibility, and 8 have a high susceptibility to microbiological contaminants.

The eight systems identified as highly susceptible to microbiological contamination include the Annie's Kitchen, Garrett County Roads – Accident Garage, Hen House, Hilltop Inn, Holiday Inn, Keyzers Ridge Truck Stop, Little Meadows Campground, and New Germany State Park (Cabin Area).

Fecal coliform was reported in ground-water samples from Annie's Kitchen, Garrett County Roads – Accident Garage, the Hen House, Holiday Inn, and New Germany State Park. Only the Holiday Inn is located in an area with available public sewer service. Therefore, private septic systems are generally used for wastewater treatment in the residential and commercial areas in each of these SWPAs and can be a non-point source of fecal coliform pollution.

The Hilltop Inn, Keyser's Ridge Truck Stop, and Little Meadows Campground were assessed to be highly susceptible to microbiological contaminants based on the high percentage (greater than 25 percent) of ground-water samples with positive total coliform detections. The well cap at Hilltop Inn was observed to be loose. Insects can infiltrate inside of loose well casings and can cause total coliform detections in ground-water samples. The well at the Little Meadow Campground was located near a stream to a small lake. It is possible that downgradient surface water is drawn to the well and could contain natural occurring total coliform bacteria.

However, due to the lower ground-water pumping rates associated with Transient water supply systems it is unlikely that surface water is drawn upgradient (in the opposite direction of natural ground water flow) to the supply well.

Seasonal-use facilities such as campgrounds and parks may not utilize the ground water during non-peak times. The lack of ground-water use may cause a total or fecal coliform problem in the distribution system and is not necessarily from a source (aquifer) problem. Therefore, it is recommended that the facility flush the system prior to activating the system. Please refer to Section 5.0 for more detailed recommendations.

TABLE 12. MICROBIOLOGICAL SUSCEPTIBILITY

PWSID	PWS Name	% of Total Coliform Samples to Detections	% of Fecal Coliform Samples to Detections	Land Use of Concern in SWPA	Public Sewer Service in SWPA	Ground Water Disinfected?	Could Well Integrity be a Factor?	Micro-Biological Susceptibility Ranking
1111030	Annie's Kitchen	29%	3%	Croplands, Residential, Commercial	No planned service	No	Yes - Well not secure	High
1111117	Big Run State Park	0%	0%	Pastures	No planned service	No	No	Low
1111131	Brennemans Store	0%	0%	Residential, Cropland	No planned service	No	No	Low
1111016	Camp Sunrise MT	0%	0%	Croplands, Pastures	No planned service	Yes	Yes - Inactive wells	Low
1111126	Casselman Lumber	0%	0%	Residential, Commercial, Feeding Operations, Croplands	No planned service	No	No	Low
1111019	Cindy's Place	0%	0%	Residential, Commercial	No planned service	No	No	Low
1111145	Friendsville I-68 Rest Area Info Building	0%	0%	Pastures	No planned service	No	No	Low
1111028	Friendsville I-68 Rest Area Restroom	20%	0%	Pastures	No planned service	No	No	Moderate
1111091	Fuel City/ Burger King	5%	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Yes	No	Low
1111132	Funny Farm	0%	0%	Croplands, Pastures	No planned service	No	No	Low
1111134	Garrett County Roads	0%	0%	Commercial, Residential, Pastures	Majority of SWPA has service	No	No	Low
1111133	Garrett County Roads Accident Garage	17%	8%	Residential, Commercial	No planned service	No	No	High
1111081	Hen House	23%	3%	Residential, Commercial, Pastures	No planned service	No	No	High
1111034	Hilltop Delite	20%	0%	Commercial, Residential, Pastures	No planned service	No	Yes - inactive/unsecure wells	Moderate
1111035	Hilltop Inn	47%	0%	Commercial, Residential, Pastures	Majority of SWPA has service	No	Yes - Well not secure	High
1111036	Holiday Inn	13%	3%	Commercial, Residential, Pastures	Majority of SWPA has service	No	Yes - inactive well	High
1111093	Keysers Ridge Truck Stop	30%	0%	Commercial, Pastures	No planned service	Yes	No	High
1111050	Little Brown Lake Camp	0%	0%	Pastures	No planned service	No	No	Low
1111124	Little Meadows Campground	58%	0%	Cropland, Commercial	No planned service	No	Yes - close to lake	High
1111103	McDonald's Keysers Ridge	18%	0%	Commercial, Pastures	No planned service	Yes	No	Moderate
1111135	MD State HWY Finzel Scales	0%	0%	None	No planned service	Yes	No	Low
1111008	New Germany State Park (Cabin Area)	7%	7%	Cropland, Residential	No planned service	Yes	Yes - Old well	High
1111048	New Germany State Park (Camping Area)	11%	0%	Cropland, Residential	No planned service	Yes	Yes - Old well	Moderate
1111052	Penn Alps Inc.	0%	0%	Commercial, Residential	Majority of SWPA has service	No	No	Low
1111147	Savage River Cabins	0%	0%	None	No planned service	No	No	Low
1111146	Savage River Lodge	0%	0%	None	No planned service	Yes	No	Low
1111118	State HWY Admin. (Cove Rest Area)	30%	0%	Residential, Cropland	No planned service	No	No	Moderate
1111106	Subway Shop	0%	0%	Commercial, Residential, Pastures	Majority of SWPA has service	Yes	No	Low
1111072	Western Maryland 4-H Center	18%	0%	None	No planned service	Yes	No	Moderate
1111074	Wild Water Inn	9%	0%	Commercial, Pastures	No planned service	Yes	No	Low

6. RECOMMENDATIONS FOR PROTECTIVE THE WATER SUPPLY

With the information contained in this report, the owners and operators of the transient water systems as well as the Garrett County Government will have a basis for better understanding of the risks to their drinking water supplies. Being aware of the SWPA, knowing potential contaminant sources, evaluating current and future development, and effective outreach and education are examples of management practices that will help protect the water supply.

6.1 RECOMMENDATIONS FOR COUNTY AGENCIES AND THE PROTECTION TEAM

6.1.1 Planning/New Development

Garrett County Health and Planning Departments should keep the SWPA in mind when plans for new developments or zoning changes are discussed for the County. These discussions should also include existing water system owners.

The County should verify that proper design, planning, siting, and operation of new and/or existing septic systems within the SWPAs to minimize nitrogen and microbiological contaminants in the effluent from impacting ground-water aquifers.

6.1.2 Public Awareness and Outreach

Cooperation between the involved government agencies and the public water systems owners and users is the key to protecting the ground-water supply. The Garrett County Health Department should consider conducting educational outreach programs for interested system owners and local residents. These information sessions could include topics focused on protecting the water supply, such as the importance of establishing protection areas, safe gardening practices, proper maintenance of underground storage tanks, septic system care and maintenance, water treatment options, proper spill reporting, proper hazardous substance storage, proper well installation, and the importance of properly abandoning wells.

The Garrett County Health Department should also consider sending pamphlets, flyers, or bill stuffers to transient system owners and residents to educate them about the SWPA. An example pamphlet, "Gardening in a Wellhead Protection Area," is available from MDE. In addition, the Garrett County Health Department office can provide assistance to system owners regarding various contaminants, well abandonment, and water treatment options.

6.1.3 Transient System Monitoring

The Garrett County Health Department has an active role in monitoring and aiding transient water systems and should be aware of all existing systems in the County. County field staff should be aware of the boundaries of the SWPAs so that when sanitary surveys are performed, new sources of potential contamination can be identified. During the periodic review of water quality data, field personnel should be aware of the potential sources of contamination in the SWPA. Garrett County field personnel should continue to monitor ground-water sample results for evidence of contaminant source infiltration. Deficient systems identified in this report should be noted by County field personnel for use in subsequent sanitary surveys to ensure the systems are properly repaired.

Consider working with systems that are close to known UST or LUST site to collected ground-water samples for VOC analysis. The MDE Oil Control Program should be alerted of any positive results for petroleum compounds.

6.2 RECOMMENDATIONS FOR SYSTEM OWNERS AND OPERATORS

Owners and operators of individual systems should be aware of the recommendations made in reference to interaction with County agencies as well as the following issues.

6.2.1 Planning

The owner/operators of the water systems should consider discussing the activities that may have impacts to ground-water quality with property owners and businesses located within the SWPA. Owners and operator of water systems should also pay close attention to new commercial or residential developments that may have the potential to impact their water source.

The water system owners, operators, and employees should also be encouraged to notify the owner of the water system of any significant spills from gasoline or any other potentially hazardous substances. In all cases when spills may present a significant risk of contamination to ground water within the SWPA the local fire department should be notified of the incident.

6.2.2 Changes in Use

The water system owners should inform the Garrett County Health Department or the Water Supply Program at MDE of significant changes to pumping rates and when a change in the number of wells used is anticipated. Changes to the pumping rate and/or the number of supply wells could affect the size and shape of the SWPA. The addition of new wells to the water system must be appropriately permitted and approved in accordance with local, State, and Federal requirements.

Any wells that are no longer in use should be reported to MDE Water Supply Program and the Garrett County Health Department so guidance on proper abandonment requirements can be provided.

Four unused wells were observed within the delineation area of the transient systems (Table 3). Since these wells are not utilized, they should be properly abandoned and sealed as per COMAR 26.04.04.11 to maintain the integrity of the underlying aquifer from surface water runoff into or around the well casings. The following systems have wells that should be abandoned:

- Camp Sunrise Mountain – 2 Wells (1111016)
- Hilltop Delite (1111034)
- Holiday Inn (1111036)

6.2.3 Monitoring

The water system owners should continue to monitor the ground water for all SWDA contaminants as required by the County and MDE.

Annual raw water sampling for microbiological contaminants is a good way to check the integrity of the well. If the results for total or fecal coliform analysis are positive, an investigation as to the cause should be conducted and corrective actions should be taken as necessary. While disinfection is often used to treat bacteria in drinking water, it does not address potential source water problems from surface contamination and is not an adequate solution.

Systems with wells in areas prone to flooding or are just above grade should be sampled following significant rain events to assess whether the ground-water is sensitive to surface water runoff.

Ground water from the following systems where LUST sites, UST sites, and other potential sources of VOCs were observed in the SWPA should consider submitting a ground-water sample for VOC analysis to assess whether the ground-water quality in the area of the supply wells has been affected:

- Fuel City/Burger King (1111091)
- Garrett County Roads (1111134)
- Garrett County Roads – Accident Garage (1111133)
- Hilltop Delite (1111034)
- Hilltop Inn (1111036)
- Keysers Ridge Truck Stop (1111093)
- McDonald's Keysers Ridge (1111103)
- Subway Shop (1111106)
- Friendsville I-68 Rest Area Bathrooms and Info Building (1111028 and 1111145)
- Funny Farm (1111132)
- Hen House (1111081)
- State Highway Administration – Cove Rest Area (1111118)

6.2.4 Contaminant Source Inventory Updates/Inspections

The water system owner should conduct its own survey of the SWPA to ensure that there are no additional potential sources of contamination.

A regular inspection and maintenance program of the supply wells should be considered to prevent a failure in the well's integrity, which may provide a pathway for contaminants in surface water runoff to the aquifer. Any defects noted in County or MDE sanitary surveys should be corrected. The well should be disinfected after any work/rehabilitation is performed.

Wells should be protected from damage by vehicles or other machinery using ballards or other traffic controls. If a well is damaged, it should be repaired as soon as possible to prevent ground-water contamination. The well must be disinfected after any work/rehabilitation is performed.

Four wells in need of repair were observed during the site visits and should be addressed as soon as possible. These systems include:

- Annie's Kitchen (1111030) – Well cap needs to be bolted and secured.

- Hilltop Delite (1111034) – Well cap needs to be bolted and secured.
- Hilltop Inn (1111035) – Well cap needs to be bolted and secured.

Installing new-two piece well caps is a good way to reduce potential microbiological contamination from insects. Caulking of the electrical conduit is needed to ensure a sanitary seal.

Seasonal systems should disinfect and flush their wells prior to re-opening.

System owners with LUST sites within their SWPA should contact the MDE Oil Control Program to inquire on the status of these facilities listed on the LUST sites within the SWPAs. Systems with LUST sites within their SWPA include:

- Fuel City/Burger King (1111091)
- Garrett County Roads (1111134)
- Garrett County Roads – Accident Garage (1111133)
- Hilltop Delite (1111034)
- Hilltop Inn (1111036)
- Keysers Ridge Truck Stop (1111093)
- McDonald's Keysers Ridge (1111103)
- Subway Shop (1111106)

6.2.5 Spring Upgrades

Springs can become contaminated when sources of contamination are located on higher adjacent land. The Hen House water system owner should take steps to protect the spring from surface water runoff infiltration, and ensure that the collection system is free of coliform bacterial sources. It was reported that the spring was to be abandoned in the Spring of 2003. However, if the spring is still in use, to prevent surface water runoff from impacting water quality, the water supplier should consider implementing protective encasements around the spring.

The basic features of a spring encasement structure are as follows:

- An open-bottom, watertight basin intercepting the source, which extends to bedrock, or a system of collection pipes and a storage tank

- A cover that prevents the entrance of surface drainage or debris into the storage tank
- Provision for the cleanout and emptying of the tank contents
- Provision for overflow
- An impervious material cover that extends 15-ft around the spring encasement
- A connection to the distribution system or auxiliary supply

6.2.6 Septic System Operation and Maintenance

Owners/operators whose properties utilize a private septic system should take precautions to ensure proper function of the septic system over time. The drain field should be inspected periodically and kept void of vegetation, such as trees and deep-rooted bushes that can disrupt function. The disposal of non-sanitary waste into septic systems should not be permitted and residents, employees, and other users should be reminded of this by posting signs or circulating pamphlets. Septic systems are not designed to treat substances such as paint, motor oils, solvents, drain cleaner, or nail polish remover and could impact the ground-water aquifer with contaminants.

7. REFERENCES

The following sources of information were consulted as a part of this investigation:

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3. Maryland Geological Survey (MGS). 1968. *Garrett County Geologic Map adapted from Maryland Geological Survey's Geologic Map of Maryland*.
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6. United States Environmental Protection Agency (USEPA). 2001. *A Small Systems Guide to the Total Coliform Rule*. Office of Water. EPA 816-R-01-017A. June.
7. United States Geologic Survey. 1947 (Photorevised 1974). *7.5-Minute Series Topographic Map for Sang Run, Maryland-West Virginia*.
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11. United States Geologic Survey. 1947 (Photorevised 1981). *7.5-Minute Series Topographic Map for Barton, Maryland*.
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13. United States Geologic Survey. 1947 (Photorevised 1981). *7.5-Minute Series Topographic Map for McHenry, Maryland*.
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15. United States Geologic Survey. 1948 (Photorevised 1981). *7.5-Minute Series Topographic Map for Deer Park, Maryland*.
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18. United States Geologic Survey. 1949 (Photorevised 1981). *7.5-Minute Series Topographic Map for Frostburg, Maryland-Pennsylvania.*
19. United States Geologic Survey. 1949 (Photorevised 1981). *7.5-Minute Series Topographic Map for Gorman, Maryland-West Virginia.*
20. United States Geologic Survey. 1949 (Photorevised 1981). *7.5-Minute Series Topographic Map for Mount Storm, West Virginia-Maryland.*
21. United States Geologic Survey. 1950 (Photorevised 1981). *7.5-Minute Series Topographic Map for Lonaconing, Maryland-West Virginia.*
22. United States Geologic Survey. 1950 (Photorevised 1981). *7.5-Minute Series Topographic Map for Westernport, Maryland-West Virginia.*
23. United States Geologic Survey. 1967 (Photorevised 1981). *7.5-Minute Series Topographic Map for Davis, West Virginia-Maryland.*
24. United States Geologic Survey. 1994. *7.5-Minute Series Topographic Map for Grantsville, Maryland-Pennsylvania.*

Additional Sources of Data

Maryland Office of Planning 2000 Garrett County Land Use Map
Maryland Office of Planning 1992 Garrett County Sewer Map
MDE Waste Management Sites Database
MDE Water Appropriation and Use Database
MDE Water Supply Program Oracle Database
Periodic Monitoring Reports
Public Water Supply Inspection Reports (Sanitary Surveys)
Garrett County Health Department Transient Systems Files (Sanitary Surveys, etc.)

Appendix A

Nitrate, Nitrite, and Coliform Analysis Results

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111030	ANNIES KITCHEN	01	NITRATE	01/17/96	--
1111030	ANNIES KITCHEN	01	NITRATE	02/19/97	0.2
1111030	ANNIES KITCHEN	01	NITRATE	07/01/97	0.2
1111030	ANNIES KITCHEN	01	NITRATE	07/30/97	0.003
1111030	ANNIES KITCHEN	01	NITRATE	01/27/98	0.2
1111030	ANNIES KITCHEN	01	NITRATE	01/13/99	0.2
1111030	ANNIES KITCHEN	01	NITRATE	01/05/00	0.1
1111030	ANNIES KITCHEN	01	NITRATE	03/20/01	0.2
1111030	ANNIES KITCHEN	01	NITRITE	01/17/96	--
1111030	ANNIES KITCHEN	01	NITRITE	02/19/97	0.2
1111030	ANNIES KITCHEN	01	NITRITE	07/01/97	0.2
1111030	ANNIES KITCHEN	01	NITRITE	01/05/00	0.1
1111117	BIG RUN STATE PARK	01	NITRATE	04/15/93	--
1111117	BIG RUN STATE PARK	01	NITRATE	11/09/98	--
1111117	BIG RUN STATE PARK	01	NITRATE	02/03/99	--
1111117	BIG RUN STATE PARK	01	NITRATE	04/25/00	0.2
1111117	BIG RUN STATE PARK	01	NITRATE	07/01/01	--
1111117	BIG RUN STATE PARK	01	NITRATE	02/21/02	--
1111117	BIG RUN STATE PARK	01	NITRITE	04/15/93	--
1111131	BRENNEMANS STORE	01	NITRATE	04/07/99	0.6
1111131	BRENNEMANS STORE	01	NITRATE	04/05/00	0.6
1111131	BRENNEMANS STORE	01	NITRATE	04/01/01	0.7
1111131	BRENNEMANS STORE	01	NITRITE	04/21/99	--
1111016	CAMP SUNRISE MT	01	NITRATE	07/31/96	--
1111016	CAMP SUNRISE MT	01	NITRATE	06/25/97	0.3
1111016	CAMP SUNRISE MT	01	NITRATE	05/06/98	0.1
1111016	CAMP SUNRISE MT	01	NITRATE	06/16/99	0.2
1111016	CAMP SUNRISE MT	01	NITRATE	12/12/00	--
1111016	CAMP SUNRISE MT	01	NITRATE	06/05/01	0.2
1111016	CAMP SUNRISE MT	01	NITRATE	04/10/02	0.2
1111016	CAMP SUNRISE MT	01	NITRITE	07/31/96	--
1111016	CAMP SUNRISE MT	01	NITRITE	06/25/97	0.3
1111016	CAMP SUNRISE MT	01	NITRITE	12/12/00	--
1111126	CASSELMAN LUMBER	01	NITRATE	02/17/99	--
1111126	CASSELMAN LUMBER	01	NITRATE	03/08/00	--
1111126	CASSELMAN LUMBER	01	NITRATE	04/25/01	--
1111126	CASSELMAN LUMBER	01	NITRITE	02/17/99	--
1111126	CASSELMAN LUMBER	01	NITRITE	04/25/01	--
1111019	CINDYS PLACE	01	NITRATE	03/05/97	0.1
1111019	CINDYS PLACE	01	NITRATE	02/10/99	--
1111019	CINDYS PLACE	01	NITRATE	01/26/00	--
1111019	CINDYS PLACE	01	NITRATE	03/19/01	0.1
1111019	CINDYS PLACE	01	NITRITE	03/05/97	0.1

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111019	CINDYS PLACE	01	NITRITE	01/26/00	--
1111145	FRIENDSVILLE I-68 REST AREA INFO BLDG	01	NITRATE	03/14/00	0.1
1111145	FRIENDSVILLE I-68 REST AREA INFO BLDG	01	NITRATE	07/11/01	--
1111145	FRIENDSVILLE I-68 REST AREA INFO BLDG	01	NITRATE	01/16/02	--
1111145	FRIENDSVILLE I-68 REST AREA INFO BLDG	01	NITRITE	03/14/00	0.1
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	02/21/96	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	02/21/96	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	02/19/97	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	02/19/97	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	07/01/98	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	07/01/98	0.1
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	03/31/99	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	03/31/99	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	03/14/00	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	05/30/01	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRATE	01/16/02	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRITE	02/21/96	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRITE	02/21/96	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRITE	02/19/97	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRITE	02/19/97	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	01	NITRITE	05/30/01	--
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/17/96	2.4
1111091	FUEL CITY / BURGER KING	01	NITRATE	07/01/97	0.2
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/26/98	0.2
1111091	FUEL CITY / BURGER KING	01	NITRATE	11/09/98	--
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/20/99	--
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/12/00	--
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/12/00	--
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/17/01	0.1
1111091	FUEL CITY / BURGER KING	01	NITRATE	03/01/01	0.3
1111091	FUEL CITY / BURGER KING	01	NITRATE	01/03/02	--
1111091	FUEL CITY / BURGER KING	01	NITRITE	07/01/97	0.2
1111091	FUEL CITY / BURGER KING	01	NITRITE	01/12/00	--
1111091	FUEL CITY / BURGER KING	01	NITRITE	01/12/00	--
1111132	FUNNY FARM	01	NITRATE	01/20/99	--
1111132	FUNNY FARM	01	NITRATE	01/12/00	--
1111132	FUNNY FARM	01	NITRATE	01/01/01	--
1111132	FUNNY FARM	01	NITRATE	01/08/02	--
1111132	FUNNY FARM	01	NITRITE	01/20/99	--
1111132	FUNNY FARM	01	NITRITE	01/12/00	--
1111134	GARRETT COUNTY ROADS	01	NITRATE	07/01/98	0.1
1111134	GARRETT COUNTY ROADS	01	NITRATE	02/24/99	0.2
1111134	GARRETT COUNTY ROADS	01	NITRATE	01/26/00	0.2

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111134	GARRETT COUNTY ROADS	01	NITRATE	03/19/01	3.7
1111134	GARRETT COUNTY ROADS	01	NITRATE	01/09/02	--
1111134	GARRETT COUNTY ROADS	01	NITRATE	05/15/02	--
1111134	GARRETT COUNTY ROADS	01	NITRITE	07/01/98	0.1
1111134	GARRETT COUNTY ROADS	01	NITRITE	01/26/00	0.2
1111133	GARAGE	01	NITRATE	01/24/95	4
1111133	GARAGE	01	NITRATE	02/19/97	2.8
1111133	GARAGE	01	NITRATE	07/30/97	0.003
1111133	GARAGE	01	NITRATE	04/08/98	3
1111133	GARAGE	01	NITRATE	02/17/99	2.5
1111133	GARAGE	01	NITRATE	01/05/00	2.9
1111133	GARAGE	01	NITRATE	05/01/01	2.4
1111133	GARAGE	01	NITRATE	01/09/02	3.1
1111133	GARAGE	01	NITRITE	07/30/97	0.003
1111133	GARAGE	01	NITRITE	11/03/99	--
1111081	HEN HOUSE	01	NITRATE	01/31/96	1.3
1111081	HEN HOUSE	01	NITRATE	04/02/97	1.7
1111081	HEN HOUSE	01	NITRATE	01/26/98	1.9
1111081	HEN HOUSE	01	NITRATE	05/15/98	0.002
1111081	HEN HOUSE	01	NITRATE	02/11/99	1.5
1111081	HEN HOUSE	01	NITRATE	01/19/00	2.5
1111081	HEN HOUSE	01	NITRATE	01/02/02	1.1
1111081	HEN HOUSE	01	NITRATE	01/09/02	1.1
1111081	HEN HOUSE	01	NITRITE	05/15/98	0.002
1111034	HILLTOP DELITE	01	NITRATE	02/05/96	--
1111034	HILLTOP DELITE	01	NITRATE	03/15/98	0.1
1111034	HILLTOP DELITE	01	NITRATE	01/20/99	0.1
1111034	HILLTOP DELITE	01	NITRATE	02/09/00	0.1
1111034	HILLTOP DELITE	01	NITRATE	02/28/01	0.2
1111034	HILLTOP DELITE	01	NITRATE	01/03/02	--
1111034	HILLTOP DELITE	01	NITRITE	02/05/96	--
1111035	HILLTOP INN	01	NITRATE	04/29/97	0.3
1111035	HILLTOP INN	01	NITRATE	03/18/98	0.3
1111035	HILLTOP INN	01	NITRATE	04/28/99	0.3
1111035	HILLTOP INN	01	NITRATE	02/23/00	0.3
1111035	HILLTOP INN	01	NITRATE	05/29/01	0.5
1111035	HILLTOP INN	01	NITRATE	04/30/02	0.3
1111035	HILLTOP INN	01	NITRITE	04/29/97	0.3
1111035	HILLTOP INN	01	NITRITE	03/18/98	0.3
1111036	HOLIDAY INN	01	NITRATE	01/17/96	--
1111036	HOLIDAY INN	01	NITRATE	04/02/97	--
1111036	HOLIDAY INN	01	NITRATE	07/01/97	--
1111036	HOLIDAY INN	01	NITRATE	01/26/98	--

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111036	HOLIDAY INN	01	NITRATE	03/18/98	--
1111036	HOLIDAY INN	01	NITRATE	04/07/99	--
1111036	HOLIDAY INN	01	NITRATE	01/12/00	--
1111036	HOLIDAY INN	01	NITRATE	01/02/01	--
1111036	HOLIDAY INN	01	NITRATE	01/03/02	--
1111036	HOLIDAY INN	01	NITRITE	01/17/96	--
1111036	HOLIDAY INN	01	NITRITE	04/02/97	--
1111036	HOLIDAY INN	01	NITRITE	07/01/97	--
1111036	HOLIDAY INN	01	NITRITE	01/26/98	--
1111036	HOLIDAY INN	01	NITRITE	03/18/98	--
1111036	HOLIDAY INN	01	NITRITE	01/12/00	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	01/17/96	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	02/26/97	0.1
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	11/05/98	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	01/19/99	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	01/12/00	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	01/01/01	0.1
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRATE	01/09/02	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRITE	01/17/96	--
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRITE	02/26/97	0.1
1111093	KEYSERS RIDGE TRUCK STOP	01	NITRITE	01/12/00	--
1111050	LITTLE BROWN LAKE CAMP	01	NITRATE	06/15/98	--
1111050	LITTLE BROWN LAKE CAMP	01	NITRATE	05/30/00	--
1111050	LITTLE BROWN LAKE CAMP	01	NITRATE	05/01/02	0.1
1111050	LITTLE BROWN LAKE CAMP	01	NITRITE	06/15/98	--
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRATE	06/10/98	1.5
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRATE	07/12/99	--
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRATE	05/31/00	--
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRATE	05/01/01	--
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRATE	05/15/02	--
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRITE	07/12/99	--
1111124	LITTLE MEADOWS CAMPGROUND	01	NITRITE	07/16/02	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	01/17/96	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	01/21/97	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	01/27/98	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	01/19/99	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	03/17/99	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	01/12/00	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	03/05/01	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRATE	01/09/02	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRITE	01/17/96	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRITE	01/21/97	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRITE	01/27/98	--

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111103	MCDONALDS KEYSERS RIDGE	01	NITRITE	01/12/00	--
1111103	MCDONALDS KEYSERS RIDGE	01	NITRITE	03/05/01	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRATE	07/15/98	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRATE	12/15/99	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRATE	01/05/00	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRATE	01/05/00	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRATE	03/19/01	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRATE	01/09/02	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRITE	07/15/98	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRITE	12/15/99	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRITE	01/05/00	--
1111135	MD STATE HWY FINZEL SCALES	01	NITRITE	03/19/01	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	03/18/97	0.2
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	08/12/97	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	06/10/98	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	08/11/98	0.29
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	09/28/99	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	11/08/99	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	04/19/00	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	04/25/00	0.2
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	04/25/00	0.1
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	07/24/00	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	04/01/01	0.1
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRATE	04/10/02	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRITE	03/18/97	0.2
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRITE	08/12/97	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRITE	06/10/98	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRITE	11/03/99	0.003
1111008	NEW GERMANY STATE PARK (CABIN AREA)	01	NITRITE	11/08/99	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/29/96	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/30/96	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	11/12/96	0.05
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	11/14/96	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/29/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/29/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	07/01/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	07/01/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	08/12/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	08/11/98	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	09/28/99	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	11/08/99	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/19/00	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	07/24/00	--

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/01/01	0.1
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRATE	04/10/02	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	04/29/96	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	04/30/96	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	11/14/96	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	04/29/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	04/29/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	07/01/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	07/01/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	08/12/97	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	11/03/99	0.003
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	11/08/99	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	01	NITRITE	04/19/00	--
1111052	PENN ALPS INC	01	NITRATE	02/07/96	--
1111052	PENN ALPS INC	01	NITRATE	03/19/98	--
1111052	PENN ALPS INC	01	NITRATE	02/17/99	--
1111052	PENN ALPS INC	01	NITRATE	01/05/00	--
1111052	PENN ALPS INC	01	NITRATE	02/23/00	--
1111052	PENN ALPS INC	01	NITRATE	02/28/01	--
1111052	PENN ALPS INC	01	NITRATE	01/30/02	--
1111052	PENN ALPS INC	01	NITRITE	02/07/96	--
1111052	PENN ALPS INC	01	NITRITE	03/19/98	--
1111052	PENN ALPS INC	01	NITRITE	01/05/00	--
1111052	PENN ALPS INC	01	NITRITE	02/28/01	--
1111147	SAVAGE RIVER CABINS	01	NITRATE	03/07/00	--
1111147	SAVAGE RIVER CABINS	01	NITRATE	03/15/01	--
1111147	SAVAGE RIVER CABINS	01	NITRATE	04/10/02	--
1111147	SAVAGE RIVER CABINS	01	NITRITE	03/07/00	--
1111147	SAVAGE RIVER CABINS	01	NITRITE	03/15/01	--
1111146	SAVAGE RIVER LODGE	01	NITRATE	10/18/99	--
1111146	SAVAGE RIVER LODGE	01	NITRATE	02/08/00	1.2
1111146	SAVAGE RIVER LODGE	01	NITRATE	03/15/01	--
1111146	SAVAGE RIVER LODGE	01	NITRATE	04/10/02	--
1111146	SAVAGE RIVER LODGE	01	NITRITE	10/18/99	--
1111146	SAVAGE RIVER LODGE	01	NITRITE	03/15/01	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRATE	02/21/96	0.3
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRATE	02/05/97	0.4
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRATE	03/11/99	0.6
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRATE	03/11/99	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRATE	04/11/00	0.7
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRATE	05/29/01	0.5
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	01	NITRITE	02/21/96	0.3
1111106	SUBWAY SHOP	01	NITRATE	01/17/96	--

APPENDIX A
NITRATE, NITRITE RESULTS

PWSID	PWS Name	Plant ID	Contaminant Name	Sample Date	Result (mg/L)
1111106	SUBWAY SHOP	01	NITRATE	02/20/96	--
1111106	SUBWAY SHOP	01	NITRATE	01/22/97	0.2
1111106	SUBWAY SHOP	01	NITRATE	06/25/97	0.2
1111106	SUBWAY SHOP	01	NITRATE	11/09/98	--
1111106	SUBWAY SHOP	01	NITRATE	02/10/99	--
1111106	SUBWAY SHOP	01	NITRATE	01/12/00	--
1111106	SUBWAY SHOP	01	NITRATE	01/01/02	--
1111106	SUBWAY SHOP	01	NITRATE	01/03/02	--
1111106	SUBWAY SHOP	01	NITRITE	01/17/96	--
1111106	SUBWAY SHOP	01	NITRITE	02/20/96	--
1111106	SUBWAY SHOP	01	NITRITE	01/22/97	0.2
1111106	SUBWAY SHOP	01	NITRITE	06/25/97	0.2
1111106	SUBWAY SHOP	01	NITRITE	01/12/00	--
1111072	WESTERN MD 4 H CENTER	01	NITRATE	01/23/96	--
1111072	WESTERN MD 4 H CENTER	01	NITRATE	01/24/96	--
1111072	WESTERN MD 4 H CENTER	01	NITRATE	05/28/97	--
1111072	WESTERN MD 4 H CENTER	01	NITRATE	04/28/99	0.2
1111072	WESTERN MD 4 H CENTER	01	NITRATE	04/25/00	0.3
1111072	WESTERN MD 4 H CENTER	01	NITRATE	06/04/01	--
1111072	WESTERN MD 4 H CENTER	01	NITRATE	06/04/01	--
1111072	WESTERN MD 4 H CENTER	01	NITRITE	01/23/96	--
1111072	WESTERN MD 4 H CENTER	01	NITRITE	01/24/96	--
1111072	WESTERN MD 4 H CENTER	01	NITRITE	05/28/97	--
1111072	WESTERN MD 4 H CENTER	01	NITRITE	06/04/01	--
1111072	WESTERN MD 4 H CENTER	01	NITRITE	06/04/01	--
1111074	WILD WATER INN	01	NITRATE	02/05/99	--
1111074	WILD WATER INN	01	NITRATE	01/19/00	--
1111074	WILD WATER INN	01	NITRATE	05/29/01	0.2
1111074	WILD WATER INN	01	NITRATE	04/10/02	--
1111074	WILD WATER INN	01	NITRITE	02/05/99	--
1111074	WILD WATER INN	01	NITRITE	01/19/00	--

APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111030	ANNIES KITCHEN	01/17/96	N	N	--
1111030	ANNIES KITCHEN	05/29/96	N	N	--
1111030	ANNIES KITCHEN	02/19/97	N	N	--
1111030	ANNIES KITCHEN	07/01/97	N	N	--
1111030	ANNIES KITCHEN	07/09/97	Y	N	--
1111030	ANNIES KITCHEN	07/30/97	N	N	--
1111030	ANNIES KITCHEN	01/27/98	N	N	--
1111030	ANNIES KITCHEN	11/05/98	Y	Y	--
1111030	ANNIES KITCHEN	11/25/98	N	N	--
1111030	ANNIES KITCHEN	01/13/99	N	N	--
1111030	ANNIES KITCHEN	12/07/99	N	N	--
1111030	ANNIES KITCHEN	12/22/99	N	N	--
1111030	ANNIES KITCHEN	12/22/99	N	N	--
1111030	ANNIES KITCHEN	12/22/99	N	N	--
1111030	ANNIES KITCHEN	12/22/99	Y	N	--
1111030	ANNIES KITCHEN	01/05/00	Y	N	--
1111030	ANNIES KITCHEN	01/05/00	N	N	--
1111030	ANNIES KITCHEN	01/12/00	N	N	--
1111030	ANNIES KITCHEN	01/12/00	N	N	--
1111030	ANNIES KITCHEN	03/20/01	N	N	N
1111030	ANNIES KITCHEN	09/05/01	Y	N	N
1111030	ANNIES KITCHEN	09/25/01	Y	N	N
1111030	ANNIES KITCHEN	09/25/01	Y	N	N
1111030	ANNIES KITCHEN	11/20/01	Y	N	N
1111030	ANNIES KITCHEN	11/20/01	N	N	N
1111030	ANNIES KITCHEN	11/20/01	Y	N	N
1111030	ANNIES KITCHEN	11/20/01	N	N	N
1111030	ANNIES KITCHEN	11/20/01	N	N	N
1111030	ANNIES KITCHEN	11/20/01	Y	N	N
1111030	ANNIES KITCHEN	01/02/02	N	N	N
1111030	ANNIES KITCHEN	01/02/02	N	N	N
1111030	ANNIES KITCHEN	01/02/02	N	N	N
1111030	ANNIES KITCHEN	01/02/02	N	N	N
1111030	ANNIES KITCHEN	01/02/02	N	N	N
1111117	BIG RUN STATE PARK	11/09/98	N	N	--
1111117	BIG RUN STATE PARK	02/03/99	N	N	--
1111117	BIG RUN STATE PARK	12/08/99	N	N	--
1111117	BIG RUN STATE PARK	04/25/00	N	N	--
1111117	BIG RUN STATE PARK	07/11/01	N	N	N
1111117	BIG RUN STATE PARK	02/21/02	N	N	N
1111131	BRENNEMANS STORE	04/07/99	N	N	--
1111131	BRENNEMANS STORE	01/26/00	N	N	--
1111131	BRENNEMANS STORE	04/05/00	N	N	--
1111131	BRENNEMANS STORE	06/06/00	N	N	--
1111131	BRENNEMANS STORE	07/19/00	N	N	--
1111131	BRENNEMANS STORE	07/19/00	N	N	--
1111131	BRENNEMANS STORE	07/19/00	N	N	--
1111131	BRENNEMANS STORE	07/19/00	N	N	--
1111016	CAMP SUNRISE MT	06/26/96	N	N	--
1111016	CAMP SUNRISE MT	07/31/96	N	N	--
1111016	CAMP SUNRISE MT	06/25/97	N	N	--

N = No detection

Y = Positive detection

-- = no data available

APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111016	CAMP SUNRISE MT	07/02/97	N	N	--
1111016	CAMP SUNRISE MT	07/07/99	N	N	--
1111016	CAMP SUNRISE MT	07/14/99	N	N	--
1111016	CAMP SUNRISE MT	11/14/00	N	N	--
1111016	CAMP SUNRISE MT	06/05/01	N	N	N
1111016	CAMP SUNRISE MT	04/10/02	N	N	N
1111126	CASSELMAN LUMBER	02/17/99	N	N	--
1111126	CASSELMAN LUMBER	03/08/00	N	N	--
1111126	CASSELMAN LUMBER	04/25/01	N	N	N
1111126	CASSELMAN LUMBER	03/14/02	N	N	N
1111019	CINDYS PLACE	03/05/97	N	N	--
1111019	CINDYS PLACE	02/10/99	N	N	--
1111019	CINDYS PLACE	06/16/99	N	N	--
1111019	CINDYS PLACE	01/26/00	N	N	--
1111019	CINDYS PLACE	02/21/02	N	N	N
1111145	FRIENDSVILLE I-68 REST AREA INFO BLDG	07/11/01	N	N	N
1111145	FRIENDSVILLE I-68 REST AREA INFO BLDG	01/16/02	N	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	02/21/96	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	02/21/96	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	02/19/97	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	02/19/97	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	07/01/98	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	07/01/98	Y	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	08/05/98	Y	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	08/26/98	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	09/09/98	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	03/31/99	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	03/31/99	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	03/21/00	N	N	--
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	05/30/01	Y	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	07/11/01	Y	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	08/29/01	N	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	10/17/01	N	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	10/17/01	N	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	10/17/01	N	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	10/17/01	N	N	N
1111028	FRIENDSVILLE I-68 REST AREA RESTROOM	10/17/01	N	N	N
1111091	FUEL CITY / BURGER KING	01/17/96	N	N	--
1111091	FUEL CITY / BURGER KING	01/30/96	N	N	--
1111091	FUEL CITY / BURGER KING	02/27/96	N	N	--
1111091	FUEL CITY / BURGER KING	05/08/96	N	N	--
1111091	FUEL CITY / BURGER KING	10/23/96	Y	N	--
1111091	FUEL CITY / BURGER KING	01/08/97	N	N	--
1111091	FUEL CITY / BURGER KING	01/15/97	N	N	--
1111091	FUEL CITY / BURGER KING	07/01/97	N	N	--
1111091	FUEL CITY / BURGER KING	01/26/98	N	N	--
1111091	FUEL CITY / BURGER KING	11/09/98	N	N	--
1111091	FUEL CITY / BURGER KING	01/20/99	N	N	--
1111091	FUEL CITY / BURGER KING	12/08/99	N	N	--
1111091	FUEL CITY / BURGER KING	01/12/00	N	N	--
1111091	FUEL CITY / BURGER KING	01/12/00	N	N	--

N = No detection

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APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111091	FUEL CITY / BURGER KING	01/17/01	N	N	--
1111091	FUEL CITY / BURGER KING	03/01/01	N	N	N
1111091	FUEL CITY / BURGER KING	09/05/01	N	N	N
1111091	FUEL CITY / BURGER KING	01/03/02	N	N	N
1111091	FUEL CITY / BURGER KING	04/03/02	N	N	N
1111132	FUNNY FARM	01/20/99	N	N	--
1111132	FUNNY FARM	01/12/00	N	N	--
1111132	FUNNY FARM	01/17/01	N	N	--
1111132	FUNNY FARM	01/08/02	N	N	N
1111134	GARRETT COUNTY ROADS	08/21/96	N	N	--
1111134	GARRETT COUNTY ROADS	07/01/98	N	N	--
1111134	GARRETT COUNTY ROADS	02/24/99	N	N	--
1111134	GARRETT COUNTY ROADS	01/26/00	N	N	--
1111134	GARRETT COUNTY ROADS	01/09/02	N	N	N
1111134	GARRETT COUNTY ROADS	05/15/02	N	N	N
1111134	GARRETT COUNTY ROADS	05/22/02	N	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	01/24/96	Y	Y	--
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	03/20/96	N	N	--
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	02/19/97	N	N	--
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	02/17/99	N	N	--
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	01/05/00	N	N	--
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	05/07/01	Y	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	05/23/01	N	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	05/23/01	N	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	05/23/01	N	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	06/06/01	N	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	06/06/01	N	N	N
1111133	GARRETT COUNTY ROADS - ACCIDENT GARAGE	01/09/02	N	N	N
1111081	HEN HOUSE	01/31/96	N	N	--
1111081	HEN HOUSE	05/15/96	Y	N	--
1111081	HEN HOUSE	05/22/96	Y	N	--
1111081	HEN HOUSE	05/22/96	Y	N	--
1111081	HEN HOUSE	06/05/96	N	N	--
1111081	HEN HOUSE	06/05/96	N	N	--
1111081	HEN HOUSE	07/17/96	N	N	--
1111081	HEN HOUSE	04/02/97	N	N	--
1111081	HEN HOUSE	01/26/98	Y	N	--
1111081	HEN HOUSE	02/10/99	Y	Y	--
1111081	HEN HOUSE	02/12/99	N	N	--
1111081	HEN HOUSE	02/12/99	N	N	--
1111081	HEN HOUSE	02/12/99	N	N	--
1111081	HEN HOUSE	02/12/99	N	N	--
1111081	HEN HOUSE	07/14/99	Y	N	--
1111081	HEN HOUSE	07/21/99	N	N	--
1111081	HEN HOUSE	07/21/99	N	N	--
1111081	HEN HOUSE	07/21/99	Y	N	--
1111081	HEN HOUSE	07/21/99	N	N	--
1111081	HEN HOUSE	01/19/00	N	N	--
1111081	HEN HOUSE	01/03/01	N	N	--
1111081	HEN HOUSE	01/03/01	N	N	--
1111081	HEN HOUSE	01/03/01	N	N	--

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-- = no data available

APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111081	HEN HOUSE	01/03/01	N	N	--
1111081	HEN HOUSE	01/03/01	N	N	--
1111081	HEN HOUSE	10/24/01	N	N	N
1111081	HEN HOUSE	10/24/01	N	N	N
1111081	HEN HOUSE	10/24/01	N	N	N
1111081	HEN HOUSE	10/24/01	N	N	N
1111081	HEN HOUSE	10/24/01	N	N	N
1111081	HEN HOUSE	01/09/02	N	N	N
1111034	HILLTOP DELITE	01/30/96	N	N	--
1111034	HILLTOP DELITE	01/29/97	Y	N	--
1111034	HILLTOP DELITE	02/05/97	Y	N	--
1111034	HILLTOP DELITE	02/19/97	N	N	--
1111034	HILLTOP DELITE	02/19/97	N	N	--
1111034	HILLTOP DELITE	03/03/98	N	N	--
1111034	HILLTOP DELITE	12/22/99	N	N	--
1111034	HILLTOP DELITE	02/09/00	N	N	--
1111034	HILLTOP DELITE	02/18/00	N	N	--
1111034	HILLTOP DELITE	03/01/00	N	N	--
1111034	HILLTOP DELITE	03/01/00	Y	N	--
1111034	HILLTOP DELITE	03/01/00	N	N	--
1111034	HILLTOP DELITE	03/01/00	Y	N	--
1111034	HILLTOP DELITE	03/15/00	N	N	--
1111034	HILLTOP DELITE	03/15/00	N	N	--
1111034	HILLTOP DELITE	03/15/00	N	N	--
1111034	HILLTOP DELITE	03/15/00	N	N	--
1111034	HILLTOP DELITE	03/21/00	N	N	--
1111034	HILLTOP DELITE	02/28/01	N	N	N
1111034	HILLTOP DELITE	01/03/02	N	N	N
1111035	HILLTOP INN	01/30/96	N	N	--
1111035	HILLTOP INN	04/29/97	N	N	--
1111035	HILLTOP INN	03/18/98	N	N	--
1111035	HILLTOP INN	04/28/99	Y	N	--
1111035	HILLTOP INN	05/03/99	Y	N	--
1111035	HILLTOP INN	05/03/99	Y	N	--
1111035	HILLTOP INN	05/03/99	Y	N	--
1111035	HILLTOP INN	05/03/99	Y	N	--
1111035	HILLTOP INN	05/11/99	Y	N	--
1111035	HILLTOP INN	05/11/99	Y	N	--
1111035	HILLTOP INN	05/11/99	N	N	--
1111035	HILLTOP INN	05/11/99	Y	N	--
1111035	HILLTOP INN	05/19/99	N	N	--
1111035	HILLTOP INN	05/19/99	N	N	--
1111035	HILLTOP INN	05/19/99	Y	N	--
1111035	HILLTOP INN	05/19/99	N	N	--
1111035	HILLTOP INN	02/23/00	N	N	--
1111035	HILLTOP INN	05/29/01	N	N	N
1111035	HILLTOP INN	04/30/02	N	N	N
1111036	HOLIDAY INN	01/17/96	N	N	--
1111036	HOLIDAY INN	05/08/96	N	N	--
1111036	HOLIDAY INN	08/07/96	N	N	--
1111036	HOLIDAY INN	12/04/96	N	N	--

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-- = no data available

APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111036	HOLIDAY INN	01/15/97	N	N	--
1111036	HOLIDAY INN	04/02/97	Y	N	--
1111036	HOLIDAY INN	04/15/97	N	N	--
1111036	HOLIDAY INN	04/15/97	N	N	--
1111036	HOLIDAY INN	04/15/97	N	N	--
1111036	HOLIDAY INN	04/15/97	N	N	--
1111036	HOLIDAY INN	07/01/97	N	N	--
1111036	HOLIDAY INN	12/23/97	N	N	--
1111036	HOLIDAY INN	03/18/98	N	N	--
1111036	HOLIDAY INN	04/29/98	Y	N	--
1111036	HOLIDAY INN	05/04/98	Y	Y	--
1111036	HOLIDAY INN	11/25/98	Y	N	--
1111036	HOLIDAY INN	02/03/99	N	N	--
1111036	HOLIDAY INN	02/03/99	N	N	--
1111036	HOLIDAY INN	02/03/99	N	N	--
1111036	HOLIDAY INN	02/03/99	N	N	--
1111036	HOLIDAY INN	03/03/99	N	N	--
1111036	HOLIDAY INN	04/07/99	N	N	--
1111036	HOLIDAY INN	06/16/99	N	N	--
1111036	HOLIDAY INN	09/29/99	N	N	--
1111036	HOLIDAY INN	11/03/99	N	N	--
1111036	HOLIDAY INN	01/12/00	N	N	--
1111036	HOLIDAY INN	09/27/00	N	N	--
1111036	HOLIDAY INN	01/03/01	N	N	--
1111036	HOLIDAY INN	04/25/01	N	N	N
1111036	HOLIDAY INN	08/29/01	N	N	N
1111036	HOLIDAY INN	01/03/02	N	N	N
1111036	HOLIDAY INN	04/03/02	N	N	N
1111093	KEYSERS RIDGE TRUCK STOP	01/17/96	N	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/17/96	N	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/21/97	N	N	--
1111093	KEYSERS RIDGE TRUCK STOP	11/05/98	N	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/17/99	Y	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/19/99	Y	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/20/99	Y	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/12/00	N	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/09/01	N	N	--
1111093	KEYSERS RIDGE TRUCK STOP	01/09/02	N	N	N
1111050	LITTLE BROWN LAKE CAMP	06/24/96	N	N	--
1111050	LITTLE BROWN LAKE CAMP	05/30/00	N	N	--
1111050	LITTLE BROWN LAKE CAMP	08/08/00	N	N	--
1111124	LITTLE MEADOWS CAMPGROUND	08/13/96	N	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/12/99	Y	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/12/99	Y	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/12/99	Y	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/12/99	Y	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/12/99	Y	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/28/99	N	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/28/99	N	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/28/99	N	N	--
1111124	LITTLE MEADOWS CAMPGROUND	07/28/99	N	N	--

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APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111124	LITTLE MEADOWS CAMPGROUND	09/27/00	N	N	--
1111124	LITTLE MEADOWS CAMPGROUND	05/02/01	N	N	N
1111124	LITTLE MEADOWS CAMPGROUND	09/05/01	Y	N	N
1111124	LITTLE MEADOWS CAMPGROUND	05/15/02	N	N	N
1111124	LITTLE MEADOWS CAMPGROUND	07/11/02	Y	N	N
1111124	LITTLE MEADOWS CAMPGROUND	07/11/02	Y	N	N
1111124	LITTLE MEADOWS CAMPGROUND	07/11/02	Y	N	N
1111124	LITTLE MEADOWS CAMPGROUND	07/11/02	Y	N	N
1111124	LITTLE MEADOWS CAMPGROUND	07/11/02	Y	N	N
1111103	MCDONALDS KEYSERS RIDGE	01/17/96	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	01/21/97	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	01/27/98	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	01/28/98	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	07/01/98	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	11/05/98	Y	N	--
1111103	MCDONALDS KEYSERS RIDGE	01/19/99	Y	N	--
1111103	MCDONALDS KEYSERS RIDGE	03/17/99	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	01/12/00	N	N	--
1111103	MCDONALDS KEYSERS RIDGE	03/08/01	N	N	N
1111103	MCDONALDS KEYSERS RIDGE	01/09/02	N	N	N
1111135	MD STATE HWY FINZEL SCALES	12/15/99	N	N	--
1111135	MD STATE HWY FINZEL SCALES	01/05/00	N	N	--
1111135	MD STATE HWY FINZEL SCALES	06/21/00	N	N	--
1111135	MD STATE HWY FINZEL SCALES	01/09/02	N	N	N
1111008	NEW GERMANY STATE PARK (CABIN AREA)	07/02/96	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	07/30/96	Y	Y	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	08/12/96	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	03/18/97	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	07/01/97	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	07/08/97	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	06/10/98	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	03/23/99	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	04/26/99	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	11/03/99	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	04/19/00	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	04/25/00	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	08/08/00	N	N	--
1111008	NEW GERMANY STATE PARK (CABIN AREA)	09/05/01	N	N	N
1111008	NEW GERMANY STATE PARK (CABIN AREA)	04/10/02	N	N	N
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/30/96	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/30/96	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	06/12/96	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	06/12/96	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/29/97	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/29/97	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	07/01/97	Y	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	07/08/97	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	11/09/98	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	11/09/98	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	08/25/99	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	08/25/99	N	N	--

N = No detection

Y = Positive detection

-- = no data available

APPENDIX A **MICROBIOLOGICAL SAMPLE RESULTS**

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	11/03/99	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/19/00	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/25/00	N	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	08/08/00	Y	N	--
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	09/05/01	N	N	N
1111048	NEW GERMANY STATE PARK (CAMPING AREA)	04/10/02	N	N	N
1111052	PENN ALPS INC	02/07/96	N	N	--
1111052	PENN ALPS INC	01/08/97	N	N	--
1111052	PENN ALPS INC	03/18/98	N	N	--
1111052	PENN ALPS INC	02/17/99	N	N	--
1111052	PENN ALPS INC	01/05/00	N	N	--
1111052	PENN ALPS INC	02/23/00	N	N	--
1111052	PENN ALPS INC	02/28/01	N	N	N
1111052	PENN ALPS INC	01/30/02	N	N	N
1111147	SAVAGE RIVER CABINS	03/15/01	N	N	N
1111147	SAVAGE RIVER CABINS	04/10/02	N	N	N
1111146	SAVAGE RIVER LODGE	12/08/99	N	N	N
1111146	SAVAGE RIVER LODGE	03/15/01	N	N	N
1111146	SAVAGE RIVER LODGE	04/10/02	N	N	N
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	02/21/96	Y	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	02/05/97	N	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	07/01/98	N	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	03/11/99	Y	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	03/14/00	N	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	03/14/00	N	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	04/11/00	N	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	06/27/00	N	N	--
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	05/29/01	Y	N	N
1111118	STATE HIGHWAY ADMIN (COVE REST AREA)	07/10/01	N	N	N
1111106	SUBWAY SHOP	01/17/96	N	N	--
1111106	SUBWAY SHOP	02/20/96	N	N	--
1111106	SUBWAY SHOP	05/15/96	N	N	--
1111106	SUBWAY SHOP	01/22/97	N	N	--
1111106	SUBWAY SHOP	06/25/97	N	N	--
1111106	SUBWAY SHOP	11/09/98	N	N	--
1111106	SUBWAY SHOP	02/10/99	N	N	--
1111106	SUBWAY SHOP	12/08/99	N	N	--
1111106	SUBWAY SHOP	01/12/00	N	N	--
1111106	SUBWAY SHOP	01/17/01	N	N	--
1111106	SUBWAY SHOP	01/03/02	N	N	N
1111072	WESTERN MD 4 H CENTER	01/23/96	Y	N	--
1111072	WESTERN MD 4 H CENTER	01/23/96	N	N	--
1111072	WESTERN MD 4 H CENTER	02/27/96	Y	N	--
1111072	WESTERN MD 4 H CENTER	04/22/96	Y	N	--
1111072	WESTERN MD 4 H CENTER	05/28/96	N	N	--
1111072	WESTERN MD 4 H CENTER	06/18/96	N	N	--
1111072	WESTERN MD 4 H CENTER	06/18/96	N	N	--
1111072	WESTERN MD 4 H CENTER	06/18/96	N	N	--
1111072	WESTERN MD 4 H CENTER	07/30/96	N	N	--
1111072	WESTERN MD 4 H CENTER	05/28/97	N	N	--
1111072	WESTERN MD 4 H CENTER	04/20/98	N	N	--

N = No detection
Y = Positive detection
-- = no data available

APPENDIX A
MICROBIOLOGICAL SAMPLE RESULTS

PWSID	PWS Name	Sample Date	Total Coliform	Fecal Coliform	E Coli
1111072	WESTERN MD 4 H CENTER	04/28/99	N	N	--
1111072	WESTERN MD 4 H CENTER	05/03/99	N	N	--
1111072	WESTERN MD 4 H CENTER	08/19/99	N	N	--
1111072	WESTERN MD 4 H CENTER	04/25/00	N	N	--
1111072	WESTERN MD 4 H CENTER	08/08/00	N	N	--
1111072	WESTERN MD 4 H CENTER	06/04/01	N	N	N
1111074	WILD WATER INN	02/05/97	N	N	--
1111074	WILD WATER INN	02/05/99	N	N	--
1111074	WILD WATER INN	01/19/00	N	N	--
1111074	WILD WATER INN	05/29/01	N	N	N
1111074	WILD WATER INN	04/10/02	Y	N	N
1111074	WILD WATER INN	06/26/02	N	N	N
1111074	WILD WATER INN	07/02/02	N	N	N
1111074	WILD WATER INN	07/02/02	N	N	N
1111074	WILD WATER INN	07/02/02	N	N	N
1111074	WILD WATER INN	07/02/02	N	N	N
1111074	WILD WATER INN	07/02/02	N	N	N

N = No detection
Y = Positive detection
-- = no data available

TABLE 2. WELL INFORMATION

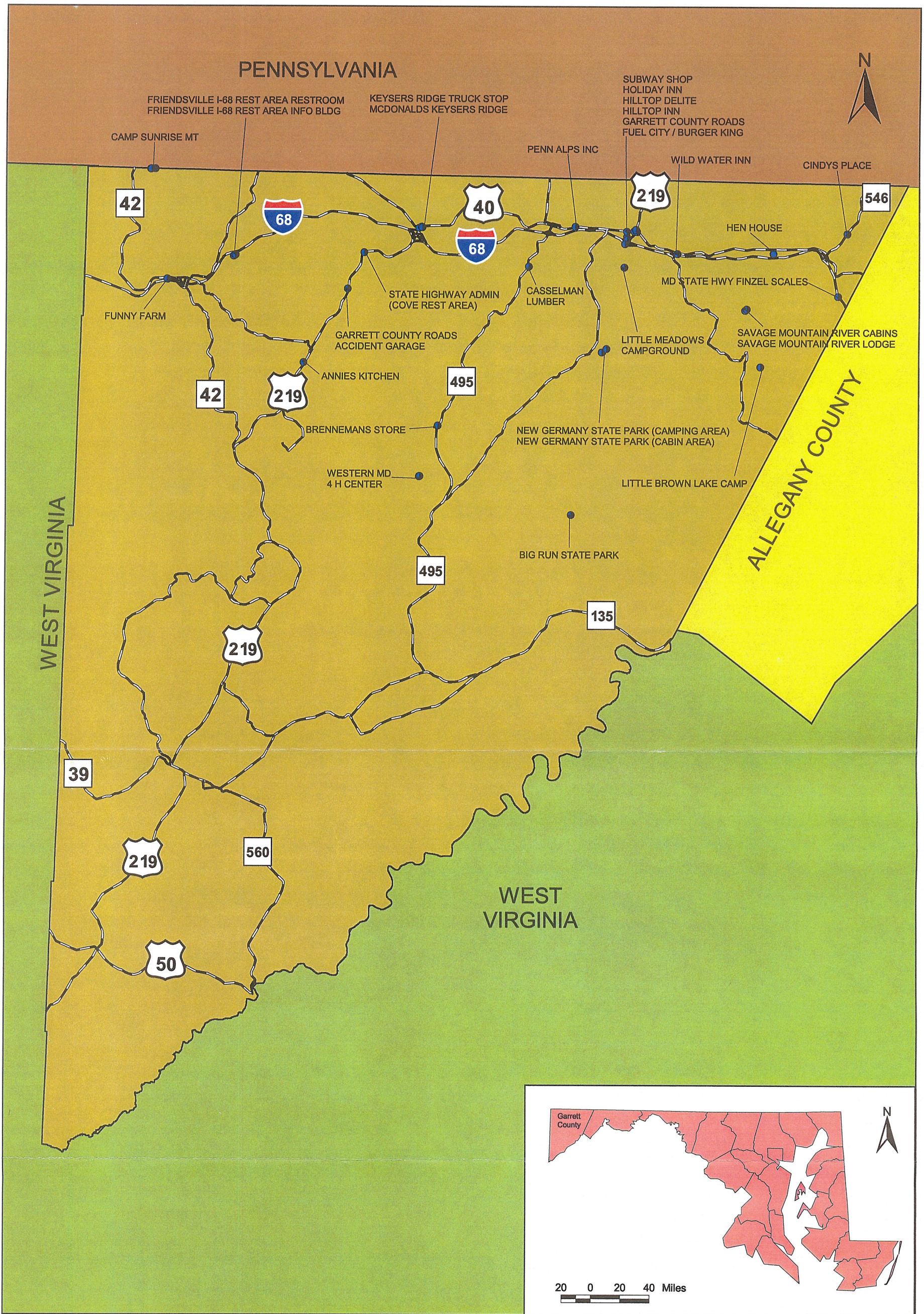
PWSID	System Name	Source No.	Plant No.	Use Code	Source Name	GW Appropriation Permit No.	Aquifer Name	Aquifer Type	Well Tag ID	Completion Date	Casing Depth	Well Depth	Comment / Deficiencies
1111030	Annies Kitchen	1	1	G	Well	GA1985G013	Hampshire Formation	U	GA810722	04/30/86	41	195	Well cap needs to be bolted and secured
1111117	Big Run State Park	1	1	G	Well	---	Jennings Formation	U	GA940946	---	---	---	None noted
1111131	Brennemans Store	1	1	G	Well	---	Conemaugh Formation	U	---	---	---	---	No well permit tag visible
1111016	Camp Sunrise Mountain	1	1	G	Well 1	GA1979G005	Conemaugh Formation	U	GA732022	05/18/79	21	499	None noted
1111016	Camp Sunrise Mountain	2	2	G	Well 2	GA1979G005	Conemaugh Formation	U	GA880010	06/14/89	40	475	None noted
1111016	Camp Sunrise Mountain	5	3	G	Well 5	GA1979G005	Conemaugh Formation	U	---	---	---	---	None noted
1111126	Casselman Lumber	1	1	G	Well	---	Conemaugh Formation	U	---	---	---	---	No well permit tag visible; well located inside pump house
1111019	Cindys Place	1	1	G	Well	---	Pocono Group	U	GA811314	12/03/87	112	372	None noted
1111145	Friendsville I-68 Rest Area (Info Bldg)	1	1	G	Well	GA1983G001	Conemaugh Formation	U	GA730417	03/10/74	24	298	None noted
1111028	Friendsville I-68 Rest Area (Restroom)	1	1	G	Well 1	GA1987G001	Conemaugh Formation	U	GA880275	03/17/90	59	490	None noted
1111028	Friendsville I-68 Rest Area (Restroom)	2	1	G	Well 2	GA1987G001	Conemaugh Formation	U	GA810999	12/31/86	60	397	None noted
1111091	Fuel City/Burger King	1	1	G	Well	GA1983G005	Conemaugh Formation	U	GA920404	05/02/95	74	573	None noted
1111091	Fuel City/Burger King	2	1	G	Well 2	---	Conemaugh Formation	U	GA920364	04/26/95	---	---	None noted
1111132	Funny Farm	1	1	G	Well 1	---	Conemaugh Formation	U	GA940765	11/01/97	42	100	None noted
1111132	Funny Farm	2	1	G	Well 2	---	Conemaugh Formation	U	---	---	---	---	No well tag visible
1111134	Garrett County Roads	2	1	G	Well	GA1954G001	Conemaugh Formation	U	GA941738	02/01/74	120	405	None noted
1111133	Garrett County Roads (Accident Garage)	1	1	G	Well	GA1974G012	Pocono Group	U	GA730527	02/01/74	57	405	None noted
1111081	Hen House	1	1	S	Spring	---	Conemaugh Formation	U	---	---	---	---	None noted
1111034	Hilltop Delite	1	1	G	Well 1	GA1975G009	Conemaugh Formation	U	GA880315	05/09/90	44	298	Well cap needs to be bolted and secured
1111034	Hilltop Delite	2	1	G	Well 2	GA1975G009	Conemaugh Formation	U	---	---	---	---	No well permit tag visible
1111035	Hilltop Inn	1	1	G	Well	GA1971G012	Conemaugh Formation	U	GA710217	---	---	---	Well cap needs to be bolted and secured
1111036	Holiday Inn	1	1	G	Well 1	---	Conemaugh Formation	U	GA810021	---	---	---	None noted
1111036	Holiday Inn	2	1	G	Well 2	---	Conemaugh Formation	U	---	---	---	---	None noted
1111093	Keysers Ridge Truck Stop	1	1	G	Well	GA1989G014	Pocono Group	U	GA880048	10/20/97	300	487	None noted
1111050	Little Brown Lake Camp	1	1	G	Well	GA1987G007	Pocono Group	U	GA811216	09/18/87	40	115	None noted
1111124	Little Meadows Campground	1	1	G	Well	---	Pottsville-Allegheny Formation	U	GA940752	10/23/97	---	---	None noted, well to be abandoned in Spring 2003
1111103	McDonald's Keysers Ridge	1	1	G	Well 1	---	Pocono Group	U	GA880733	09/26/91	63	392	None noted
1111103	McDonald's Keysers Ridge	2	1	G	Well 2	---	Pocono Group	U	GA941277	---	---	---	None noted
1111135	Maryland State Highway (Finzel Scales)	1	1	G	Well	GA1989G017	Pocono Group	U	GA880204	11/05/89	104	390	None noted
1111008	New Germany State Park (Cabin)	1	1	G	Well	---	Greenbrier Formation	U	---	06/15/38	---	123	None noted
1111048	New Germany State Park (Camping)	1	1	G	Well	---	Hampshire Formation	U	GA020847	10/02/55	61	250	None noted
1111052	Penn Alps Inc.	1	1	G	Well	GA1967G011	Conemaugh Formation	U	GA670115	12/09/66	39	140	None noted
1111147	Savage Mountain River Cabins	1	1	G	Well	---	Conemaugh Formation	U	GA941096	11/17/98	42	300	None noted
1111146	Savage Mountain River Lodge	1	1	G	Well	---	Conemaugh Formation	U	GA941077	11/14/98	42	400	None noted
1111118	State Highway Admin (Cove Rest Area)	1	1	G	Well	GA1973G005	Pocono Group	U	GA811346	03/01/88	---	520	None noted
1111106	Subway Shop	1	1	G	Well	GA1947G010	Conemaugh Formation	U	GA880535	01/07/91	20	245	None noted
1111072	Western Maryland 4-H Center	1	1	G	Well 1	GA1995G025	Conemaugh Formation	U	GA940222	12/19/95	62	300	None noted
1111072	Western Maryland 4-H Center	2	1	G	Well 2	GA1995G025	Conemaugh Formation	U	GA940246	12/19/95	42	490	None noted
1111074	Wild Water Inn	1	1	G	Well	---	Hampshire Formation	U	---	06/01/55	---	---	None noted

G – Ground water; S – Spring; U – Unconfined; --- No data available None noted = well was found, observed, and determined to be secure (securely capped, no cracks in well pad, etc.) unless otherwise noted

TABLE 3 WELLS RECOMMENDED FOR ABANDONMENT

PWSID	PWS Name	Description	Well Tag ID	Completion Date	Well Deficiencies ¹	GW Appropriation Permit No.	Aquifer Name	Casing Depth	Well Depth
1111016	Camp Sunrise Mountain	Well	GA880009	08/30/89	Inactive, reportedly planned for closure	---	Unknown	---	---
1111016	Camp Sunrise Mountain	Well	Unknown	Unknown	Inactive	---	Unknown	---	50
1111034	Hilltop Delite	Old Indoor Well	Unknown	Unknown	Well not found	---	Greenbrier Formation	---	---
1111036	Holiday Inn	Well	GA810149	Unknown	Inactive, status unknown	---	Unknown	---	---

¹ Inactive = well is no longer in use, no data on whether pump is still in well, well has not been grouted
Well not found = based on available data and local individual knowledge well could not be located and therefore was not observed



Source: Maryland Office of Planning, 2000.
ESRI Data and Maps Media Kit, 2002.

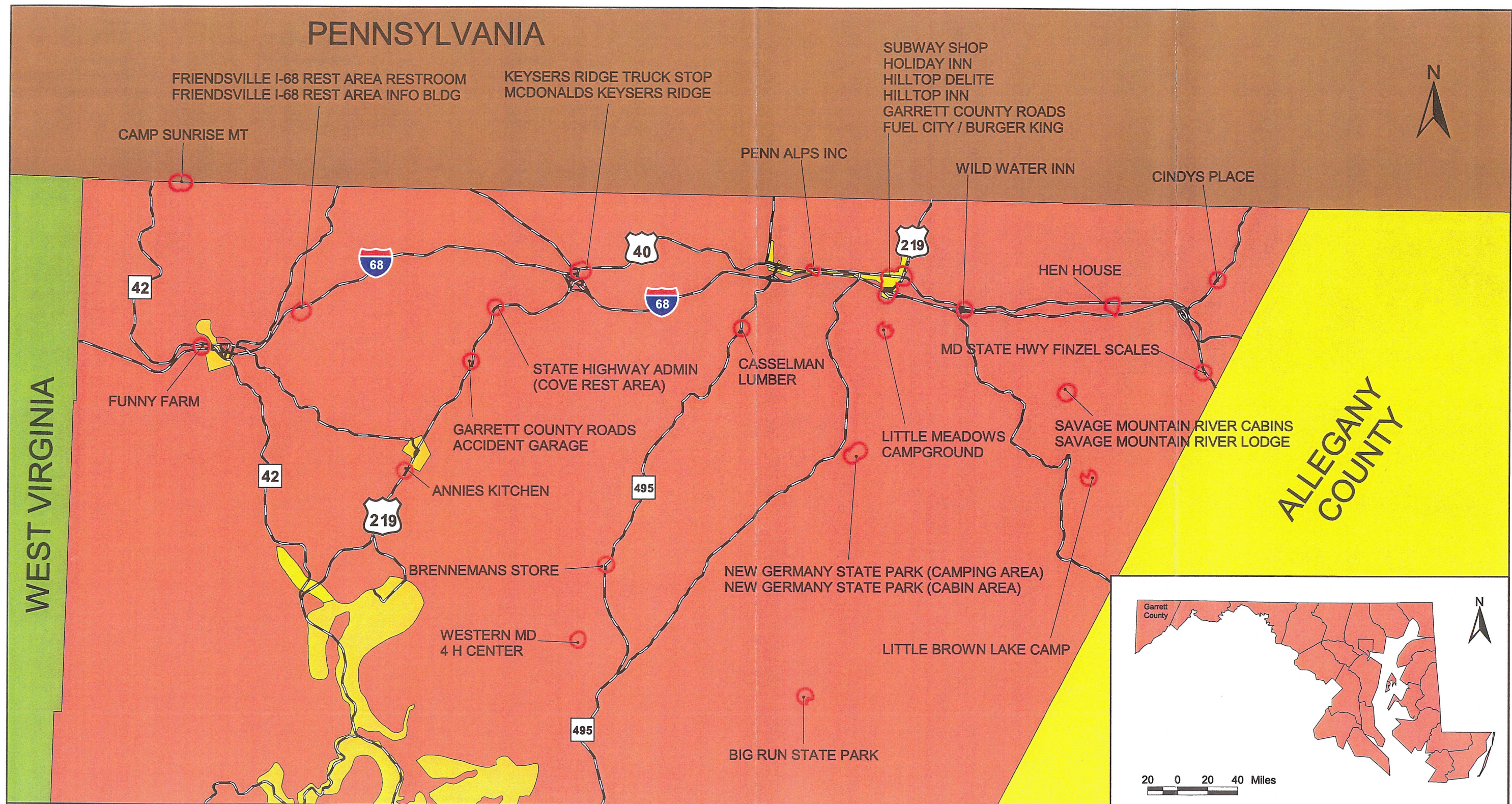


Figure 4. Transient Non-Community Water Systems, Group 2 Sewer Service Map of the Source Water Protection Area
Source Water Assessment Program 2003



Source: Maryland Office of Planning, 2000.

Legend:

- | | |
|---------------|--|
| SWPA Boundary | No planned service area |
| Major Roads | Existing service area |
| | Area programmed for service within 5 years |
| | Area programmed for service within 5 to 10 years |

Scale:

5000 0 5000 10000 Feet