

# Wastewater Treatment Plan

Wastewater Treatment Coalition of McDowell County | March 2005



McDowell County • West Virginia

# EXECUTIVE SUMMARY

During the 21-month period from June 2003 to March 2005, the Wastewater Treatment Coalition of McDowell County developed a countywide plan that would provide wastewater treatment service to every household in the county, through a combination of traditional and alternative wastewater treatment systems. This document is the Coalition's completed report on the current state of wastewater treatment in McDowell County and its recommendations for countywide wastewater treatment.

THE FIRST SECTION of this report provides a profile of McDowell County drawn from statistics on flooding, housing, and the health and well-being of county residents.

THE SECOND SECTION of this report gives a history of the McDowell County Wastewater Coalition and the process by which the Coalition devised its plan and developed this report. Section 2 also provides information on the wastewater treatment demonstration projects completed in the county, both successful and limited.

THE THIRD SECTION of this document is the actual report of the Coalition's findings regarding existing wastewater treatment systems identified in the county. This section uses narrative and maps to demonstrate the county's untreated wastewater problems, alternative approaches to wastewater treatment, prioritization of projects based on Coalition-defined criteria, and management options for treatment of wastewater in McDowell County.

The Wastewater Treatment Coalition of McDowell County makes the following recommendations for treatment of wastewater in the county:

- Present the Wastewater Treatment Coalition findings and recommendations at the county, region, state, and federal levels.
- Seek endorsement of the Treatment Plan from all appropriate agencies and organizations, and engage new members in the Wastewater Treatment Coalition.
- Further develop the capacity of the Wastewater Treatment Coalition in order to coordinate the next phase of implementation and to make recommendations on technical and funding issues.
- Continue with demonstration projects within the county, and celebrate successes.
- Complete specific design requirements and/or engineering studies for top-ranked communities to leverage funds for construction, as defined in this Plan.
- Design effective management strategies for newly created systems based on findings of the Coalition.

**County, regional, state, federal, foundation, and other sources of manpower, expertise, and funding will be sought after for assistance as the Wastewater Treatment Coalition moves forward to implement the recommendations.**

The following findings of the Coalition have been both sobering and encouraging:

- Approximately 7,480 homes in McDowell County have inadequate wastewater treatment, and the vast majority of these are straight pipes discharging waste directly into rivers and streams.
- There are four centralized sewage treatment plants in McDowell County. These plants are currently operating at an average of only 33% capacity.
- In order to address the widespread and diverse sewage problems in the county, nearly everyone agrees that a mix of traditional and innovative wastewater treatment solutions will be necessary.
- There is wide consensus among local leaders that providing wastewater treatment to all homes and businesses is a top priority.
- Community surveys suggest that the majority of McDowell residents are willing to pay for wastewater treatment.
- Many organizations and agencies have participated in the wastewater planning effort to date; in-kind contributions exceed \$81,000; additional cash outlays equal more than \$75,000.

McDowell County, West Virginia  
Wastewater Treatment Plan

March 2005

Wastewater Treatment Coalition  
of McDowell County



# McDowell County, West Virginia Wastewater Treatment Plan

## Table of Contents

<i>Executive Summary</i> .....	<i>inside front cover</i>
<i>Wastewater Treatment Coalition of McDowell County</i>	
<i>Collaborative Partners</i> .....	<i>inside back cover</i>
Section 1—Introduction .....	1
Section 2—Wastewater Treatment Coalition of McDowell County .....	3
Committees, Barriers to Treatment, Demonstration Projects	
Section 3—Report of the Findings of the Wastewater Treatment Coalition of McDowell County .....	8
Inventory of Existing Treatment Systems .....	8
Mapping Existing Conditions .....	12
Alternative Approaches to Wastewater Treatment .....	13
Technical Input .....	15
Treatment Designations and Project Area Delineation .....	15
Prioritization of Projects .....	17
Management .....	19
Responsibilities of a Comprehensive Onsite Wastewater Management Program .....	23
Possible Responsible Management Entities (RMEs) for Wastewater System Management in McDowell County .....	24
Next Steps for Implementing Wastewater Treatment Solutions .....	25
Needs and Opportunities .....	26
MAPS (bound in center of publication)	
Map #1	Topography and Flooding
Map #2	Distribution of Approved Septic Systems in McDowell County, WV
Map #3	Relative Density of Households in McDowell County, WV Without Wastewater Treatment
Map #4	McDowell County, WV Wastewater Treatment Parcel-Based Inventory
Map # 5-A	Wastewater Project Areas in McDowell County, WV
Map # 5-B	Wastewater Treatment Designations In McDowell County, WV
APPENDICES	
Appendix A	Wastewater Treatment Coalition of McDowell County Timeline
Appendix B	Wastewater Treatment Coalition of McDowell County Criteria for Prioritizing Project Areas
Appendix C	McDowell County Population Growth
Appendix D	McDowell County Community Sewage Survey
Appendix E	County Commission Endorsement of Wastewater Treatment Plan for McDowell County



## SECTION 1—INTRODUCTION

The McDowell County Wastewater Treatment Plan is an outgrowth of recovery efforts following major flood events in 2001 and 2002. The 2001 flood affected more than 2,972 homes, resulting in \$12,000,000 in damages. The 2002 event affected 4,738 homes and caused \$54,000,000 in damages. Nonprofit, faith-based, and government organizations responded to the disasters and worked to coordinate assistance through the establishment of the Long-Term Flood Recovery Task Force. The Task Force spent two years in efforts to repair private and public property damaged by the flooding. These efforts called attention to the condition of wastewater treatment infrastructure in the county. (See Map#1—Topography and Flooding.)

The floods created an urgency for sewage projects to meet family housing and community relocation projects. The wells of many McDowell County families, such as those from the community of Ritter Hollow, were contaminated by sewage, and the families were forced to use services such as tanked-in water and bath facilities. The needs of these families were beyond the scope of services offered by the Long-Term Flood Recovery Task Force, which could not afford to install adequate wastewater treatment systems in an area that lacked the physical space necessary for traditional septic system technology.

In July and November 2003, the families met with U.S. Congressman Nick Rahall's representative (West Virginia's Third Congressional District) and other service providers in the county and shared their issues and needs. A larger meeting held with Congressman Rahall's staff and others in January 24, 2003 confirmed the need for a more comprehensive approach to the problem. During this discussion, staff from Congressman Rahall's office stated that if McDowell County would complete a countywide assessment and design for addressing sewage issues collectively, the Congressman's office would assist in securing funds to meet the need. It was agreed that the nine first-year Leadership Academy graduates trained by the Community Collaborative Inc. would take on the challenge, led by McDowell County's Family Resource Network, FACES (Families, Agencies, Children Enhancing Services), to begin the process of moving the county forward in obtaining effective wastewater treatment. This effort evolved into the Wastewater Treatment Coalition of McDowell County.

The adoption of indoor plumbing through the mid-1900s eliminated the need for outdoor privies and provided convenience. Direct discharge of waste into streams became common and wasn't considered a problem until the effluent in creeks made people think twice about swimming and fishing. This straight-pipe scenario was common not only in McDowell County but throughout the Ohio River Basin. Not until the 1950s were regional efforts begun to construct wastewater treatment plants and eliminate straight pipes. The Gary municipal treatment plant constructed by U.S. Steel at

Wilcoe, WV is the only example of this regional trend in McDowell County. It wasn't until the 1990s that additional treatment plants were constructed in the county.

The county's population has decreased sharply since 1950 (see Appendix C— McDowell County Population Growth), but untreated effluent continues to foul streams. In 1998, the West Virginia Division of Environmental Protection (WVDEP) collected 87 water samples from streams in the county and found that 54% of these streams contained fecal coliform counts of more than 400 organisms/100 ml, a level indicating a high risk to human health. WVDEP sampled 29 sites between 2003–2004 and found 58% of these registered more than 400 organisms/100 ml (WVDEP sampling was collected as part of the state's Watershed Assessment Program). Fecal coliform bacteria are a subgroup of naturally occurring microorganisms that are associated with the fecal waste material of humans and other animals. The presence of fecal coliform may be indicative of the presence of pathogenic diseases including hepatitis A and typhoid fever, as well as viral and bacterial gastroenteritis.

THE WASTEWATER TREATMENT COALITION OF MCDOWELL COUNTY ESTIMATES THAT 67%, OR APPROXIMATELY 7,480 HOUSEHOLDS, LACK ADEQUATE WASTEWATER TREATMENT.

**In addition to posing a health risk, the prevalence of untreated wastewater hampers economic development.** As plans for new housing and businesses, increased tourism, and anticipated population growth in McDowell County are put forth, the lack of infrastructure for wastewater treatment continues to present a barrier. County residents recognize that clean waters are crucial to the county's future, yet only four municipalities have wastewater treatment systems. The major municipalities of Northfork, Keystone, Kimball, Davy, Anawalt, and Iaeger have no municipal treatment system. They are joined by dozens of smaller communities that, often owing to their genesis as coal camps, do not have this basic service and so continue to deliver human waste, untreated, into the county's streams.



## SECTION 2—WASTEWATER TREATMENT COALITION OF MCDOWELL COUNTY

The Wastewater Treatment Coalition of McDowell County developed this Wastewater Treatment Plan to address solutions for all areas in the county that lack wastewater treatment. This is a countywide plan. The process for creating such a comprehensive document has been a multi-year effort and has involved an array of partners. (See the back inside cover of this report for a list of partners of the Wastewater Treatment Coalition of McDowell County.)

In a county meeting held February 6, 2003, participants discussed the following:

- sewage projects and existing wastewater treatment systems,
- processes and procedures for addressing countywide wastewater issues,
- scope of the challenge for McDowell County to meet its wastewater treatment needs, and
- available resources.

After this initial meeting, the Wastewater Treatment Coalition of McDowell County was formed to address the workload, and three committees were defined. These committees and their accomplishments are listed below:

### **Best Practices Committee**

- Researched traditional and alternative treatment technologies with an eye to cost and applicability in McDowell County.
- Toured alternative treatment systems at Virginia Tech and in Wise County, VA.
- Took part in technology workshops in Morgantown, WV (Monongalia County) and in McDowell County at Starland Heights.
- Prescribed appropriate treatment technologies for all project areas identified by the Coalition.

### **Management Options Committee**

- Researched wastewater treatment management models and prevailing regulations.
- Through interviews and discussions around the county, identified some viable options for local management.
- Worked with the Where-Projects-Go Committee to determine which models may be appropriate for the project areas identified by the Coalition.

## Where-Projects-Go Committee

- Established and measured a set of prioritization criteria to rank project areas.
- Conducted a survey of residents to assess their attitudes toward wastewater treatment in their community.
- Created an educational brochure about wastewater and the need for treatment throughout the county.

The Coalition met monthly; committees met separately on an as-needed basis. (See Appendix A—Wastewater Treatment Coalition of McDowell County Timeline). The following five major phases were outlined by the Coalition as steps toward initial implementation of a countywide wastewater treatment solution:

1. Development and organization of the Coalition: *ongoing*.
2. Assessment of existing conditions, including mapping of existing wastewater treatment by parcels: *completed*.
3. Identification of appropriate technologies and construction of demonstration projects: *completed*.
4. Completion and submission of a countywide Wastewater Treatment Plan: *completed*.
5. Initiation of construction on top-tier projects, as identified in the Wastewater Treatment Plan, 2005-2006: *pending*.

The ongoing work of the Coalition has been recognized locally, regionally, and nationally. The project has been presented to various groups, including the following:

1. WV 2003 State Conference on Volunteerism, “McDowell County—We Will Rise Again”
2. The WV Bureau of Public Health, Environmental Services staff (2003)
3. The 2004 West Virginia Water Conference
4. The Society of Conservation GIS 2004 National Conference
5. The National Onsite Wastewater Recycling Association 2004 Conference
6. The 2004 WV Planning Association Conference.

## **Barriers to Treatment**

Barriers to providing wastewater treatment are many. Most obvious is the cost of constructing new treatment systems. While wastewater treatment is taken for granted in much of the United States, it is financially beyond the reach of many individual homeowners and municipalities in McDowell County, WV where the median household income of \$16,931 is 60% below the U.S. average (U.S. Census, 2000). Unemployment in 2003 in McDowell County was 13.1%, more than double the average for the state of West Virginia, according to the USDA Economic Research Service. Construction costs as well as operation and maintenance expenses for wastewater treatment are daunting in an economic climate such as this. Tight budgets can mean that homeowners have no choice but to be unreceptive to wastewater treatment service proposals. This is not a rule, but it is an important consideration when proposing an infrastructure with associated monthly billing for service to families and communities that cannot afford to pay existing bills.

Physical barriers compound the prohibitive cost of wastewater treatment systems. The average slope in McDowell County is 46%. Generally, slopes greater than 35% are considered unsuitable for development. Steepness of terrain, as well as vast corporate land holdings, have limited space for development and caused settlements to be concentrated in narrow stream valleys. Homes, businesses, roadways, railroads, and inevitably streams are often clustered in close proximity, sometimes leaving little space for additional infrastructure such as drainfields or treatment plants. Steep slopes, limited space, and the prevalence of flood-prone land are all characteristics that can inhibit construction of wastewater treatment systems.

These limitations can, however, be overcome through the use of alternative wastewater treatment solutions. A variety of centralized and decentralized treatment technologies will have to be employed to successfully treat all wastewater in McDowell County. Traditional centralized systems such as those represented by large municipal treatment plants and decentralized systems such as home septic systems are historically accepted treatment options. Expanding this list of accepted options to include cluster systems and new filtration technologies will involve first introducing these alternatives to homeowners, installers, and the regulatory community. Exposing people to these technologies is the first step in changing attitudes and gaining acceptance for alternative treatment solutions that are necessary for reducing project costs and overcoming physical constraints of construction.

## **Demonstration Projects**

Tangible demonstrations of alternative treatment technologies are a crucial component of the Wastewater Treatment Coalition's planning process. The Coalition completed two wastewater treatment demonstration projects during 2003-2004. The first was placed at the McARTS Amphitheater. This project was initiated early in the planning process, and a commitment was made to the facility before the Coalition learned

that the amphitheater could not appropriately demonstrate the treatment alternative as hoped. The seasonal usage of the facility proved unsuitable for the proposed wetlands system, and so the Coalition followed through with a pair of holding tanks instead, which were installed in July 2004. These tanks are equipped with alarms that will indicate when pumping is necessary. While this project fell short of the Coalition's goal, it has provided a stop-gap measure that ultimately may be remedied with the extension of sewage treatment collection lines from the City of Welch.

The primary demonstration project carried out by the Coalition is the installation of an Orenco AdvanTex® Textile System at the Big Sandy Head Start Center in Big Sandy, WV. This is the first system of its type to be used in southern West Virginia. The AdvanTex® filter is a watertight fiberglass basin filled with sheets of a specially engineered textile. A pump with programmable controls applies small, even amounts of wastewater to the filter at timed intervals throughout the day. Wastewater is treated by percolation through and between the textile sheets and is recirculated through the filter until it is treated to a very high quality. Recirculating effluent through this media reduces the size requirements for drainfield application so that the system may be used in small areas.

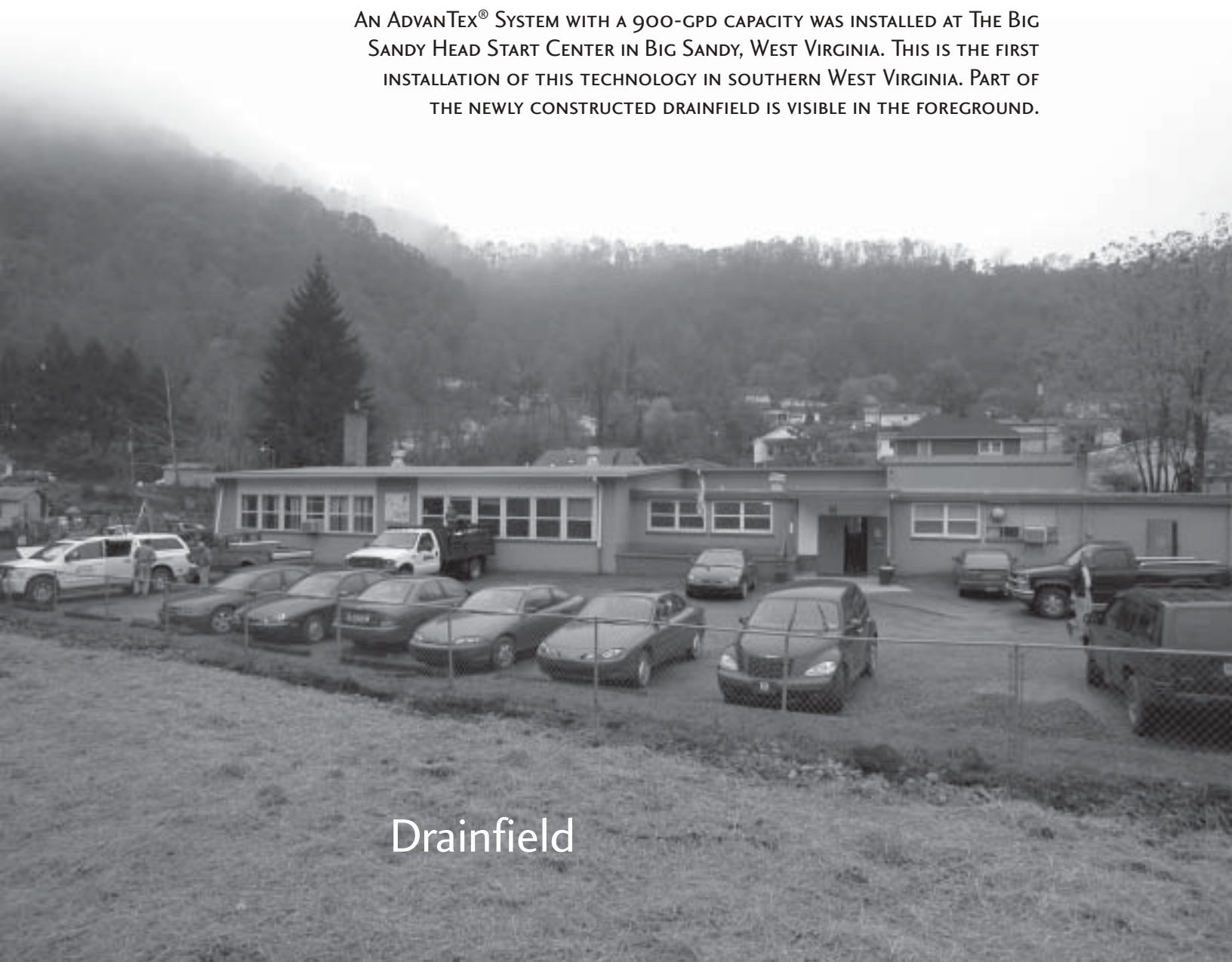
This particular system has a 900-gpd capacity and includes two tanks, the filter basin, and a drainfield. Installation was completed in October 2004 and was marked with an official ceremony in which more than 50 representatives from across the county and

AN INTERPRETIVE SIGN WAS PLACED TO HELP EDUCATE VISITORS ABOUT THE FILTER TECHNOLOGY USED IN THE ADVANTEX® SYSTEM TO TREAT WASTEWATER AT THE BIG SANDY HEAD START CENTER DEMONSTRATION PROJECT IN BIG SANDY, WEST VIRGINIA.



the state came together to discuss the efforts of the Coalition. Installation of this system was made possible through the cooperation of partners including the Council of the Southern Mountains and the McDowell County Board of Education. Presbyterian Disaster Assistance, Presbyterian Church (USA) provided the financial support for both the McARTS and Big Sandy demonstration projects. Through their generosity, the Coalition was also able to install an interpretive sign at the Big Sandy Head Start Center, which educates visitors about this particular wastewater treatment alternative.

AN ADVANTEX® SYSTEM WITH A 900-GPD CAPACITY WAS INSTALLED AT THE BIG SANDY HEAD START CENTER IN BIG SANDY, WEST VIRGINIA. THIS IS THE FIRST INSTALLATION OF THIS TECHNOLOGY IN SOUTHERN WEST VIRGINIA. PART OF THE NEWLY CONSTRUCTED DRAINFIELD IS VISIBLE IN THE FOREGROUND.



## Drainfield

## SECTION 3—REPORT OF THE FINDINGS OF THE WASTEWATER TREATMENT COALITION OF MCDOWELL COUNTY

### Inventory of Existing Treatment Systems

Basic to any planning effort is a full understanding of the current conditions. This need to understand provided the impetus for conducting a comprehensive inventory of known wastewater treatment systems throughout McDowell County. Three types of wastewater treatment technologies are in use in the county: municipal sewage treatment plants, onsite septic systems, and smaller package plants. The Coalition's inventory process compiled data from the McDowell County Health Department, managers of municipal treatment systems, and operators of small package plants into a central database that can now be mapped on a parcel-by-parcel basis.

#### *Municipal Wastewater Treatment Plants*

Of the three treatment systems used in McDowell County, municipal wastewater treatment plants serve the most households. Four municipalities within McDowell County provide sewage treatment service to their residents: Bradshaw, Gary, Welch, and War. The oldest treatment plant is the one in Gary, which dates back to about 1960. The other three plants are much newer, all having been built within the past ten years. None of these treatment plants are operating at full capacity, and, in fact, all are operating below 50% of their designed capacity. This is due to continued out-migration as well as to a trend in system design that emphasizes the construction of new plants to meet potential growth scenarios and expanded service areas. System construction is often planned in phases; sometimes the plant and adjacent collection lines are installed in the initial phases, but then subsequent phases are never carried out, meaning that additional collection lines to outlying areas are never built because of either a lack of funding or insufficient need. In either case, the plant is not operating up to its intended capacity.

Interviews with system operators and mayors of the four municipalities were conducted to determine the capacity of each system and to delineate the extent of the system's service area. An interview form and an aerial photograph were used to help operators describe the boundaries of their systems. The extent of each municipal system was then translated to individual land parcels to enhance the analysis of the service extents (see Table 1).

**Table 1 — McDowell County Municipal Sewage Systems  
with Percent of Current Operational Capacity**

Municipality	Capacity (gallons)	Present Use (gallons)	Capacity (households)	Present Use (households)	Present Operating Capacity
Bradshaw			450	190-200	45%
Gary			3,250*	650	20%
Welch	1,120,000	225,000	7,750*	1,550*	20%
War	130,000	63,000	904*	434*	48%

\* = calculated values

*Note:* Interview results varied as some municipalities were more comfortable reporting estimated use in gallons whereas others preferred household units. An attempt has been made here to calculate the unreported household estimates. These calculations rely on an estimate of 2.4 persons per household and a usage rate of 60 gpd. The water usage figure is from the American Water Works Association, and the average number of persons per household is derived from the 2000 U.S. Census.



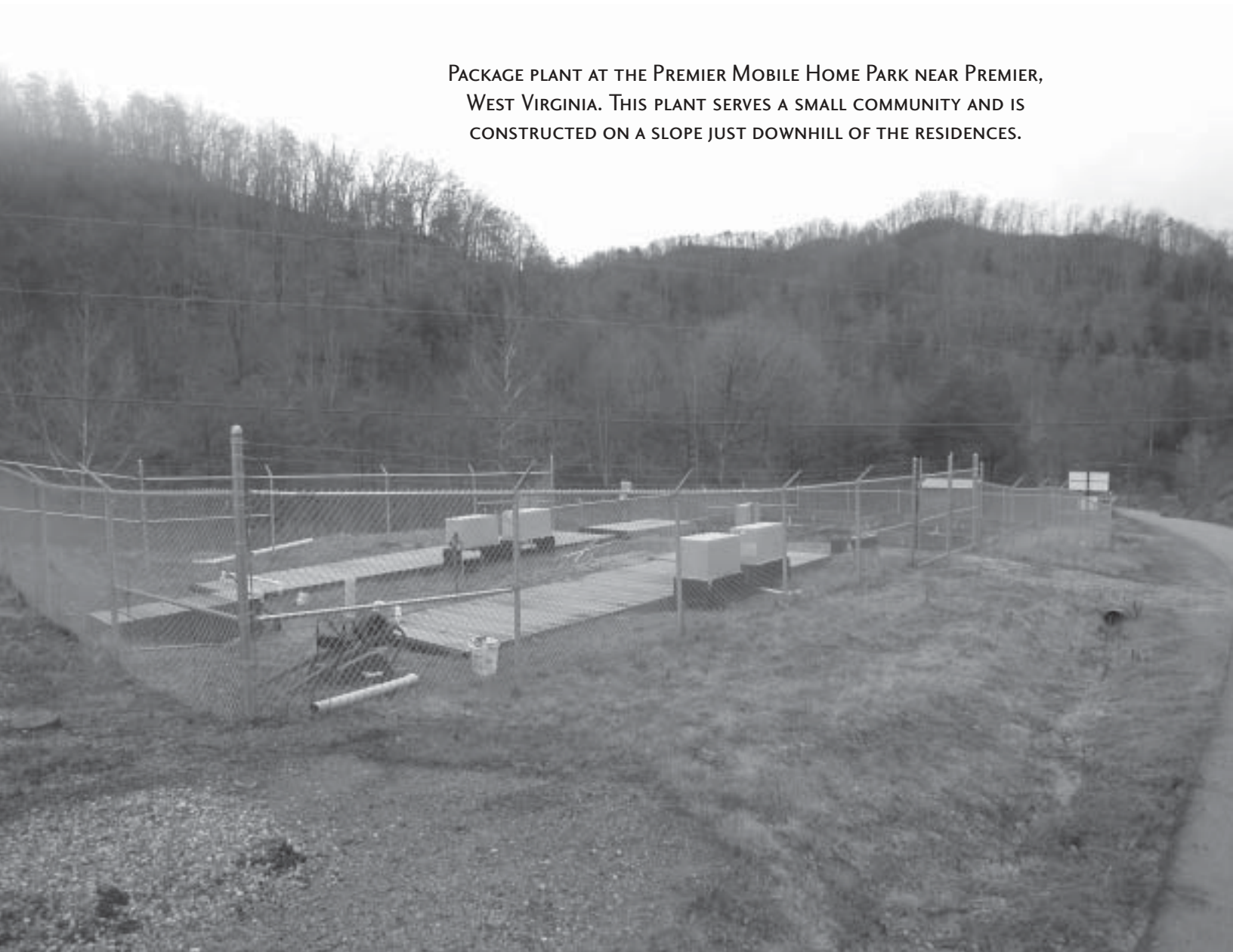
THE TREATMENT PLANT CONSTRUCTED BY THE CITY OF WELCH, WEST VIRGINIA WAS DESIGNED WITH A 1,120,000 GALLON CAPACITY. IT IS OPERATING AT ONLY 20% OF THIS CAPACITY.

## *Septic Systems*

Septic systems are the predominant type of onsite treatment for individual homes and businesses. The McDowell County Health Department is tasked with permitting onsite septic systems for private homeowners and businesses. Each permit consists of a form filled out by the system owner and filed at the Health Department. Conversion of these paper records to a digital format was the first step in the Coalition's countywide inventory. All permits since 1993 were keyed into a database. Septic systems installed prior to 1993 did not have percolation tests and were poorly documented, making follow-up by future sanitarians impossible. Between 75 and 100 septic systems were installed from 1975 to 1993.

An attempt to match each septic system permit to a parcel of land was made based on the name of the permit applicant. There were 886 permits initially entered into the database. Of these, only 541 could be matched to a parcel of land. The county Health Department has since adopted the database as part of its regular recordkeeping. The database continues to be updated and serves as an ongoing system for tracking the

PACKAGE PLANT AT THE PREMIER MOBILE HOME PARK NEAR PREMIER,  
WEST VIRGINIA. THIS PLANT SERVES A SMALL COMMUNITY AND IS  
CONSTRUCTED ON A SLOPE JUST DOWNHILL OF THE RESIDENCES.



septic system permits within the county. Ninety-six new permits have been added since January 2004. (See Map #2—Distribution of Approved Septic Systems in McDowell County.)

### *Package Plants*

Package plants are the third type of wastewater treatment used in McDowell County. These plants may rely on aeration or a filter media to treat effluent. In this regard they are similar to treatment plants used by municipalities. However, package plants are smaller than municipal systems and may be prebuilt and delivered as a prepackaged solution. Their smaller nature means that these plants are often used at businesses, schools, and small residential settings. A combined effort by package plant operators, owners, and the McDowell County Health Department identified 16 package plants in the county (see Table 2). Each system was assigned a set of map coordinates and was then related to the land parcel(s) it services.

<b>Table 2—Package Plants in McDowell County, West Virginia</b>	
<b>Facility Name</b>	<b>NPDES Identification Number</b>
Atwell Trailer Park	WVG551310
Bluestone Coal	Unavailable
Elizabeth Drewery Apartments	WVG550762
Fall River Elementary School	WVG551089
Kimball Elementary School	WVG551090
Kmart (formerly)	WVG551197
Mount View High School	WVG551091
New Hope Village	WVG551261
Premier Trailer Park	WVG551307
Sandy River District Action Co.	WVG551087
Sandy River Middle School	WVG640033
Starland Heights	WVG551172
Stop Abusive Family Environments	WVG550878
Tug River Health Association	WVG551196
WV Department of Welfare	Unavailable
Yukon Medical Clinic	WVG550658

*Note:* These package plants may not all be operational at present. NPDES permit data is available for all but two plants through the EPA's Envirofacts website at [www.epa.gov/enviro](http://www.epa.gov/enviro).

## Mapping Existing Conditions

The inventory of known treatment systems was used to deduce the magnitude of the county's untreated wastewater problem. The 2000 US Census counted 11,169 households in McDowell County. **Based on the inventory, the Coalition is now able to approximate that 25% of these households have municipal wastewater treatment, 8% have approved septic systems, and less than 1% are served by a package plant. The remaining approximately 67% of households in McDowell County lack wastewater treatment.** Besides estimating the number of households in need of wastewater treatment, the inventory attempted to map the existing systems through the use of Geographic Information System (GIS) technology. Mapping the existing treatment systems provides an illustration of how these systems are distributed throughout the county. It also illustrates gaps in the county where no wastewater treatment exists. These maps are necessary for understanding the current conditions as well as for future planning. (See Map #3—Relative Density of Households in McDowell County, WV without Wastewater Treatment.)

Tax maps serve as a record of land ownership boundaries. In West Virginia, paper tax maps are the most common format for this record. To assist the McDowell County wastewater inventory process, paper copies of tax parcel boundary maps for the county were scanned and digitized so that the boundaries could be used in a computer-based GIS. This created a valuable digital dataset of ownership boundaries for the entire county and a basis for mapping the results of the wastewater system inventory.

GIS is an established technology that has great benefits for inventory, assessment, and planning projects. In McDowell County, GIS can now be used to create customized maps of portions of the county at various scales. The GIS can be used to illustrate such things as density of treatment systems and distribution of systems, and may also be used to analyze related map information pertinent to wastewater. Through GIS technology, a special map book was created for the Wastewater Treatment Coalition of McDowell County, which contains the mapped results of the wastewater treatment system inventory. This map book includes countywide maps as well as 35 map tiles that provide a detailed (1:24,000-scale) illustration of the entire county with land parcels color-coded according to the type of wastewater treatment that they are served by. (See Map #4—McDowell County, WV Wastewater Treatment Parcel-Based Inventory, which is a sample map from this map book created for the McDowell wastewater project.)

## Alternative Approaches to Wastewater Treatment

The countywide inventory and assessment provides a basis for planning future wastewater treatment systems. It was agreed that a countywide plan necessarily requires the consideration of all communities in McDowell regardless of their corporate status, size, or perceived viability. In all, more than 7,000 households need wastewater treatment. Future treatment projects need to consider alternative technologies as well as existing ones. Planning for new treatment systems at this scale requires expertise from the state and local regulatory community as well as input from experienced system installers and operators. These perspectives provide the basis for the delineation of future project areas and prescribed wastewater treatment technologies—the “where” and “how” of future wastewater treatment in McDowell County.

Existing wastewater treatment systems only serve an estimated 33% of the households in McDowell County (see Table 3). New technologies may help to make wastewater treatment more accessible and potentially more cost effective than traditional treatment strategies. Affordable and nontraditional treatment strategies like cluster systems may likewise help to reduce cost.

**Table 3—Existing Wastewater Treatment Technology Percentage of Households Served, McDowell County, West Virginia**

Municipal Treatment Systems (4)	25%
Onsite Septic Systems (982)	8%
Package Plants (16) *5 serve residential areas	<1%

Recognizing that traditional treatment may not be uniformly viable due to physical or economic constraints, a variety of traditional and alternative wastewater treatment options were considered for application in the county. It is generally acknowledged that 70-90% of traditional sewer system costs lie in the transport of waste from the individual home to the centralized treatment plant. Given the dispersed nature of McDowell’s communities, the steep, sometimes isolating terrain, and the often rocky substrate, installing sewer lines to a centralized sewer plant is simply not an option for many families and communities in McDowell.

Alternatively, considering wastewater treatment on a smaller scale—treating small communities and clusters of homes individually—opens up several options. Less land is needed for treatment and dispersal than in traditional sewer systems, project scope and cost is kept at a locally manageable level, and operation and maintenance demands are substantially lower.

All alternative systems based on demonstrable models from communities in neighboring areas and input from several field practitioners were considered. All wastewater treatment options considered in this plan have permitted, commercial and/or residential applications in West Virginia or other states. Some of these options are the following:

1. *Secondary treatment of household wastewater, often through some type of filtration media.* Filters are sometimes installed in conjunction with a traditional septic system where soil quality or drainage is poor. Filter media can include sand, textiles, peat, or other media.
2. *Decentralized “cluster” systems where wastewater streams from two or more homes are combined and treated by a shared treatment system.* Several homes may, for example, share a common drainfield. Typically some level of treatment (e.g., a settling tank) is available at the individual lot.



ABOVE: TEXTILE FILTER SYSTEM INSTALLATION, IMBODEN, VIRGINIA.

RIGHT: DEMONSTRATION BLACK BEAUTY FILTRATION SYSTEM AT VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.



3. *Package plant systems that provide a central treatment facility for a small community or commercial establishment, and waste is transported directly from individual homes to the central treatment plant.* In McDowell County, package plants may be well suited for remote communities where the terrain or other physical barriers prevent treatment on individual lots.

## Technical Input

Determinations about which type of technology should be used in each project area were guided by both local and external expertise. The Where-Projects-Go Committee included experts from West Virginia University and the WV Bureau of Public Health, who worked with local Health Department sanitarians, package plant managers, septic system installers, and area nonprofit representatives. These local professionals provided critical anecdotal information on housing density, specific development patterns, general soil characteristics, site suitability, and current construction and installation costs for the area. Collectively, this technical committee was able to consider, community-by-community, local characteristics and limitations and sound, cost-effective treatment options. Multiple committee meetings were held to give ample consideration to all communities in McDowell County.

## Treatment Designations and Project Area Delineation

Treatment technology designations for dozens of project areas were prescribed by the technical committee. Technology choices varied from project area to project area according to physical constraints, occupancy patterns, and preliminary cost assessments. Treatment options were limited to one of four scenarios:

1. *Onsite systems*—including almost exclusively traditional septic systems but also allowing for secondary treatment options for individual homes.
2. *Onsite/cluster systems*—including a possible combination of individual home treatment systems and clustering several homes together for a shared treatment system.
3. *Package plants*—a centralized sewage treatment system for a small community.
4. *Sewer line extensions*—extending large sewer lines from existing municipal systems or package plants to outlying communities.

The percentage of households proposed to receive each type of system is shown in Table 4 on the next page. Maps of the county were used to help identify all communities without wastewater treatment. As part of this process, specific project areas were delineated according to the treatment technology best suited at the site, a determination that, again, was based on consideration of settlement patterns, shared physical characteristics, and groupings that make sense within the local geographic and historical context.

Homes near the McDowell County community of Skygusty, for instance, were grouped into two project areas. Homes in the “Skygusty” project area are characterized by sharing a high water table, close proximity to the floodplain, and relatively close proximity to each other. The “Skygusty 2” project area has more scattered homes on larger lots. Because of their different physical characteristics, effective wastewater treatment options for the two areas also differ. The Skygusty project area was determined to be best suited for a package plant system, whereas Skygusty 2 would benefit from the use of individual onsite septic systems.

**Table 4—Percentage of Households to Receive Proposed Wastewater Treatment, McDowell County, West Virginia**

Proposed Treatment Designation	Percentage of Households to Receive Treatment
Onsite	18%
Onsite/Cluster	12%
Package Plant	27%
Sewer Line Extension	43%

In all cases, the number of homes in a designated project area was estimated initially by the technical committee and then later field verified by Coalition staff. All project areas, therefore, have accurate counts of occupied homes as of December 30, 2004. Project areas do not include communities with existing municipal treatment systems. (See Map #5—Wastewater Project Areas/Wastewater Treatment Designations in McDowell County, WV.)

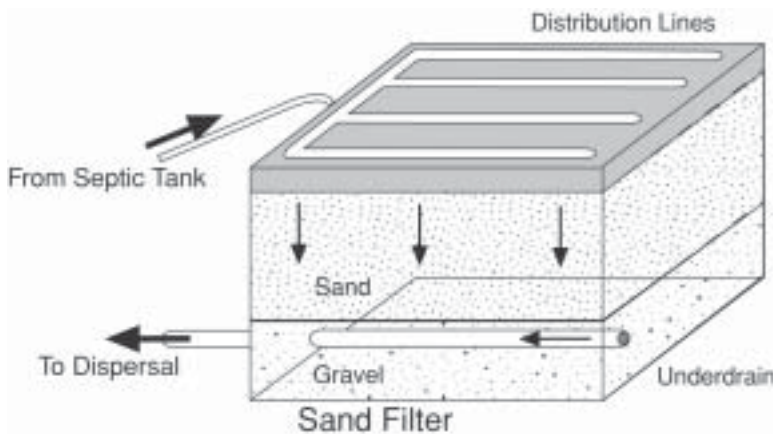


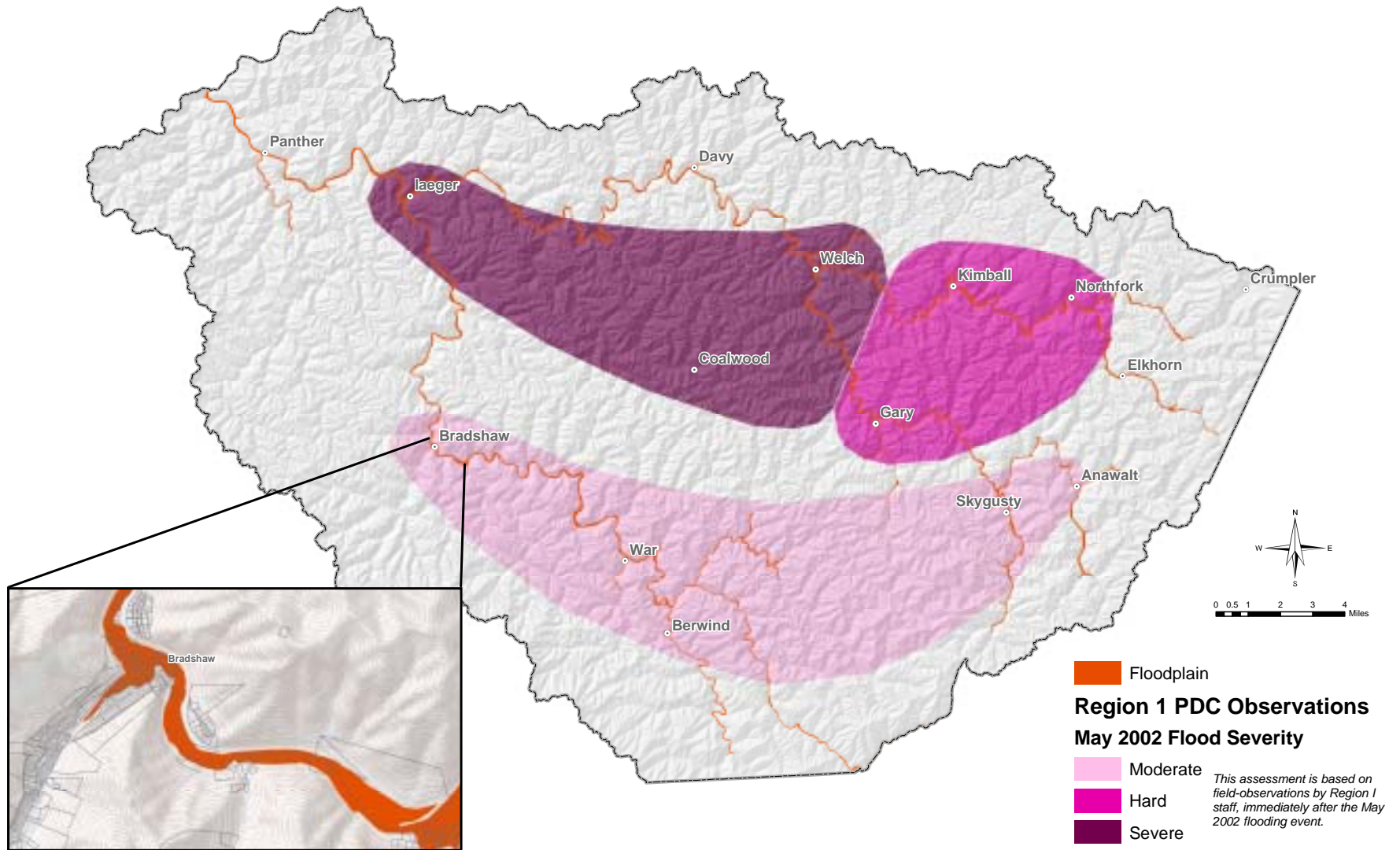
FIGURE 1—THE SAND FILTER SHOWN AT LEFT IS AN EXAMPLE OF A FILTRATION SYSTEM THAT CAN BE USED IN THE TREATMENT OF WASTEWATER FROM ONE OR MORE HOMES. (NATIONAL ENVIRONMENTAL SERVICES CENTER)



# MAPS

# Topography and Flooding

MAP # 1



# Distribution of Approved Septic Systems

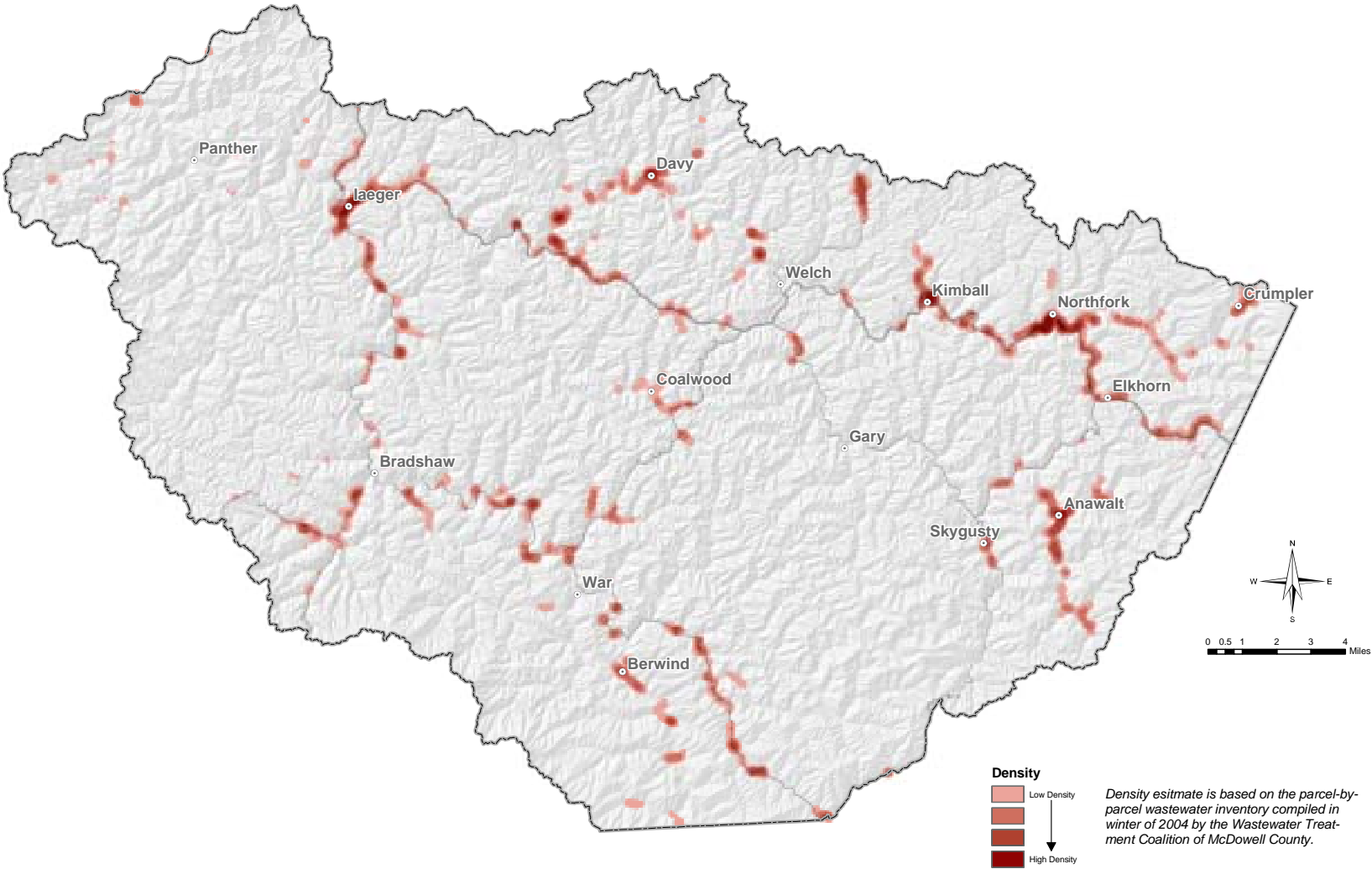


○ Septic System

*Approximate locations of approved septic systems. As of winter 2004, 886 septic systems were permitted in the county. This map represents 541 of those systems.*

# Relative Density of Households Without Wastewater Treatment

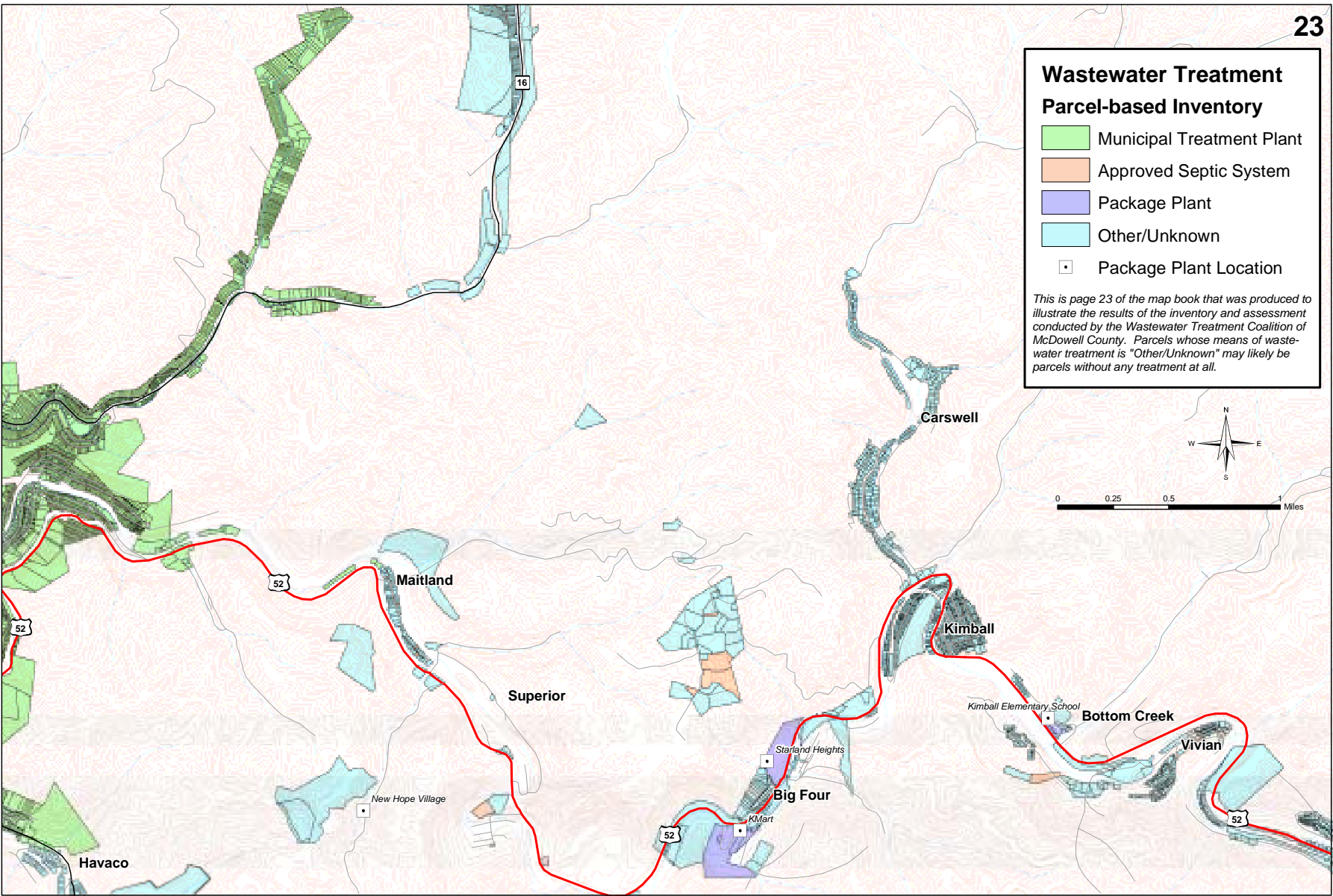
MAP #3



**Wastewater Treatment Parcel-based Inventory**

- Municipal Treatment Plant
- Approved Septic System
- Package Plant
- Other/Unknown
- Package Plant Location

*This is page 23 of the map book that was produced to illustrate the results of the inventory and assessment conducted by the Wastewater Treatment Coalition of McDowell County. Parcels whose means of wastewater treatment is "Other/Unknown" may likely be parcels without any treatment at all.*



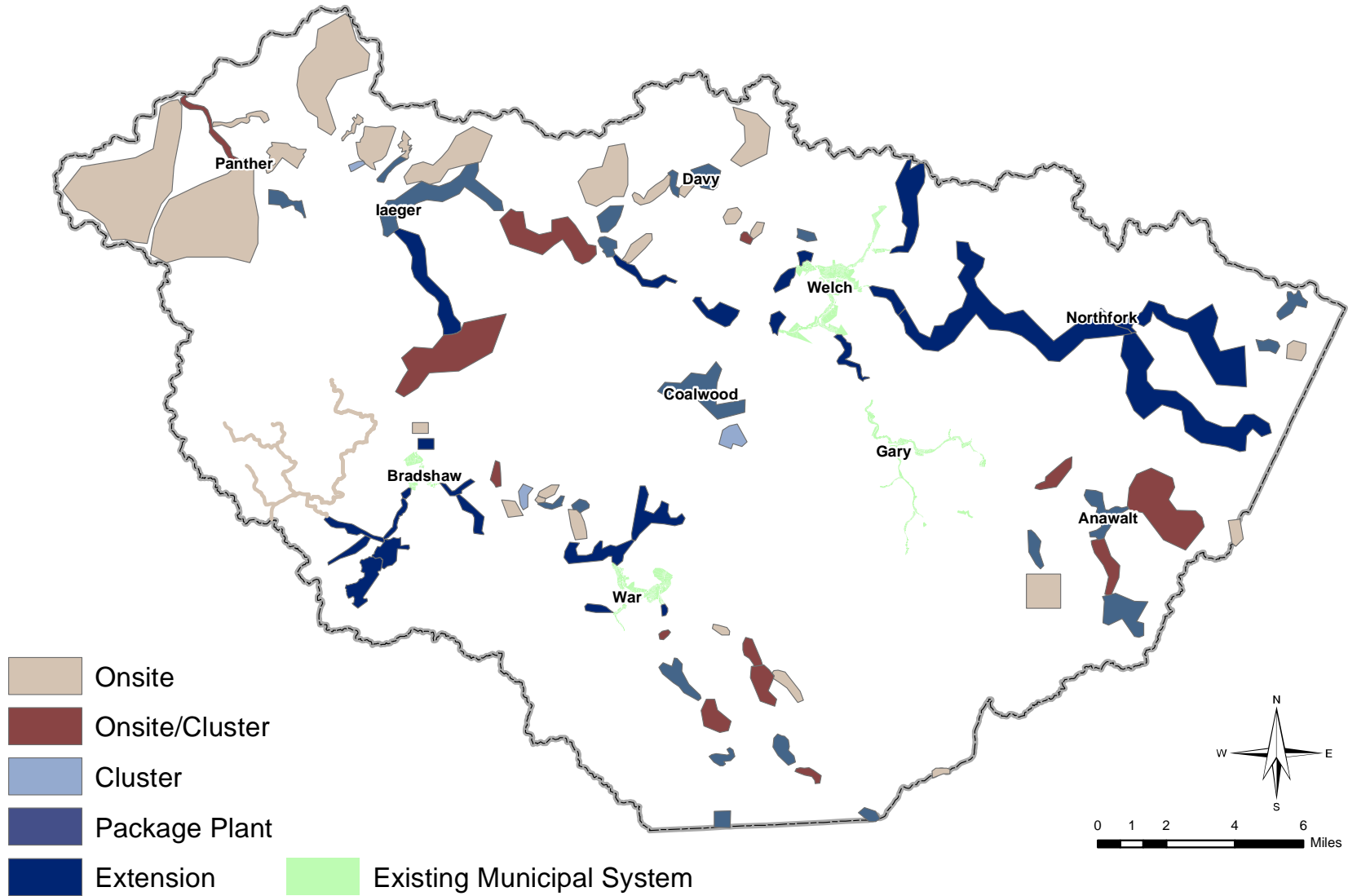
# Wastewater Project Areas

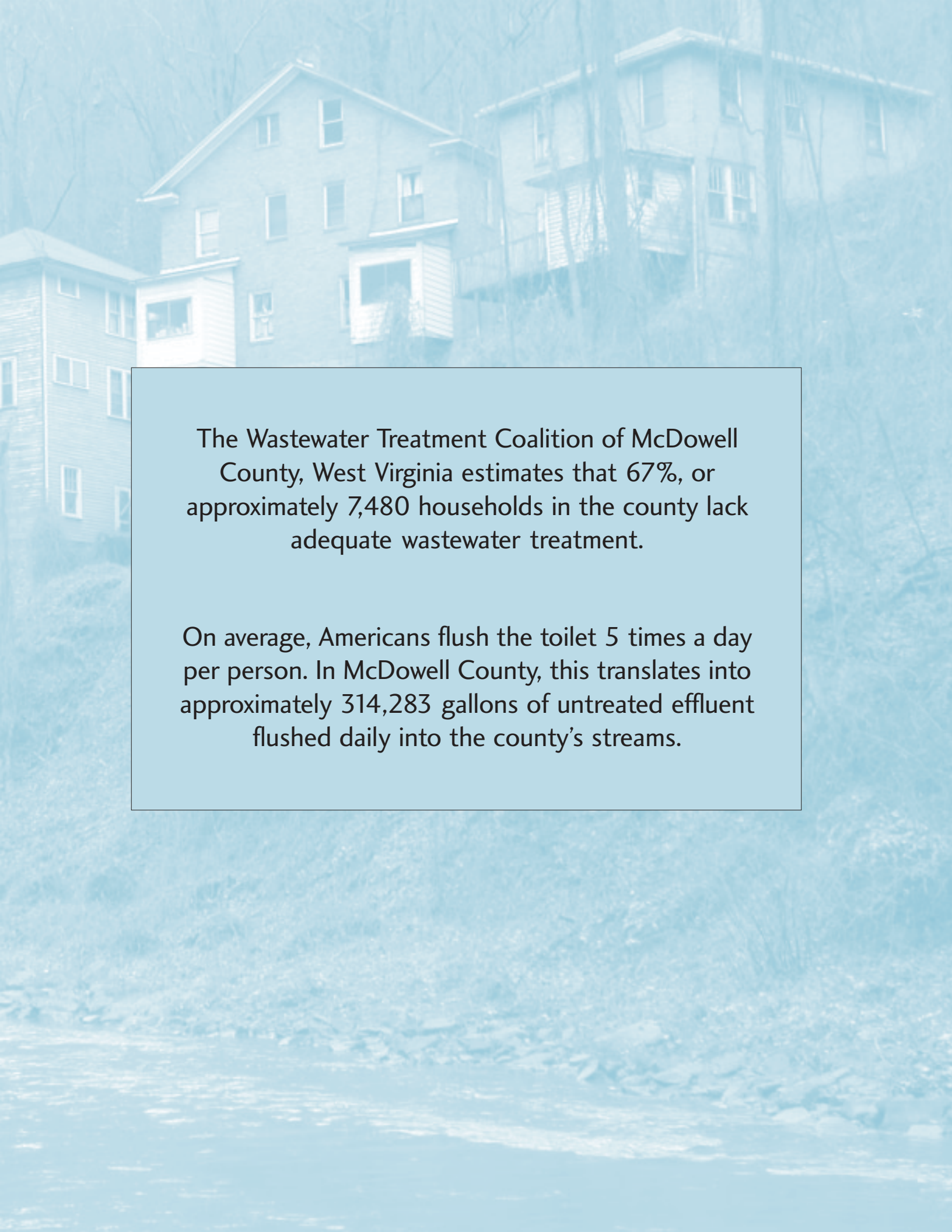
MAP #5-A



# Wastewater Treatment Designations

MAP #5-B





The Wastewater Treatment Coalition of McDowell County, West Virginia estimates that 67%, or approximately 7,480 households in the county lack adequate wastewater treatment.

On average, Americans flush the toilet 5 times a day per person. In McDowell County, this translates into approximately 314,283 gallons of untreated effluent flushed daily into the county's streams.

## Prioritization of Projects

A critical ingredient of the McDowell County Wastewater Treatment Plan is the incorporation of local needs, priorities, and related plans for development. After much deliberation and discussions in the county, consensus was reached on criteria that reflected the shared goals of many county residents. These goals included prioritizing the provision of wastewater treatment

- to households in a cost-effective, expedited manner;
- to those in the county who were most eager to address the problem and willing to share the costs;
- in a manner that will facilitate planned economic development initiatives and ongoing community projects; and
- to those communities out of the floodplain and harm's way.

Project areas are ranked according to these criteria. This ranking process ensures not only fairness in selection but also the best use of resources by the county. It also helps focus attention on top-tier projects that could be carried forward for implementation. It is important to note that the ranking at the time of this report represents a slice in time. Changing conditions over time may alter the ranking order. The ranking process and criteria offer a framework into which the best-available data may be input for the purpose of comparing potential wastewater treatment projects.

The Coalition formulated the criteria to compare project areas. These criteria were selected because of their relevance to the construction of new wastewater treatment systems and their measurability. The Where-Projects-Go Committee focused on defining and measuring the five final criteria. The Coalition-defined criteria are as follows:

1. **Cost per Household**—the estimated cost per house of treatment system installation for the specific recommended treatment technology. The treatment technologies were prescribed by the Where-Projects-Go Technical Committee, and a set of standard costs was defined for each technology. This criterion compares the system installation cost estimates for each project area with the number of occupied houses. A comparison of operation and maintenance costs could not be made for all project areas and was, therefore, omitted from this process.
2. **Community Willingness**—the community's willingness to pay for sewage treatment. This criterion was determined by use of a survey form, which was completed by community members through response to public service announcements, community meetings, general distribution, and phone calls. (See Appendix D—McDowell County Sewage Survey.) An effort was made to reach 6% of all households in the county that do not have wastewater treatment. Despite dispersion of the survey through multiple channels, only 4% (307) of McDowell County households are represented by returned surveys. The average survey score for each community was combined with a score for community

participation. This combination provides a rank indicative of both willingness and awareness.

3. **Funding Leverage**—assessment of existing grant opportunities or other funding available for a community, which might be combined to help cover costs for a wastewater treatment project. Anecdotal evidence of such funding opportunities was gathered by asking the McDowell County Commission and municipality mayors, Region I Planning and Development Council, West Virginia Office of Emergency Services (WVOES), Coal Heritage Highway, Public Service District, McDowell County FACES, and the Economic Development Authority.
4. **Floodplain**—the percentage of parcels within each potential project area that intersect the floodplain. This criterion was determined by GIS analysis, which overlaid parcels with the Federal Emergency Management Association (FEMA) Q3 floodplain designation. A count of all parcels was compared to a count of parcels intersecting the floodplain. Consideration of floodplain is important because funding is limited for projects that are in the floodplain.
5. **Proximity to Development**—consideration of whether or not a community is close to planned or existing development projects. Anecdotal evidence of development projects was collected through interviews with relevant entities such as the McDowell County Commission, Region I Planning and Development Council, WVOES, Coal Heritage Highway, municipality mayors, Public Service District, McDowell County FACES, and the Economic Development Authority.

Two other criteria were initially selected by the Coalition. “Impacts to Water Quality” and “Land Access Feasibility” were both identified as important elements that deserved consideration in the prioritization. However, these criteria had to be eliminated because the measurement of each is highly time intensive. Land access feasibility may be assessed on a project-by-project basis for those projects that move into a detailed engineering study. Impacts to water quality may be advantageous to measure for individual project areas pre- and post-construction of a specific treatment system.

Following the definition and measurement of the five criteria, a schema was adopted to combine the results through an additive method. This method combines the criteria and allows for a weight to be applied to each. The ranking method requires that each project be assigned some relative rating for each criterion. The Where-Projects-Go Committee applied a range of ratings 1-5 for all criteria. In all cases, 1 represents a low score and 5 represents the highest possible score.

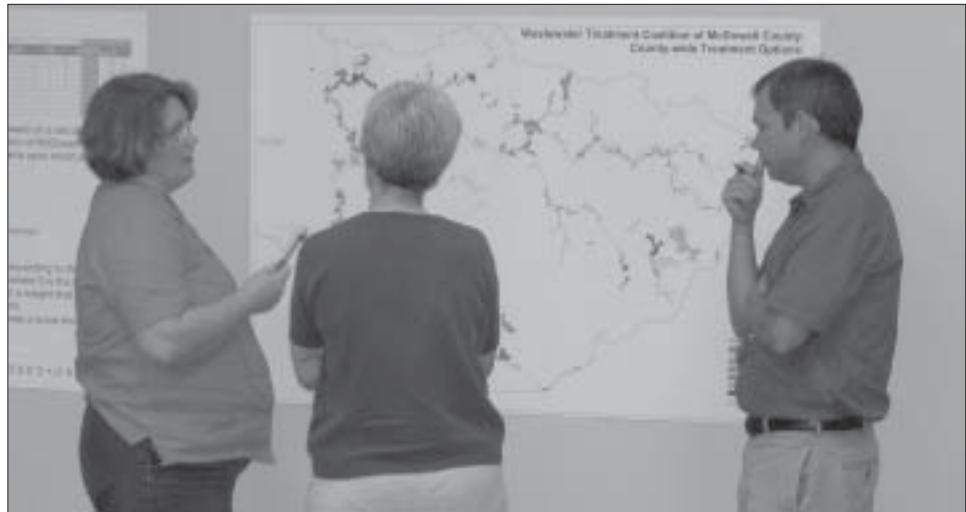
Weights were assigned by the Where-Projects-Go Committee to the individual criteria based on the importance of each. Equal weights of 35% were assigned to the two most important criteria: Cost per Household and Community Willingness. Combined, these criteria equal 70% of the final score. The other three criteria were all weighted evenly at 10% each and account for the remaining 30%. A formula such as the following was then used to calculate a relative score for each project area:

$$(2 \times 0.35) + (3 \times 0.35) + (5 \times 0.1) + (3 \times 0.1) + (5 \times 0.1) = 3.05$$

(Criteria1 x Weight1) + (Criteria2 x Weight2) + (Criteria3 x Weight3) + (Criteria4 x Weight4) + (Criteria5 x Weight5) = Relative Score

The relative score that results may be used to determine the position of the project in the prioritized list. Ranking the list in this way provides a top-tier set of projects that have scored highest for the given criteria. Some of the projects have been prescribed a treatment solution that involves an extension to another project area. If the other project area to which the extension must connect does not itself have an existing wastewater treatment system, then logically, the extension cannot be undertaken. This does not affect the relative score, but situations where a prerequisite does not presently exist are noted in the list and may be discounted from the top-tier group. (See Appendix B—Wastewater Coalition of McDowell County Criteria for Prioritizing Project Areas.)

INFORMATION CAPTURED AS PART OF THE WASTEWATER INVENTORY WAS USED AS A BASIS FOR DISCUSSIONS ABOUT FUTURE WASTEWATER PROJECTS.



## Management

The Management Committee, composed of county health officials, local citizens, and representatives of existing onsite wastewater programs and other organizations, worked to develop an effective and comprehensive management framework that communities can use in developing a sewage management program.

Adequate management is critical to ensuring that onsite wastewater treatment systems (OWTS) and clustered (decentralized) systems are sited, designed, installed, and operated properly. In order to ensure that a high level of environmental and public health protection is achieved for each community, appropriate technologies should be selected based on whether they are affordable, operable, and reliable, along with the capacity of the community to manage the technology.

## *Management Types*

The Management Committee determined that local regulatory authorities such as the McDowell County Health Department lack adequate funding, staff, and technical expertise to develop and implement a comprehensive wastewater system management for the entire county. Thus, consideration must be given to alternative management structures that delegate responsibility for specified management program elements. Alliances must be developed with public and private organizations to establish environmental quality goals, evaluate treatment system performance information, and promote activities that ensure onsite management programs meet performance requirements.

## *Restrictions and Trends in Local, State, and Federal Law*

Several types of management entities may be utilized to manage some or all of the various elements of onsite and decentralized systems that will be required for countywide wastewater treatment in McDowell County. Developing and implementing an effective wastewater management program requires that a systematic approach be used to determine necessary program elements. A comprehensive, site-by-site management program that will address the main goals of the Committee can be developed. These goals are

- to reduce risks to public health (e.g., preventing direct public contact with sewage and avoiding pathogenic contamination of groundwater and surface waters);
- to abate public nuisances, such as odors from straight pipe outflows;
- to provide cost-effective wastewater treatment systems and management programs; and
- to prevent OWTS-related surface water and groundwater quality degradation and negative impacts on aquatic habitat.

The main types of management entities are federal, state, and local government agencies; special-purpose districts and public utilities; and privately owned and operated management entities.

State and local governments are the main entities responsible for the promulgation and enforcement of OWTS-related laws and regulations. Many of these entities provide financial and technical assistance. State and local authorities determine the degree of control these entities have in managing onsite systems. In many states, local governments have the responsibility for onsite wastewater program management. These local management programs are administered by a variety of municipal-, county-, or district-level agencies. The size, purpose, and authority of the county district, city, or unincorporated government units vary according to the state's statutes and laws. Depending on the size of the jurisdiction and available resources, an onsite wastewater



ALL COMMUNITIES IN  
MCDOWELL COUNTY  
WERE CONSIDERED IN  
THE COALITION'S  
PRIORITIZATION  
PROCESS.

management program can be administered by a well-trained, fully staffed environmental or public health agency or by a board composed of local leaders (§16-13-18 of the *West Virginia State Code*).

County governments can be responsible for a variety of activities regarding the management of onsite systems. A county can assume responsibility for specific activities such as OWTS regulation within its jurisdiction, or it can supplement and support existing state, city, town, or village wastewater management programs with technical, financial, or administrative assistance. Counties can provide these services through their normal operational mechanisms, or they can establish a special district to provide designated services to a defined service area.

At the federal level, the US Environmental Protection Agency is responsible for protecting water quality through the implementation of the Clean Water Act and the Safe Drinking Water Act. Under these statutes, the US EPA administers a number of programs that affect onsite system management.

### *Assessment of Municipalities to Manage Beyond Corporate Limits*

The precise roles and responsibilities of local governments depend on the preferences, capabilities, and circumstances of each jurisdiction. Because of the variability in state laws enabling legislation and organizational structures, the administrative capacity, jurisdiction, and authority of local entities to manage onsite wastewater systems vary considerably.

Township, city, or village governments can be responsible for planning, permitting, and operating onsite wastewater facilities and enforcing applicable regulations. State laws may enable the formation of special-purpose districts and public utilities to provide public services that local governments cannot provide. A special-purpose district or public utility is a quasi-governmental entity established to provide specific services or to conduct activities specified by the enabling legislation. Special districts provide single or multiple services, such as managing planning and development activities, and operating drinking water and wastewater treatment facilities. The territory serviced by this entity is variable and can include a single community, a portion of a community, a group of communities, parts of several communities, or an entire county. State legislation outlines the authority, structure, and operational scope of the district, including service area, function, organizational structure, financial authority, and performance criteria.

Special districts or public utilities can be created to handle a full range of management activities, from regional planning and system permitting to inspection and enforcement. The districts may not necessarily own the onsite systems but are empowered by the state and county governments to set performance requirements, review and approve system designs, issue permits, oversee construction, access treatment system sites to conduct monitoring, and provide routine maintenance. Each onsite system or dwelling may be charged an initial permit fee and then an annual permit fee to offset expenses.



THE COMMUNITY OF COALWOOD HAS BEEN WORKING TO DEVELOP A SOLUTION TO LOCAL WASTEWATER-RELATED PROBLEMS. AN ENGINEERING STUDY HAS BEEN COMPLETED.

## *Private Sector Management Options for Communities*

Private sector management entities are another option for ensuring that OWTS are properly managed. These entities are often responsible for system design, installation, operation, and maintenance. In some cases, these private firms also serve as the sole management entity, managing an onsite system program for a residential area as part of a public-private partnership.

OWTS management programs can contract with private firms to perform clearly defined tasks for which established protocols exist, such as site evaluation, installation, monitoring/inspection, or maintenance. Another example would be a case where treatment systems in a residential area are serviced by a private entity and operated under a contract with a neighborhood association.

Private for-profit corporations or utilities that manage onsite systems are often regulated by the State Public Utility Commission to ensure continuous, acceptable service at reasonable rates. Service agreements are usually required to ensure that private organizations will be financially secure, provide adequate service, and be accountable to their customers. These entities can play a key role in relieving the administrative and financial burden on local government by providing system management services.

### **Responsibilities of a Comprehensive Onsite Wastewater Management Program**

#### *Primary Responsibilities*

- Routine inspection and maintenance of all systems
- Management and regulation of septic handling and disposal
- Local water quality monitoring
- Administrative functions (e.g., bookkeeping, billing)

#### *Secondary Responsibilities*

- Power to propose legislation and establish and enforce program rules and regulations
- Land use planning involvement, review, and approval of system designs, permit issuance
- Construction and installation oversight
- Grantwriting, fundraising, staffing, outreach
- Authority to set rates, collect fees, levy taxes, acquire debt, issue bonds, make purchases
- Authority to obtain easements for access to property, enforce regulations, require repairs
- Education, training, certification, and licensing programs for staff and contractors
- Recordkeeping and database maintenance

Source: National Environmental Services Center, 1996

## Possible Responsible Management Entities (RMEs) for Wastewater System Management in McDowell County

### Municipalities

McDowell County currently has ten separate municipalities. Four of these operate sewage treatment plants, and several others operate water treatment systems. All of these municipalities manage service delivery, maintenance, and administration for their services. Several of these municipalities potentially have the capacity and existing infrastructure to manage additional wastewater treatment systems.

**Interviews have been conducted with several mayors and town representatives from the towns of Bradshaw, Iaeger, Davy, Anawalt, Welch, and War. All agreed that management of wastewater systems outside of their respective municipal boundaries would be considered, and at least among some, strongly supported.**

### Public Service District

The McDowell Public Service District (PSD) currently manages several water systems in the county. There is also a sewage treatment plan being developed for the town of Coalwood, which the PSD would manage. Discussions with the PSD indicated that it would consider management of additional wastewater systems. Any formal agreement to manage would require additional consultation with the WV Public Service Commission.

### Private Entities

There are multiple private installers and system managers who could be contracted for system management. Several firms already operate in the county or have expressed an interest, including (but not limited to)

- Richmorr & Associates, Charleston, WV;
- White Oak Environmental, Pineville, WV;
- Ashco, Inc., Morgantown, WV; and
- Commonwealth Onsite Solutions, Verona, VA.

### Combination of RMEs

In all likelihood, a combination of RMEs will be needed to manage the many wastewater needs of McDowell County. Management possibilities will need to be assessed on a project-by-project basis, but consideration of the options listed above will hopefully expedite the implementation and management of wastewater treatment systems in the county.

## Next Steps for Implementing Wastewater Treatment Solutions

1. Present final plan to county, regional, state, and federal partners.
2. Identify “top tier” project areas for Phase 1 Implementation, as defined in the Wastewater Treatment Plan.
3. Pursue funding commitments through private entities, including
  - Presbyterian Church (\$64,000 committed),
  - Other faith-based organizations, and
  - Private foundations (i.e., Benedum, Kresge).
4. Identify and pursue federal funding opportunities with the region’s Congressional delegation and federal agency partners.
5. Working with county and regional partners, initiate application for state funding, as appropriate.
6. Work with the WV Department of Environmental Protection to begin water quality monitoring, in order to identify projects potentially eligible for EPA funding.
7. Engage new members, as appropriate to the next implementation phase, to participate in the Wastewater Treatment Coalition of McDowell County. Recommended additional membership to include representatives from
  - Region I Planning and Development Council,
  - McDowell County Commission,
  - WV Department of Environmental Protection,
  - USDA Rural Utility Services, and
  - State and federal elected leadership.

The goal of the Coalition for this next phase will be to bring together local leadership, management entities, funding entities, system designers, and regulatory agencies, as needed, and initiate implementation of the Wastewater Treatment Plan.

Functions of the Coalition include

- identifying priority project areas and related treatment technologies as defined through the Wastewater Treatment Plan;
- identifying a responsible management entity and local project manager for each priority project area, as applicable, based on recommendations included in the countywide wastewater treatment plan; and
- securing funding appropriate to each project area. This may include funding for low-interest loans or mini-grants for septic system installation; state,

federal, or private funding for engineering studies, as needed; and funding for other forms of wastewater treatment.

8. Continue to pursue additional alternative, cost-effective treatment options.

## **Needs and Opportunities**

Throughout the 21-month-long process of developing this countywide wastewater treatment plan, the Wastewater Treatment Coalition of McDowell County has maintained communication with local, county, regional, state, and federal representatives of government, nonprofits, higher education, regulatory agencies, and families. In March 2004, we prepared a list of what the Coalition would need from whom. These needs included money, legislation to permit sewage and management options that were being utilized in other states, technical assistance with grantwriting, permit waivers when absolutely necessary, training assistance, and support for our efforts to educate local citizens about the benefits of septic systems and encourage them to support wastewater treatment. Each entity accepted these challenges and now, as we approach implementation, we must call on them to put their pledges of support into action.

The Coalition envisions forging ahead with countywide endorsement and with increased participation from local officials, mayors, regional service providers, and concerned citizens. The Coalition is prepared to make recommendations for projects, assist with project implementation oversight, and provide technical assistance in securing funds. Demonstration projects that clearly display successful alternative options for wastewater treatment are needed throughout the county. Where necessary, engineering studies must be completed for top-ranked communities so funds can be leveraged for construction. Effective management systems will need to be put into place including the ability to extend existing plant operating management systems into other areas.

The mapping and reports completed by this Coalition will be beneficial to the county, region, and state. The work that now begins affects our families and water purity forever. The Coalition must have the dedication of its members and county officials to begin this work.

## APPENDICES

## APPENDIX A

### WASTEWATER TREATMENT COALITION OF MCDOWELL COUNTY TIMELINE

Month	Description of Events
January 2003	Meeting with community leaders, representatives from Congressman Rahall's office, and state agencies
February 2003	Wastewater informational meeting at McDowell County DHHR Office with 23 attendees
<b>June 2003</b>	<b>Wastewater Treatment Coalition first meeting</b>  AmeriCorps worker brought in from the McDowell County Long-Term Flood Recovery Task Force to do septic system database entry  Began assessment of municipal wastewater treatment plants
July 2003	Workshop: Assessing Wastewater Options for Small Communities held in Morgantown, WV (Attending were Melissa Watkins and Sandra Proffitt)  Wastewater Treatment Coalition divides into 3 different committees: Management Options, Best Practices, and Where-Projects-Go
August 2003	Workshop: hosted by Patricia Miller (WVU Extension) at Starland Heights, Kimball
September 2003	Bonnie Mallott from West Virginia Advocacy and Work Camps announces \$20,000 grant approval for a demonstration project  Action plan developed by Management Options Committee  Drafted criteria list for use in prioritizing treatment projects
October 2003	Conference: <i>Sewage Summit: A Rational Approach to Solving West Virginia's Wastewater Problems</i> , Morgantown, WV hosted by CVI  Interviewed municipal wastewater treatment plant operators and marked extent of municipal service areas on aerial photographs
November 2003	Invitation to speak to the Office Of Emergency Health Services concerning McDowell County: Bonnie Mallott, Kathie Whitt, Sandra Proffitt, Dave Clark, Melissa Watkins, Eddie Stress and JoClaire Datson  Presented draft map showing municipal wastewater treatment plants  Completed assessment of municipal wastewater treatment plants  Tour of laeger for possible demonstration site
December 2003	Completed conversion of paper tax maps to digital format for use in a Geographic Information System

**APPENDIX A (continued)**  
**WASTEWATER TREATMENT COALITION OF MCDOWELL COUNTY TIMELINE**

<b>Month</b>	<b>Description of Events</b>
January 2004	Tour: Where-Projects-Go Committee toured Hemphill, McArts Theater, Crumpler, and Ashland. Attending: Dave Clark, Melissa Watkins, J.J. Rose, Patricia Miller, Sandra Proffitt, Bonnie Mallott, Matt Sherald, and Karen Robinson
February 2004	Completed inventory and assessment of package plants  Completed county-wide wastewater inventory and assessment –results are published as a map book
March 2004	Presentation of coalition’s work to-date: 50 people attended (D.E.P., WV Bureau of Public Health, Rep. from Office of Rockefeller, WV House of Delegates, Region I PDC, etc.)
April 2004	Start of McArts Theater Demonstration Project
June 2004	Best Practices Committee outlines project areas and prescribes an appropriate treatment technology for each  Completed demonstration project at McArts Amphitheatre  Selection of demonstration project at the Big Sandy Head Start Center
July 2004	Vista worker hired to provide assistance to the Wastewater Treatment Coalition (the previous AmeriCorps worker was hired as a full-time employee with the McDowell County Health Department  Certified Class II Septic Installer selected
September 2004	Began demonstration project at Big Sandy Head Start Center
October 2004	Completed Big Sandy demonstration project - first AdvanTex® System in southern West Virginia  Formal celebration and dedication of demonstration project at Big Sandy Head Start Center; more than 50 attendees  Presentation to the Annual Meeting of the West Virginia Planning Association  Presentation to the West Virginia Water Conference
November 2004	Began drafting final Wastewater Treatment Plan
December 2004	Completed first draft of Wastewater Treatment Plan—McDowell County Wastewater Treatment Coalition
February 2005	Completed project prioritization matrix  Final editing of Wastewater Treatment Plan
March 2005	Presentation of final countywide McDowell County, WV Wastewater Treatment Plan

Please strip across the spread: page 1 of the  
11” x 17” Excel table file named:  
Prioritization.xls

Note: The table may have to be sliced down  
the middle and spread out to avoid any data  
drowning in the gutter. Continue/complete  
the table the same way on pages 32-33.

## CRITERIA FOR PRIORITIZING PROJECT AREAS

Note: Completion of the 11 X 17 table begun  
on the previous two pages.

## CRITERIA FOR PRIORITIZING PROJECT AREAS

Please size and strip in in landscape orientation to be about 10” wide, the Excel graph file:

McDowell\_PopulationStats\_Graph.xls

**APPENDIX D**  
**MCDOWELL COUNTY COMMUNITY SEWAGE SURVEY**

\_\_\_\_\_ **COMMUNITY SEWAGE SURVEY**

1. How concerned are you about sewage problems in McDowell County? Very concerned, somewhat concerned, not concerned.
  
  
  
  
  
  
  
  
  
  
2. Do you think that sewage from your community and/or household is contributing to pollution of McDowell County's streams? Yes, No
  
  
  
  
  
  
  
  
  
  
3. If you knew your community's or home's sewage was causing pollution of streams or groundwater, or was ponding in yards or ditches, would you feel it is your responsibility to share the cost of fixing those problems? Yes, No
  
  
  
  
  
  
  
  
  
  
4. Would you be more likely to share the cost of fixing local sewage problems if you knew that doing so could attract new jobs, businesses, and development to your local community? Yes, No
  
  
  
  
  
  
  
  
  
  
5. If yes, how much would you be willing to spend per month?  
\$10-\$20\_\_\_\_\_ \$30-50\_\_\_\_\_

APPENDIX E—COUNTY COMMISSION ENDORSEMENT OF WASTEWATER  
TREATMENT PLAN FOR MCDOWELL COUNTY

# ***Proclamation***

## **Wastewater Treatment Coalition of McDowell County**

In 2001 and 2002 there were two 100-year floods in McDowell County devastating homes and communities and four municipalities offering public sewage in McDowell County. An estimated 67% of the population of McDowell County was using failing sewage systems. As a response to these floods and septic issues the Community Collaborative Leadership Academy began working with local, regional, state and federal offices to develop a countywide wastewater treatment plan to assist McDowell County in building sustainable communities.

In recognition of the importance of developing a countywide wastewater treatment plan I Gordon Lambert, of McDowell County, do hereby proclaim that I am a member of the Community Collaborative Leadership Academy and the County Commission is a member of the Wastewater Treatment Coalition. I strongly support the presentation of the plan to the county, region, state and federal entities to assist in securing the financial support necessary to address the wastewater treatment deficiencies throughout our county. I support the process and procedures used by this coalition and urge all McDowell County residents to become active in discussion and support of the opportunities this coalition offers.

Gordon Lambert      Carole Lips

William B. Lester

# WASTEWATER TREATMENT COALITION OF MCDOWELL COUNTY

## COLLABORATIVE PARTNERS

### Core Work Team

Kathie Whitt, **McDowell F.A.C.E.S.**  
90 Howard Street, Welch, WV 24801  
304/436-5255; faces@citlink.net  
*Initial invitation for county meeting, facilitation of Coalition and county meetings, notices of meetings, assistance with written report*

Eddie Stress, J.J. Rose, and Melissa Watkins  
**McDowell County Health Department**  
P.O. Box 218, Wilcoe, WV 24895  
304/448-2174; melissawatkins@wvdhhr.org  
*Septic system database maintenance, tech support, meeting space, minutes, mapping services, office space for AmeriCorps and contract employee*

Dave Clark and Matt Sherald  
**Canaan Valley Institute**  
P.O. Box 673, Davis, WV 26253  
800/922-3601; dave.clark@canaanvi.org  
*Assistance with Coalition structure, mapping services, technology for interpretive presentation, county presentations of materials, financial support for VISTA, copying, etc.*

Bonnie Mallott and Karen Robinson  
**WV Ministry of Advocacy & Work Camps, Inc.**  
43 Downing St., Charleston, WV 25301  
304/344-0760; bonniemallott@charter.net  
*Assistance in Coalition structure, resources, financial support for demonstrations and tours, tech support*

Dorothy Horne  
**Citizens Conservation Corps of WV**  
Box 159, Davy, WV 24828  
304/656-7594; dhorne@wvccc.com  
*Committee support, tech support, final report*

Ella Kelly  
**Elkhorn Creek Watershed Association and Wastewater Treatment Coalition of McDowell County**  
Box 424, Gary, WV 24836  
304/448-3548; wtcmc\_vista3@hotmail.com  
*Committee support, VISTA, final report*

Linda Vance  
**McDowell Parks and Recreation**  
Box 424, Gary, WV 24836  
304/448-3548; mcdpr@citlink.net  
*Committee support and space for VISTA*

Sandra Proffitt, **SAFE**  
P.O. Box 239, Kimball, WV 24853  
304/558-7501; sambegone@excite.com

Patricia Miller, **WVU Extension**  
130 Tower Lane, Morgantown, WV 26506  
304/293-3070; patricia.miller@mail.wvu.edu  
*Tech assistance for alternative sewage options and products, resource information, committee support*

Randall Johnson and Jo-Claire Datson  
**The Council of The Southern Mountains**  
Box 158, Wilcoe, WV 24895  
304/448-8117; csmrsvp@frontiernet.net  
*Support to committees and community meetings, information and linkage to flood recovery state agencies*

Jennifer Oren  
**McDowell Rural Health Advisory Council**  
Suite 201, 8 Wyoming Street, Welch, WV 24801  
304/436-3256; jenniferorenmrhac@cilink.net  
*Initial support for group including minutes, other support, as needed*

Jim Hird, **Richmorr and Associates**  
Box 38, Thorpe, WV 24888  
304/448-3362; richmorr@citynet.net  
*Committee support and tech support*

Gary Blankenship, **White Oak Environmental**  
304/732-9159; woe@citynet.net  
*Committee support and tech support*

Randy Bolton, P.E., **Stafford Consultants Inc.**  
P.O. Box 5849, Princeton, WV 24740  
304/425-9555; rbolton@frontiernet.net  
*Committee support and tech support*

Diane Hall, **First Presbyterian Church**  
P.O. Box 988, Welch, WV 24801  
304/436-3690; welchpresby@frontiernet.net  
*Committee support, meeting space*

### Extended Coalition Membership

Gordon Lambert, **McDowell County Commission**, 90 Wyoming St., Suite 111, Welch, WV 24801; 304/436-8544  
*Initial community meeting, information sharing for county issues & projects, general support*

Cliff Pannel, **Rural Community Assistance Program**, 307 Federal Street, Bluefield, WV 24701; 304/323-3751  
bio01101@mail.wvnet.edu

Randy Wallace, **Mustard Seeds & Mountains**  
Box 686, Northfork, WV 24868  
304/862-4643; mustardseed@mustardseeds.org

Tom Hatcher, Mayor, **City of War**  
Box 280, War, WV 24892  
304/875-3111; thatcher@inetone.net  
*Tech support for Management Committee*

Eva Sue Rash, Mayor, **City of Anawalt**  
Box 40, Anawalt, WV 24808  
304/383-2993; evasuerash@hotmail.com  
*Tech support for Management Committee*

Violet Lester, **McDowell Redevelopment Authority**, P.O. Box 1508, Welch, WV 24801  
304/436-3421; valesster45@hotmail.com  
*Tech assistance: codes and disaster programs*

Christine Hatfield and Janet Monti  
**Long-Term Flood Recovery** (defunct)  
*Initial support: flood information for families*

Norman Kirkham and Dave Cole  
**Region I Planning & Development Council**  
Box 1442, Princeton, WV; 304/431-7225  
*Information & tech assistance: initiating Coalition and process information*

Henry Paul, Mayor, **City of Gary**  
Box 310, Gary, WV 24836; 304/448-2209  
*Tech support for Management Committee.*

Rachel Lester, **McDowell County Economic Development Authority**; 9 Banks Street, Welch, WV 24801; 304/436-3833  
*Information for economic development slated for McDowell County*

James Stafford, Mayor, **City of Iaeger**  
Box 158, Iaeger, WV 24844  
304/938-3035

Nick Mason, Mayor, **City of Northfork**  
Box 760, Northfork, WV  
304/862-3414

Lawrence Crigger, Mayor, **City of Bradshaw**  
Box 450, Bradshaw, WV 24817  
304/967-7370

Martha Moore, Mayor, **City of Welch**  
88 Howard St., Welch, WV 24801  
304/436-3113



produced with the help of



**Canaan Valley Institute**

WORKING FOR THE SUSTAINABILITY OF THE MID-ATLANTIC HIGHLANDS SINCE 1995

[www.canaanvi.org](http://www.canaanvi.org)