

An Ounce of Prevention

*Land Conservation and the
Protection of Connecticut's Water Quality*

1998

Table of Contents

Acknowledgments	3
Executive Summary	4
Protecting Our Land, Protecting Our Water	5
<i>The Sale of Water Company Lands</i>	6
<i>Unprotected Drinking Watershed Lands</i>	7
Source Protection: The Foundation of Connecticut's Drinking Water Strategy	7
<i>The Role of State Agencies</i>	8
Water Company Land Sales	9
<i>Reasons and Incentives for Sales</i>	9
<i>Concerns about Sales</i>	10
<i>Public Participation and Changing Regulations</i>	11
The Need for Further Source Protection	13
Responding to the Challenge	14
<i>Existing Resources for Watershed Protection</i>	14
Recommendations	15
Glossary	18
References	18
Interviews	20

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This study comes at a critical time when the state of Connecticut stands to lose thousands of acres of pristine open space and watershed lands. Fortunately, Connecticut residents now have an opportunity to protect surplus water company holdings and land within drinking water supply watersheds before they are gone forever. This publication is a call to action to individuals, agencies, and organizations throughout the state to help protect these precious resources for present and future generations.

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EXECUTIVE SUMMARY

An Ounce of Prevention

Land Conservation and the Protection of Connecticut's Water Quality

Connecticut residents cannot take our clean water and scenic open space for granted. As the pace of development increases, the purity of the state's water and many of its pristine lands are threatened as never before.

Since the mid-nineteenth century, Connecticut water companies have acquired more than 130,000 acres of land around drinking water supplies. This simple act of land protection drastically reduced the opportunity for contaminants to enter water sources, contributing to decades of safe, clean water supplies for Connecticut residents and businesses. It also resulted in the protection of significant wildlife habitat and recreation land. As development has changed the Connecticut landscape, the significance of water company-owned lands to the public was grown enormously. These lands now represent some of the best and most scenic wildlife habitat and public recreation areas left in the state.

Unlike many states, Connecticut does not draw its drinking water from one or two isolated reservoirs, but from dozens of sources in rural and suburban communities. More than 16 percent of the state's total area drains into drinking water supplies; what happens on that land directly affects water quality and public health. Today changing trends in water supply law and economics, combined with increased development pressures, create a dual threat to Connecticut's water quality and natural environment:

Water companies are capitalizing on rising land prices and selling off land holdings they no longer consider necessary to provide drinking water to their customers. Water companies have designated 21,000 acres of their holdings around the state as Class III, which means these lands can be sold with little regulatory oversight. Since 1991, the companies have sold or contracted to sell nearly 2,000 acres of this land, and plan to sell more than 2,200 additional acres in the next three years. Much of it is being sold for development as housing, roads, and commercial or industrial parks.

At the same time, development is encroaching on critical drinking watershed lands that are not owned by water companies. Even the largest water companies own, on average, only 25 percent of their watersheds. The remaining 75 percent of watershed lands that drain into drinking water supplies are largely unprotected and are being increasingly developed.

Compounding the problem, state and federal funds for land protection have declined over the past two decades. Connecticut spends less on open space than most other states in the Northeast. In recent years, New Jersey has spent an average of \$2.82 per person on land conversion annually; New York, \$1.83 per person; Vermont, \$5.13 per person; and Massachusetts, \$7.09 per person. By contrast, Connecticut has spent an average of only 41 cents per person per year.

The federal government has eliminated allocations to states from the Land and Water Conservation Fund, once a primary source of grants for state and local open space protection. While funding has declined, the pace of development has increased. As a result, the significance of water company-owned lands has grown enormously; at more than 130,000 acres, these cover an area equivalent to more than half the state's open space holdings. They also provide some of the most pristine wildlife habitat and recreation areas in the state.

Most water companies do not have land conservation missions. Their main responsibilities are to their ratepayers and, in the case of private companies, to their stockholders. As a result, they often consider selling surplus land to be the best way to maximize profits and cut costs to their customers. Some companies also point out that it is unfair to force their urban ratepayers to subsidize open space in distant suburban or rural communities, when those lands are no longer used for water supply.

Nevertheless, public officials and residents must consider the long-term impact these sales may have on the limited number of high-quality rivers, streams, and lakes left in the state; the purity of water drawn from nearby wells; the uncertain future of statewide water supply and demand; and the cost to the public and to the economy if water quality is compromised. Many of the Class III lands contain water sources that could provide drinking water in the future, providing a safeguard against increased demand caused

by population growth and the potential contamination of other drinking water sources. However, because of economic pressures and recent trends in water use, many water companies are opting to abandon portions of their water supplies rather than upgrade them to meet current filtration standards. Moreover, the fate of water company lands will directly affect not only water quality, but also wildlife habitat, public recreation, flood control, and Connecticut's tourism industry, which generates \$4 billion a year.

At the same time that water companies are selling land *outside* their active water supply watersheds, there is an increasing need to protect additional lands *within* them. As development brings roads, houses, and other human activities into watersheds, more pollutants are washing into the water supply. Yet in recent years, Connecticut's largest 11 water companies have invested very little to protect additional watershed land. By contrast, they have been required by federal law to spend hundreds of millions of dollars on filtration and treatment plants. This is especially distressing since filtration and treatment can only reduce existing pollution levels, while watershed protection can actually prevent contamination.

Regulation alone is not enough to safeguard Connecticut's long-term water quality and open space needs. To achieve this, regulation must be accompanied by strategic investments in permanent land conservation. Today, insufficient funding is the single largest obstacle to open space and watershed protection. Therefore, the Trust for Public Land, a national land conservation organization, recommends that:

1. Connecticut increase funding for its existing state open space programs, but it should also establish a program specifically to conserve lands already owned by water companies and unprotected land in drinking watersheds. To encourage broad participation and leverage this funding, the water quality protection program should provide competitive matching grants to qualifying public and private conservation projects.
2. Connecticut establish a funding source dedicated to financing matching grants for land protection. Given the mounting development pressures facing Connecticut, the state should do this immediately. There are many ways that other states have chosen to provide such funding, and many of these are described in Figure 6 on page 17. Whatever the source, when used to provide matching grants, the fund could leverage millions of public and private dollars for land conservation and water quality protection. To ensure an equitable distribution of program benefits, state funds should also be available for open space protection in urban areas, especially along urban waterfronts and rivers.
3. Connecticut encourage wider public participation in watershed decisions. According to a 1997 poll conducted by Quinnipiac College, Connecticut residents are extremely concerned about protecting land. However, they often have no opportunity to participate in decisions about watershed protection, one of the most critical issues affecting the state's land and water.

Sustaining high-quality land and water resources ensures that clean drinking water and a healthy natural environment will be Connecticut's permanent legacy. With so much at stake, public investment and participation is essential to preserve Connecticut's most valuable natural resource: open land and clean water.

Protecting Our Land, Protecting Our Water

Connecticut is blessed with an abundance of water. But the presence of so many lakes, ponds, rivers, and streams -- many of which supply public drinking water -- in such a small geographic area creates some unique problems. The state's drinking water supply is not tucked away in a far corner; it is part and parcel of dozens of rural and suburban communities, making it extremely vulnerable to human activities. More than 530,000 acres of land -- 16.5 percent of the state's total area -- drain into drinking water supply watersheds, and 128 of the state's 169 towns have some lands associated with a water supply watershed. How that land is managed directly affects public drinking water supplies -- and public health.

More than 100 years ago, Connecticut water companies and the state government had the foresight to acquire and protect land around existing and potential drinking water sources. This simple act of prevention drastically reduced the opportunity for contaminants to enter water sources, contributing to decades of high-quality drinking water for state residents. It also resulted in the protection of more than 130,000 acres of forested lands that provide habitat for wildlife and opportunities for recreation.

But Connecticut is now faced with a dual threat to its water quality and natural environment.

- Water companies are capitalizing on rising land prices and selling off land they have held for decades, but no longer consider necessary to provide drinking water to their customers. Many of these properties contain water sources that, if protected, could provide drinking water in the future.
- At the same time, development is encroaching on critical public drinking watershed lands that were not acquired by water companies.

THE SALE OF WATER COMPANY LANDS

Since 1977 all water companies have been required to obtain a permit from the Department of Public Health to sell lands located within the public drinking water supply watershed. Investor-owned utilities have also needed approval from the Department of Public Utility Control for any proposed sale. Despite these permit requirements; land sales have accelerated over the last decade. Across Connecticut, water companies are selling thousands of acres, including former water supplies and abutting lands.

As these parcels arrive on the market, public and private conservation buyers find themselves outbid by developers willing to pay premium prices. For example, in the early 1990s residents of Easton and Weston discovered that BHC, formerly Bridgeport Hydraulic Company, planned to sell 700 acres of a forested stream valley. In cooperation with local and national conservation organizations, the towns tried to buy the land, but BHC recently announced that it will sell it for close to \$13 million to a developer who plans to build a private golf course and more than 100 houses on the property.

Likewise, in March 1997, Birmingham Utilities agreed to sell 240 acres in Seymour to a private developer for \$3.9 million. As in Easton and Weston, the developer wants to build housing around a golf course on the site. Some residents are lobbying the town to match the developer's price and acquire the 240 acres for open space. Meanwhile, other community members want to ensure that the remaining 700 acres still for sale in Seymour and neighboring Oxford are protected.

Several Connecticut towns, however, have been able to gain control of surplus parcels within their borders. Earlier in 1997, residents of Shelton voted 8 to 1 to purchase nearly 500 acres of land from BHC for \$7 million. They plan to preserve the land for open space, wildlife habitat, and recreational uses. These efforts have required planning and foresight, as well as a substantial commitment of local funds. Shelton's victory notwithstanding, public funding is not keeping pace with the growing number of land sales.

Some 21,000 acres of water company-owned lands are now designated as Class III and can be sold for development. This vast area, nearly as large as all Connecticut's state parks combined, includes abandoned reservoirs that could supply drinking water in the future. Due to economic pressures and trends in water use, however, many companies are opting to sell some of their reservoirs, rather than upgrade them to meet current filtration requirements. The companies generally can sell Class III lands with little regulatory oversight, and once significantly developed, these properties are no longer suitable for water supply.

At the same time, state laws regulating the sale of water company land have been weakened. Water companies can now abandon primary watershed land and sell it to anyone without any conditions attached to its use. It also has become more difficult for land trusts and towns to become involved in the process. Additionally, private water companies have successfully sought legislative changes over the last decade that enable them to sell off surplus land and pass the majority of the proceeds on to their shareholders.

Even when towns and land trusts are well informed about water company sales and want to protect the land, they generally find themselves hamstrung by a lack of funding. State and federal funds for open space have declined over the past two decades, while the pace of land development has increased.

Waterfront land has always been premium property. Municipalities and land trusts have had difficulty finding enough money on their own to match the prices private developers are willing to pay.

At the root of public concern about water company sales is that they involve some of the highest quality water sources and undeveloped lands remaining in the state. If they are developed, the public stands to lose many options for future uses. No one can predict with absolute certainty how much water future generations will need, what new kinds of contaminants will degrade current supplies, or how cost effective new technologies will be in treating water supplies. Protecting clean water sources provides the best line of defense against potential problems.

In addition, water company land represents many communities best remaining open space for recreation, scenic views, and wildlife protection. While water companies did not acquire the land with these benefits in mind, many state residents have come to rely heavily on the properties for open space. In fact, many residents do not realize these lands are not permanently protected until they are offered for sale. Then they are alarmed to find that water companies can sell these lands at prices that reflect their full development potential when they were originally acquired for the public good and for years assessed at low property tax rates.

UNPROTECTED DRINKING WATERSHED LANDS

At the same time that water companies are selling land outside their active water supply watersheds, many acknowledge the need to protect additional lands within them. The largest Connecticut water companies own, on average, only 25 percent of their water supply watersheds. The remaining 75 percent is largely unprotected and increasingly being developed. Unlike drinking watershed lands owned by water companies, these lands are not subject to state permitting requirements.

As development brings roads, houses, and other human activities into watersheds, pollutants wash into the water supply. Some water companies recognize that they are in a race to acquire additional parcels in their watersheds before supplies are significantly contaminated. However, while water companies have spent hundreds of millions of dollars on filtration and treatment required by more stringent federal laws, Connecticut's 11 largest water companies have spent very little on additional watershed protection in recent years. Unfortunately, filtration and treatment only reduce the amount of contamination present in water supplies; they do not prevent it.

Many residents are rightly concerned about how these changes could affect the integrity of Connecticut's land and water resources. But development is not inevitable. Water company sales may in fact constitute a rare opportunity for state residents to permanently protect more open space and watershed land for the public good. Insufficient funding, however, remains the largest single obstacle to land protection.

Watershed Use and Water Quality

All water that falls within a given watershed eventually flows as runoff into an above-ground water supply or underground aquifer, carrying with it oil and toxic metals from roads, pesticides from lawns, manure from farms, and a variety of other contaminants of drinking water. According to the Nonpoint Education for Municipal Officials Project at the University of Connecticut's Cooperative Extension system, "Polluted runoff is now widely recognized by environmental scientists and regulators as the single largest threat to water quality in the United States."

When land is protected, natural cover reduces the amount of pollutants entering the water supply. Soils filter out many types of contaminants. Grasses and ground cover slow the flow of water, allowing sediment to settle. Trees reduce siltation by stabilizing soil along stream banks.

For all these reasons development within a watershed creates a dual threat to water quality. As natural lands are degraded, their buffering capacity is reduced. And as development spreads in these areas, land and water pollution increases.

Source Protection: The Foundation of Connecticut's Drinking Water Strategy

Connecticut's water companies are responsible for delivering safe, sufficient drinking water to their customers. In the mid-nineteenth century, cholera outbreaks in New York and London were linked to contaminated water supplies, leading water companies and government officials to recognize the importance of isolating supplies from human activity. Water companies began acquiring land around new water sources, in what were then rural areas, to protect them from human development and contamination by livestock (see textbox above). Acknowledging that source protection was in the public interest, the Connecticut legislature granted water companies the power to force unwilling landowners to sell property near water supplies. Since that time, "source protection" has remained the most important component of Connecticut's water resource management strategy, even

as additional technological treatment of the drinking water supply has become necessary. Source protection drastically reduces the number and kinds of contaminants present in the water.

Filtration and chemical treatment of raw water, on the other hand, are expensive measures and must be increased or updated to respond to new forms of contamination from more intensive human development.

Today, more than ever, scientists recognize the essential role of land conservation in minimizing contamination to water resources and maximizing an ecosystem's natural buffering capacity. According to a 1991 paper by Richard Robbins, hydrologist at the Portland (Or) Water Bureau, in the *Journal of the American Water Works Association*, "The efficacy of ... treatment processes is usually measured by the percentage of contamination they are capable of removing from the raw water, not necessarily by the absolute contaminant level they attain. Thus, even with the addition of these treatment steps, the risk of chronic or acute disease from the contaminants remaining in the finished water may still be greater than the consumer is willing to accept. Allowing degradation of a water source because of the presence of or the ability to construct a water treatment plant, therefore, will not maximize protection of public health."

Connecticut water companies avoid risk and save money by starting with a clean water supply. In recent years, for example, EPA and DPH granted Connecticut water companies waivers worth more than \$19 million in reduced water monitoring costs as a result of source protection efforts.

In turn, the public has enjoyed benefits of source protection besides high-quality drinking water at reasonable cost. Water companies own more than 130,000 acres of land, or 4.2 percent of the state's total area. One hundred years ago, this acreage was probably scarcely noticed against the broader backdrop of farms and forests throughout the state. But increased development has radically changed the Connecticut landscape. According to a June 22, 1997 article in the *Hartford Courant*, between 1970 and 1990 a total of 111 square miles of central Connecticut alone were converted from undeveloped land into housing subdivisions, commercial sites, and other urban developments.

State and federal funds available for open space acquisition decreased during the same period. As a result, the significance of water company-owned lands has grown enormously, and they now comprise some of the most pristine wildlife habitat and recreation areas in the state. In the Fairfield-Hartford corridor, for example, where state-owned parks and forest are rare, water company lands stand out as isolated pockets of green in an intensively developed urban landscape.

For these reasons, the protection of water company land directly affects not only water quality, but also habitat protection, recreation, and the state's scenic landscape, which are central to resident's quality of life and the state's \$4 billion-a-year tourism industry (see textbox page 11). The prospect of water companies selling their land to private developers raises concerns on a number of levels.

THE ROLE OF STATE AGENCIES

About 600 companies supply public water in Connecticut, ranging from small systems serving just a few households to enormous operations serving nearly half a million customers.

Their sources are 70 percent surface water and 30 percent underground aquifers, both located primarily in the rural or suburban parts of the state. Their customer base, on the other hand, is largely urban and suburban. Approximately 84 percent of Connecticut residents now rely on public water with new households added each year due to contamination of private wells and the expansion of service areas. Connecticut's water companies fall into two categories: investor-owned and publicly owned. Investor-owned companies respond to the interests of both their ratepayers (the water customer) and their shareholders. They are regulated by the Department of Public Health (DPH), the Department of Public Utility Control (DPUC), and the Department of Environmental Protection (DEP). The Office of Policy and Management (OPM) also plays an advisory role.

These agencies have overlapping responsibilities, but distinct and potentially conflicting basic missions. DPH monitors the safety of the public drinking water supply for public health. DPUC works primarily to ensure the financial stability of the water companies, and its Office of Consumer Counsel makes sure that the rates they charge the public are reasonable. (As discussed later, this latter role may sometimes lead the agency to support sales of surplus lands.) DEP is responsible for protecting the state's natural resources, and has a mandate to protect additional land throughout the state as open space. OPM is the state agency responsible for preparing the State Plan of Conservation and Development. DPH must also consult with OPM on decisions related to water company permitting, as well as on water supply plans.

Publicly owned water companies, which are either municipal or regional, do not have private shareholders, but they do have to answer to the governing bodies and citizens of the town or towns that "own" them. Unlike

investor-owned utilities, publicly owned water companies are not regulated by the DPUC, but are subject to the same oversight by the DPH.

Water Company Land Sales

Water company land sales have jumped significantly over the last several decades. In the 14-year period from 1977 through 1990, the seven largest companies sold some 2,350 acres across the state. In less than half that time, from 1991 through mid-1997, they already sold or contracted to sell 1,916 acres. Moreover, they have identified another 2,284 acres that they expect to sell over the next one to three years. Some of the smaller water companies excluded from this tally also are selling land.

Many people do not know that water companies are allowed to sell their land, nor do they realize that the amount of land available for sale is not fixed. The acreage estimates in the previous paragraph, for example, are derived from water companies' water supply plans and from discussions with the water companies. But the numbers differ from previous estimates and will likely change again. In a January 24, 1998 *New York Times* article, BHC forecast that it would sell approximately 2,200 acres over the next 18 years. But in a little more than 10 years, the company will have sold more than 3,400 acres.

REASONS AND INCENTIVES FOR SALES

Most water companies do not have land conservation missions. For public and private water companies responsible to their ratepayers and shareholders, selling surplus lands may appear to be the most reasonable financial decision.

Water companies maintain that they are selling off land in response to changing state needs. Water consumption in Connecticut has decline recently because some major industries have moved out of state, others have cut their workforces, and local governments have instituted water conservation efforts. The Metropolitan District Commission, for example, lost nearly four million gallons per day of water sales when the Pratt & Whitney plant in East Hartford downsized in the early 1990s. Because of lower demand, many water companies now believe they can sell off certain water supplies, meet future demand, and supplement existing sources in the case of a drought or other emergency. They also point out the inherent inequity of forcing their largely urban ratepayers to subsidize open space lands in distant suburban or rural communities if those lands are no longer used for active water supplies.

Some companies say the tighter requirements of the 1986 and 1996 amendments to the Safe Drinking Water Act have given them additional incentives to abandon water supplies. These mandates imposed new filtration standards on all public water supplies, requiring costly investments in plant construction and upgrades. Nationwide, water companies will have to spend \$12.1 billion to bring their facilities into compliance.

Many of the smaller water companies in Connecticut lack the capital and expertise to make these changes. Some have consolidated or have been bought out by larger companies at the recommendation of DPUC. But compliance has been costly for all companies. BHC President James McInerney says that between 1986 and 1996, BHC spent \$105 million on filtration and water treatment, the same amount the company spent in the previous 129 years. Companies like BHC are finding it cheaper to abandon inactive water supplies rather than upgrade them to current filtration standards.

Some companies consider these lands to be a burden because their potential financial returns are too small to cover holding costs. For example, a number of water companies run timber-cutting operations on their lands while others permit gravel sales, but the revenues generated by these activities are small. Companies also could decide to sell permits to the public for low-impact recreation on their lands, provided they first obtain a permit from DPH, but in so doing they would likely incur additional maintenance, monitoring, and security costs.

Besides the disincentive for maintaining surplus lands, there are strong incentives for selling them. These lands, bought many decades ago, have appreciated greatly in value, and this gain can be realized quickly when the lands are sold. Companies can use the money generated from such sales to finance new treatment facilities or reward their stockholders with higher dividends.

The prospect of boosting shareholder value is a big reason investor-owned utilities sell their land. The Aquarion Company, owner of BHC, intends to capitalize on rising land prices to boost revenues and shareholder

profits. In its 1996 annual report, the company reported three consecutive years of growth in operating income from its public water supply division. "Aquarion, through our BHC subsidiary, has about 2,600 acres of land available for development and sale..." the report said. "With the improving economic climate in Connecticut and a substantial backlog of undeveloped land, we expect earnings from this program to be an integral part of our performance for the foreseeable future." As of the summer of 1997, more than 1,500 acres of BHC land were under contract or slated to be sold by the end of the year.

Water Treatment: Assessing Future Needs

Many water companies are concerned that the federal government will mandate additional filtration requirements to address two new microbial threats: crypto sporidium and giardia. Both are tiny parasites that are extremely difficult to kill or filter out of the water supply. In Connecticut, more common threats to water quality are fertilizers and petrochemicals associated with urban and suburban development. The most effective prevention of all these forms of contamination is through watershed protection.

Source protection creates a buffer against spilled gasoline, disposed solvents, lawn fertilizer, and other common contaminants. And it is safer and less costly to prevent contamination than to filter or treat it after the fact. New York City recently decided to invest \$1.5 billion to protect its upstate watershed, including \$260 million for watershed protection, thereby avoiding the immediate need for a filtration plant that would cost more than \$5 billion to build and other \$300 million annually to operate.

In 1996, a legislative task force of public health and water supply experts concluded that the risk from disease-causing organisms, including crypto sporidium, in Connecticut drinking water has been greatly reduced by water companies' commitment to source protection. The big question now is whether increasing development will overwhelm current levels of source protection.

CONCERNS ABOUT SALES

Most of the reason and incentives for water companies' land sales are financial, but there is more than money at stake. Public officials and residents must consider the long-term impact these sales may have on the limited number of high-quality rivers, streams, and lakes left in the state; the purity of water drawn from nearby wells; the uncertain future of statewide water supply and demand; development patterns of the communities in which the properties are located; and the cost to the public and to businesses if water quality is compromised. Many of the Class III lands contain water sources that could provide drinking water in the future, providing a safeguard against potential contamination of other wells or reservoirs.

For example, a water company recently applied for permission from the Department of Public Health to classify a reservoir as abandoned and declare the land around it as surplus. Two state agencies, the Office of Policy and Management and the Department of Environmental Protection, recommend that permission be denied. They were concerned that the recent contamination of one of the water company's well fields could reduce its supply in the near future, a situation that has become increasingly common throughout the state. According to the 1989 report of the Aquifer Protection Task Force, 116 of the state's 169 towns have experienced contamination of public or private wells.

Despite the recommendations, DPH, which has sole jurisdiction in such cases, granted the abandonment permit after the company provided updated information indicating that the wells were no longer contaminated and back-up supplies were in place. The company is now preparing all 420 acres for sale.

Another concern is that the statutory criteria for abandonment permits are based on the water supply needs of a single water company, while the abandonment may have regional consequences. Nearby water companies could experience a water shortage or well contamination and require additional water supplies. In the late 1980s, for example, the Connecticut-America Water Company entered into contracts to purchase as much as three million gallons a day from BHC to supplement its own supplies. Unfortunately, when a water company applies for permission to sell land, the DPH is not required to consider the impact of the sale on another water company's supplies. Other water companies do have a statutory option to acquire parcels that are for sale, but they may not have the necessary funds at the time.

After a severe drought in 1982 left customers in southwestern Connecticut without enough water, the state legislature established a regional planning process to avoid such problems in the future. Lawmakers convened the water companies and agency representatives of seven regions established by DPH into Water Utility Coordinating

Committees (WUCCs) to develop comprehensive reports on their planning needs. Legislators, however, placed a statutory limit on what they could spend to produce the reports. Because of this funding constraint, as of mid-1997 only three of the seven regional committees had completed their plans.

Perhaps the most critical question about water company land sales is whether the future uses of the land will accommodate the public's long-term needs. When water companies draft their water supply plans, they try to predict the needs of their customer service area for the next 50 years. It is unclear, however, how accurately water companies can make those projections and whether 50 years is a sufficient time horizon to account for future needs. In fact, since water supply plans became mandatory more than a decade ago, some companies' use projections have changed substantially.

Water company lands include some of the most pristine wildlife habitat and recreation areas in the state. As a result, many residents are concerned about the development of Class III lands, and the resulting impacts on the state's natural environment and tourism industry.

Members of the public often contend that water companies should simply continue to protect these lands. But water companies argue that this is not their role. Even those water companies that want to sustain their surplus land for the public good find themselves in a difficult position. They do not want to force predominantly urban ratepayers to subsidize the protection of distant land that does not directly affect their drinking water quality. In fact, DPUC regulators may encourage companies to sell these lands for the benefit of their ratepayers. But if those companies sell the land, the communities in which the land is located will likely object.

The South Central Connecticut Regional Water Authority (SCCRWA) has faced just such a dilemma for many years. SCCRWA owns almost 1,500 acres that it considers surplus, but that it would like to see conserved as open space in part to avoid public objections. Rather than selling the properties on the open market, SCCRWA is trying to sell them to the public and nonprofit groups for conservation or to find other ways to share the cost of holding the land, thus removing some of the burden from their ratepayers. In either case, some direct or indirect public funding will likely be necessary.

Some public and private companies selling land have worked with public and nonprofit groups to protect some of their lands. Birmingham Utilities, BHC, and other private companies have sold land to municipalities for conservation, or worked with DEP's open space program. Since 1983 SCCRWA has sold 1,129 acres of land, 90 percent of which is now state parks, municipal parks, and privately owned open space. Some companies give several years' notice on land they plan to sell so local municipalities and conservation organizations have time to raise the funds for purchase. Unfortunately, communities are not always able to buy when companies are ready to sell, especially without state assistance.

The Economic Benefits of Open Space Protection

While the benefits of keeping open space may be easy to understand, they also are difficult to quantify. Nonetheless, a number of groups have tried to assess the economic benefits of development versus preserving open space. According to these studies, protecting open space often results in a net financial gain for communities. For example, many residential developments cost communities more in services, such as new water and sewer lines and new schools, than they pay back in taxes. In addition, open space frequently boosts the property value of nearby homes, leading to an increase in tax revenues without an increase in service costs. Recently, several Connecticut towns attributed their higher bond ratings to their dedication to managing growth and maintaining open space.

PUBLIC PARTICIPATION AND CHANGING REGULATIONS

Public concern about the sale of water company-owned lands has prompted civic action in the past. In the 1970s, New Haven established a regionally owned water company when the New Haven Company attempted to sell off about 16,000 acres (see textbox page 13). The water company's action also inspired state lawmakers to pass unique legislation regulating the sale and use of public utility lands, particularly those owned by water companies.

This legislation requires investor-owned public utilities, including water companies, to notify town officials before applying for permission from DPUC to sell any part of three or more contiguous acres of unimproved land located in the municipality. The town, state, and nonprofit land-holding organizations also have a "right of first refusal" on that land, which is a statutory option to match an existing offer to buy the property. While helpful as a last resort, the right of first refusal is limited in its usefulness, because towns, states, and nonprofits often are hampered by financial and timing constraints.

All public and private water utilities must also classify their land holdings under three categories based on the land's proximity to and impact on the public drinking water supply. The utility classifies the land first, subject to DPH confirmation. A confirmed classification of a parcel can be changed under conditions specified by statute.

- Class I land is highly sensitive acreage that includes lands within 250 feet of drinking water sources and the water sources themselves. Until 1985, Class I land could not be sold at all. Today, companies can sell Class I land with a permit from DPH, but only to another water company or to a town.
- Class II land generally is drinking supply watershed land that is farther away from drinking water sources and reservoirs than Class I land. Companies cannot sell Class II land without a permit from DPH, but they can sell it to anyone, provided the commissioner of public health finds that its sale would not significantly harm the public drinking water supply. It is difficult for companies to obtain these permits, and such sales have been infrequent. Although the law provides for public participation in the permit process, the health department rarely has convened a public hearing for a permit.
- Class III land is located outside active drinking water supplies, usually around an abandoned or potential drinking water source. In addition, when DPH issues an abandonment permit to a water company, the reservoir and surrounding lands are reclassified to Class III status. Companies do not need a DPH permit to sell Class III land, but the public utility commission must approve sales by investor-owned utilities.

A series of legal changes have encouraged investor-owned utilities to sell land and have made it easier for all water companies to obtain DPH permits, while making it more difficult for the public or land trusts to participate in the process. Perhaps the most important change is how revenues from land sales now are allocated between ratepayers and shareholders. (This does not include proceeds from the sale of land never used to provide water service. All of the revenues from sales of this land go to the water company.)

Since the 1970s, the percentage of proceeds from land sales passed along to ratepayers in the form of rate relief has declined from 100 percent to as low as 27 percent. Proceeds credited to shareholders have increased from zero to as high as 73 percent. DPUC now decides all allocations on a case-by-case basis, subject to statutory guidelines. Some companies have recently requested 100 percent of the proceeds for shareholders, but thus far none has received that much.

These changes in allocations are due partly to DPUC's decision to encourage investor-owned utilities to sell land, and partly to new statutes that reward stockholders when at least 25 percent of a property being sold is earmarked for open space or recreation. Statutory definitions, however, do not require that the open space be publicly accessible, so this provision rewards stockholders regardless of whether the land is used as a town park or a private golf course in an upscale development.

In addition, new provisions require the commissioner of public health to approve the sale of Class II lands whenever they are attached to Class III lands, provided there are development restrictions. These new provisions do not define what those restrictions must be, however. Other new provisions also make it easier for government agencies to permit the sale of other Class II land.

Finally, towns have no opportunity to comment on a decision to abandon a water supply. The time for public comment comes when water companies release updated water supply plans and announce they intend to abandon a particular water supply at some future date. The company supply plan, however, does not necessarily inform the public when or if plans to abandon the supply. The public rarely gets a chance to review the plans, even though there is a public comment procedure that allows for hearings.

All of these trends have accelerated land sales, but insufficient funding remains the single largest obstacle to watershed protection. The public's statutory rights of notice and rights to buy water company lands for "open space or recreational purposes" have little value given the scarcity of public funds available for that purpose. Thus, even if the statutory mechanisms were flawless, the public still would be severely hampered at the bargaining table.

The Making of a Publicly Owned Water Utility

In 1974, the New Haven Water Company caused a public furor when it tried to sell more than 60 percent of its 26,000 acres of land. Residents feared that they would lose key parcels of protected land to private development, resulting in both environmental and financial costs to 17 communities.

Recognizing the seriousness of the case, legislators put a temporary moratorium on all water company land sales and proposed public ownership of the water company. At the same time, the city of New Haven tried to buy the company, but the affected rural and suburban towns wanted regional rather than city control. The towns succeeded in 1977, when state lawmakers passed a bill creating the South Central Connecticut Regional Water Authority.

Today, SCCRWA has a two-pronged mission: protecting the water supply and managing watershed lands to meet the natural and recreational needs of both inner city and suburban residents. It is worth noting that even the acquisition of the water company did not ensure the permanent protection of all its lands, only greater public control over their disposition.

The Need for Further Source Protection

At the same time water companies are selling surplus lands, development is encroaching on other critical watershed lands that the companies do not own. These watersheds drain into drinking water supplies. In Connecticut, the seven largest water utilities own, on average, only 25 percent of their active reservoir watershed lands. While this number compares favorably with the national average, it is unlikely to provide sufficient protection in such a densely populated state as Connecticut. Water companies, like the public, fear that development in the watersheds will result in diminished water quality and higher treatment costs. "Subdivision of watershed land entails the clearing of forest, extensive blasting, and bulldozing of ledge and earth for construction of new roads, driveways, and houses," says Otto Schaefer, a senior land adviser for the South Central Connecticut Regional Authority. "Unquestionably, the long-term cumulative effect of such development is the degradation of our water supply quality."

Recent development trends have taken many water companies by surprise. Many properties now being developed are lands the companies did not acquire and protect because for many years they were considered too inhospitable to development. In today's market, however, building houses on steep, rocky ridges and other difficult terrain is commonplace. Consequently, developers now are using prime watershed land in ways that the companies never anticipated.

Several forward-looking water companies have recognized the need to purchase and protect more land within their active water supply watersheds, and are setting aside funds each year for that purpose. SCCRWA, for example, has identified as many as 8,000 acres of land that it would like to purchase or otherwise help protect from development.

Medical professionals and insurance companies agree that it is safer and more cost effective to prevent disease by maintaining good health than to rely on modern medicine's ability to treat it. The same can be said for protecting water supplies and watershed lands. As Paul Barten, associate professor of water resources at the Yale School of Forestry and Environmental Studies advises, "A watershed management approach that combines forest and wetland protection, ...and public outreach and education can arrest, then reverse, water quality degradation. Like successful preventive medicine programs, addressing root causes rather than treating symptoms holds the key to sustained good health for people and watershed systems."

Given that the legislature has already determined the need to consider regional water supply needs, it may be more timely and effective to inventory important unprotected watershed land on a comprehensive statewide basis, than to rely on each water company to evaluate its own watersheds. In New Hampshire, for example, the state's Department of Environmental Services recently contracted with the Society for the Protection of New Hampshire Forests to design a permanent protection program for the land surrounding state public water supplies. This effort is funded by the Environmental Protection Agency through Safe Drinking Water Act funds available to all states.

In his article for the *Journal of the American Water Works Association* entitled "Effective Watershed Management for Surface Water Supplies," Portland hydrologist Robbins maintains, "The most effective way to ensure the long-term protection of water supplies is through land ownership by the water supplier and its cooperative public jurisdiction." Because comprehensive land acquisition can be expensive in the short term, but provides a variety of long-term benefits, it is in the public interest to provide incentives for water companies, towns, state

agencies, and nonprofit groups to work together and augment each other's resources. The job is too big to be accomplished by any single entity, but a combined effort to protect these lands could ensure substantial source protection and other compatible public benefits, including recreation, tourism, wildlife habitat, and flood control. The challenge that remains is how to provide investment funds and incentives before watershed lands are developed and their benefits lost.

A Tale of Two Towns

With fewer federal and state funds available for land acquisition in Connecticut, open space protection has come to depend on the availability of local funding, not the significance of the property to the state as a whole. For example, in 1991 the state and town of Trumbull acquired a 500-acre parcel of land from BHC. Trumbull, a town of over 31,000 people, was able to commit \$4 million, and the state pledged more than \$5 million from then available state Recreation and Natural Heritage Trust funds.

In 1996, a very different situation occurred when BHC wanted to sell its 700-acre Trout Brook Valley property in Easton and Weston. Although Easton has only 6,000 residents, the town still considered spending as much as \$2 million for the land, and Weston was also willing to pledge funds. However, without supplemental state funding, the conservation offer was not competitive, and a private developer successfully bid nearly \$13 million for the land.

Responding to the Challenge

Connecticut can learn from other states and regions that have devised solutions when their valuable natural areas were in jeopardy. For example, the Cape Cod Commission, established in 1990, created a regional plan to sustain the rising tide of development. In November 1996, Cape Cod voters agreed to create a land bank to buy undeveloped parcels. This fund will be created through a tax on the sale of real estate and, once approved, is expected to raise at least \$5 million annually. All over the Northeast, the public has stepped in with funding at critical junctures to protect irreplaceable watershed lands and natural areas, including the Kirkwood-Cohansey Aquifer in the New Jersey Pine Barrens; Nash Stream in New Hampshire; the Quabbin Reservoir in Massachusetts; and Sterling Forest in New York.

EXISTING RESOURCES FOR WATERSHED PROTECTION

Unlike many other states, Connecticut has no land acquisition programs specifically for watershed protection. Towns typically have relied on federal and state open space funding to help them acquire water company lands, but these funds have declined precipitously over the last several decades (see sidebar above). From 1996 to the mid-1980s, municipalities and the state received annual grants from the federal Land and Water Conservation Fund. The fund cut back drastically in the 1980s and 1990s, and new allocations to the states dried up completely last year.

In 1986, Connecticut established the Recreational and Natural Heritage Trust Program (RNHTP) to finance state purchases of land for recreation and open space. Through mid-1997, the program had spent approximately \$57 million for land protection. The program has an additional \$9.5 million authorized for bonding, but these funds have not been expended due to cutbacks in bonding approvals. In 1996, less than \$1 million were released for land protection under this program.

Connecticut spends less on open space than most other states in the Northeast. In recent years, New Jersey has spent an average of \$2.82 per person on land conservation annually; New York has spent about \$1.83 per person; Vermont has spent about \$5.13 per person; and Massachusetts has spent about \$7.09 per person. Open space funding in these states is stable, or increasing. Conversely, the Connecticut Bond Commission has approved less than \$3.39 million for the RNHTP since 1996, an average of only 41 cents per person per year. Most of those funds were approved in 1997, perhaps indicating a new commitment to open space funding. Even so, Connecticut still trails every other New England state except Rhode Island in per capita open space.

The states that invest in resource protection clearly enjoy public support for their efforts. In a 1996 Trust for Public Land poll of New York State voters, 96 percent of responders said that it is important to improve and ensure the quality of public drinking water. That same year, New York voters passed a \$1.75 billion

Clean Air/Clean Water Act. In 1996 Americans spent nearly \$3 million on bottled water and an additional \$1.4 billion on home filtration systems--further evidence that the public is willing to pay for clean water.

According to a 1997 survey by the Quinnipiac College Polling Institute, nearly 70 percent of Connecticut residents regard greenery and open space as important factors in the quality of their lives, and 66 percent would spend money to protect them. In some towns this support is translating into money. In 1996 voters in South Windsor passed an open space bond measure by a 2 to 1 margin, and Farmington residents voted 3 to 1 to buy surplus water company land. In 1997 Shelton voters approved a \$7 million open space bond measure by an 8 to 1 margin.

The Connecticut Constitution, however, does not authorize voters to enact laws or approve bond issues in statewide referenda. Authorization for open space is decided as part of the regular budgetary process and requires approval from the State Bonding Commission for each project. Therefore, each land-protection project can trigger a highly competitive, mini-budgeting process for limited bond funds. The state routinely gives higher priority to capital projects for immediate needs, such as road construction and repair.

Most successful state land protection programs rely on multiple funding sources for their conservation programs. Bonding for state land acquisition is almost always an important part of the funding solution. In an era of limited federal funding and state bonding limits, however, many states are also looking beyond bonds to find innovative ways to raise conservation funds for initiatives such as state grants and special projects. The most widely used mechanisms include utility surcharges, real estate conveyance taxes, lotteries, and tax credit systems. An essential feature of dedicated funding sources like these is that they can provide a predictable and consistent flow of funding year after year.

Recommendations

In light of these findings, and the urgent need to protect Connecticut's most pristine land and water for future generations, the Trust for Public Land makes three recommendations:

1) Connecticut should increase funding for its existing state open space programs, but it should also establish a program specifically to conserve lands already owned by water companies and unprotected land in drinking watersheds. To encourage broad participation and leverage this funding, the water quality protection program should provide competitive matching grants to qualifying public and private conservation projects. As a condition of every grant, all lands acquired through the program should be permanently protected through conservation easements or restrictions held by the Department of Environmental Protection or a nonprofit land conservation organization, such as a land trust or watershed association. This protection would ensure that lands acquired through the program, whether held by a water company as a corporate asset, by a town for public recreation, or by a land trust for habitat protection, could never be developed in a way that compromises water quality.

Competitive matching grant programs have worked well in Connecticut and other states. In this new program, matching contributions could be set according to the relative priority of the specific parcel within broad program goals. For example, an acquisition project could be eligible for matching funding provided that it protect one of the following: a) land located within a drinking water supply watershed; b) surplus or abandoned water company land; c) land directly affecting water quality, such as headwaters and buffers along river banks and lake shores; or d) urban open space, especially waterfront parcels, wetlands, or river greenways. Grant administrators could develop more specific criteria, and should have the discretion to allocate matching funds to worthy projects in any of the eligible categories.

To leverage state funds, the average grant could cover 20 to 50 percent of a project cost, with up to 100 percent available for eligible projects in economically distressed areas. In addition, to ensure proper land maintenance over time, administrators could devote a small percentage of the grant awards to matching stewardship endowments.

As with some grant programs in Connecticut and other states, this program could be managed by a private nonprofit organization or an independent volunteer board to avoid adding to state agency responsibilities. New Hampshire's state legislature created a model when it established the highly successful Land Conservation Investment Program (LCIP) to address the state's urgent need to protect open space, including watershed lands. While LCIP acquisitions were purchased with public funds, all of the program's administrative costs were raised by LCIP's partner nonprofit organization, the Trust for New Hampshire Lands. The legislation that set up the program

included a “sunset provision” that limited the life of the program to five years. The program protected more than 100,000 acres during that time.

In Connecticut, the administering group or its partner’s responsibilities could include fundraising for administrative costs, establishing priority criteria, evaluating applications, administering program funds, and reporting to the public on the program’s progress.

2) The state should establish a funding source dedicated to a matching grant program. In light of growing development pressures across the state, it is imperative that the state create a dedicated funding source without delay. There are many ways that states have chosen to provide such dedicated funding. Figure 6 shows a sample of several non-binding alternatives that could be used in combination with a bonding program, or with each other. For example, the state of Rhode Island has established a small assessment on water bills to fund their watershed protection program. If Connecticut were to choose this option, and charge a modest one cent per 100 gallon assessment on water bills around the state, it could generate more than \$7 million, while costing the average person about \$2.70 per year. Other options include real estate transfer taxes, lotteries, bottled water sales taxes, tax credits, and dedicated percentages of state surpluses. Whatever the source, a predictable source of funding for matching grants could leverage millions of additional public and private conservation dollars for land conservation and water quality protection.

To ensure an equitable distribution of program benefits, program funds should be available for open space protection in urban areas. Water company lands are located disproportionately in suburban and rural areas, while ratepayers mainly reside in urban areas. Ratepayers pay for the upkeep of these lands through their rates, but residents living near watershed lands enjoy the many other benefits the lands provide. Urban open space projects should therefore be eligible for state funds, especially projects along urban waterfronts and rivers.

3) Connecticut should encourage public participation in watershed policy. Currently, state residents have little or no opportunity to participate in decisions about watershed protection, one of the most critical issues affecting the state’s land and water, as well as public health. Members of the public should have the right to be involved in all aspects of water company land sales early in the process so they can participate more meaningfully and effectively. The abandonment process, in particular, should require advance public notice. This would allow for community input into the decision-making process, and ideally result in policies that more fully consider the regional and statewide implications of both water company land sales and development within drinking water supply watersheds.

Sustaining high-quality land and water resources ensures the public that clean drinking water and a healthy natural environment will be Connecticut’s permanent legacy. With so much at stake, public investment and participation is essential to preserve Connecticut’s most valuable natural resources: open land and clean water.

FIGURE 6

SAMPLE FUNDING MECHANISMS FOR LAND PROTECTION

Funding mechanism/ precedents for use	Description	Advantages	Disadvantages
<p>Water consumption surcharge Rhode Island assesses a surcharge of water bills for watershed protection. Connecticut has, in the past, used a broad-based utility surcharge to fund state economic development efforts.</p>	<p>Similar to other utility and resource usage surcharges; the State of Rhode Island places a 1 cent/100 gallon surcharge on water consumption, but exempts the elderly and farmers. A comparable water surcharge in Connecticut could raise more than \$7 million per year.</p>	<p>Makes a direct link between water users and water quality; water consumers would benefit from use of the funds to protect water quality. A very small surcharge over a broad base of water customers can raise substantial revenues. A system of collection already exists.</p>	<p>Some water utilities are reluctant to add a cost to their water rates. Though roughly 84% of Connecticut households use public drinking water, not everyone would pay.</p>
<p>Dedicated real estate conveyance tax Maryland's 0.5% tax on real estate sales has funded protection of 180,000 acres since 1965. The states of North Carolina and Vermont, and local communities like Nantucket, Massachusetts, and Vail, Colorado, use dedicated state conveyance taxes for open space protection.</p>	<p>A small percentage of a real estate purchase price is paid by real estate buyers as a conveyance tax. A dedicated 0.1% tax in Connecticut could raise \$8.5 million annually based on 1994 figures. In some states, the proceeds are used by the state only; in others, a portion is distributed to towns or other grant applicants.</p>	<p>This broad-based approach creates a link between land use and land protection. As the real estate market grows, revenues available for land protection increase. This takes the tax burden off of current residents, potentially reducing its impact on those less able to pay, like the elderly. A system of collection already exists.</p>	<p>Revenues raised correlate directly with the real estate market. The ideal time to purchase land for protection is when the market is slow and land is less expensive; however, that is the exact time when fund availability will be less. Connecticut already imposes a 0.61% conveyance tax which goes to municipal and state general funds</p>
<p>Lotteries Colorado's "Great Outdoors Legacy Trust Fund" provides matching grants funded by lottery proceeds, and last year Maine added a wildlife lottery game that generated \$2 million.</p>	<p>A portion of the proceeds from the state lottery can be set aside for land protection, or a new game can be created. A 4% set-aside of this year's projected lottery revenues in Connecticut could raise \$10 million.</p>	<p>The Connecticut Lottery is estimated to generate \$246 million in FY 1997/1998, all of which currently goes to the general fund. Does not require re-payment of principal with interest.</p>	<p>It can be difficult politically to achieve a set-aside of funds, which are already relied on to pay for state government programs and services. Also, some people have a general opposition to gambling and the revenues it raises.</p>
<p>State income tax credits North Carolina and Maryland already use tax credits for private donations of conservation land. California is currently considering a state income tax credit for conservation.</p>	<p>A non-cash incentive for donations in the form of state or local tax relief on the value of a donated parcel of land, or rights to the land. The deduction comes off the donor's state, county, or local tax bill.</p>	<p>Can provide a strong incentive for landowners to make donations, thereby reducing the amount of funding needed to buy land or interests in land protection.</p>	<p>Attractive mostly to wealthier individuals or companies, as not all landowners may benefit from a tax credit. Though relatively small, the lost revenue must be made up elsewhere in the state budget.</p>
<p>Percentage of state surplus In 1996, North Carolina enacted the Clean Water Management Trust Fund, dedicating 6.5% of each year's state surplus for land protection and water cleanup. Estimates put this year's allocation between \$37 and \$46 million.</p>	<p>A recurring, non-lapsing fund generated from a dedicated percentage of the unreserved credit balance remaining in the General Fund at the end of each fiscal year. Funds are given as grants to the state, local governments, or nonprofits.</p>	<p>Recurring source of significant grant funding for water quality protection and public access provision. Matching requirement for grants leverages the fund.</p>	<p>Funding will only be allocated in surplus years, when land is likely to cost the most. Amount of allocation from year to year is difficult to predict, especially longer than 2-3 years out.</p>

Glossary

abandonment: The act of removing a water source from the public drinking water supply. Abandonment requires a permit from the state Department of Public Health. A water source can be inactive but not abandoned.

aquifer: An underground layer of rock or earth containing enough water to supply a well. Water in an aquifer is known as ground water.

Class I land: A legal definition of those lands owned by a water company that are within 250 feet of a reservoir used for public drinking water supply, within 100 feet of its tributary, or within 200 feet of a public water supply well.

Class II land: A legal definition of lands that are within the public drinking water supply watershed but not included in Class I land, or completely off the drinking water supply watershed but within 150 feet of a storage reservoir and the tributaries which directly enter it.

Class III land: A legal definition of lands that are off the water supply watershed and beyond 150 feet of a storage reservoir and the tributaries which directly enter it.

conservation easement: A legal agreement that restricts the type and amount of development allowed on a given parcel of land. A conservation easement is conveyed by a deed that is filed on the public land record, and is usually held in perpetuity by a conservation organization, town, or government agency.

Department of Environmental Protection (DEP): The state agency responsible for protecting the environment, including the air, surface water, ground water, wetlands, state parks, and state forests. It also is responsible for implementing laws enacted to protect the environment.

Department of Public Health (DPH): The state agency responsible for implementing state and federal laws designed to protect public health, including permits for sale, change of watershed land use, or abandonment of public drinking water supply sources.

Department of Public Utility Control (DPUC): The state agency responsible for ensuring reliable delivery and reasonable cost of water, and the fairness of public rates.

ground water: Water in a saturated layer beneath the surface of the ground.

nonpoint source pollution: Pollution that is not generated from a single source, but from a number of sources that are spread out and difficult to identify and control.

Office of Policy and Management (OPM): Agency responsible for preparing the State Plan of Conservation and Development. OPM must be consulted on matters of water company permitting, as well as on water supply plans.

public drinking water supply: Sources of water approved by the Department of Environmental Protection and Department of Public Health for public drinking water.

Safe Drinking Water Act: Enacted by Congress in 1974 and amended in 1986 and 1996, this law established standards for all water companies for monitoring and reporting on the purity of the public drinking water supply.

surface water: Water above the surface of the ground, including but not limited to lakes, ponds, streams, rivers, springs, artificial impoundments, and wetlands.

watershed: The land area that drains into a specific body of water. The legal definition of “watershed land” in Connecticut is land from which water drains into a public drinking water supply.

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