

CHAPTER 2

COMMUNITY FACILITIES AND SERVICES

The Town of Athol provides many services for residents, businesses, and property owners including the distribution of clean drinking water, the disposal and treatment of wastewater and hazardous wastes, fire protection and emergency services, highway maintenance, and recreational services. While Athol residents pay for most of these services through their property taxes, water and sewer services are supported directly through revenues from those service connections. Currently, businesses and residents individually contract with local haulers to provide solid waste services.

Athol's community facilities and services allow the development of a compact and traditional town center, while providing protection to the Town's abundant natural resources and open space areas. In particular, the centralized water and sewer infrastructure protects the Town's important assets found in its streams, ponds, wetlands, aquifers, rivers, rolling hills, steep ridges, forests, and remnant farmlands and meadows. Centralized water and sewer supplies allow residences and businesses to share the expense of providing and maintaining those services, thereby reducing development costs and encouraging growth in those parts of town serviced by the system. An important link exists between the availability of water and sewer and control of development. The availability of these services spurs residential construction in areas where it is obtainable. Community facilities and services influence land use patterns, property tax rates, and the quality of life for all residents.

This chapter addresses four major community services: public drinking water supplies, waste disposal of both solid and hazardous waste, wastewater treatment, and recreational facilities and services. Each of these services is described in a separate section that includes goals and objectives, current conditions, and issues.

Public Water Supplies

The Town of Athol provides drinking water through the Department of Public Works (DPW) – Water Division to residents and businesses in the central core of Athol. Outlying areas are served by private, individual wells. At this time, the public water supply in Athol, with three new wells, exceeds current demand. However, a distribution system of aging water mains from the turn-of-the-19th century needs leak detection and upgrading to prevent water losses, to provide adequate pressure for fire hydrant flows, and to provide possible new industries with sufficient supplies. It is important that Town Officials continue to consider ways to maintain the quality and quantity of drinking water.

In the spring of 2000, the Town conducted a survey to update the Open Space and Recreation Plan. Eighty-three percent (83%) of survey respondents identified the protection of open

space for conservation and water supply needs as an important issue to be addressed. The following section includes goals and objectives, a description of the community water supply in Athol, its source, storage, distribution, treatment, revenue source, and protection, and a discussion of water supply issues.

Goal:

- To safeguard both the quality and quantity of public and private drinking water supplies.

Objectives:

- Plan for the future by identifying potential water quality and supply problems with related solutions.
- Establish a growth boundary for the water mains to be consistent with areas where future development, which is ecologically sustainable, is being encouraged.
- Manage the DEP Approved Zone II Wellhead Recharge Areas by managing existing land use regulations, by employing appropriate Best Management Practices, and by educating homeowners and businesses in ways to protect ground water supplies and resources.
- Encourage the adoption of best management practices in all Town departments, especially for the use of road salt by State and Town highway departments.
- Identify the general locations of private wells to prevent contamination from road salt, herbicides, and other contaminants by limiting applications near those locations.
- Support the Board of Health's strict adherence to Title 5 requirements and consider the use of alternative septic systems which provide additional wastewater treatment if needed to protect ground water supplies.

The Community Public Drinking Water Supply

Athol residents get their drinking water from private wells and a community public water supply. As was described in the Natural Resources and Open Space chapter, public water supplies are classified as either community or non-community sources. Community sources supply water to a public distribution system like the Athol DPW - Water Division. A non-community public water source is one that serves twenty-five (25) or more persons, such as a school, factory, campsite, or restaurant and is not part of a public distribution system. This could be a water source for a camp like the Morgan Memorial Fresh Air Camp where people are drinking from the same source of water day after day.

This discussion of the community drinking water supply will focus on the Town's sources, the water distribution system, the wells' delineated recharge areas, the fee structure, and current demand. It will also introduce issues that relate to conserving both the quality and quantity of the drinking water source.

The Drinking Water Supply Source and Storage

The Athol Water Department was consolidated with five other Town departments in 1958 to become the Department of Public Works (DPW). The DPW – Water Division is responsible for maintenance and care of not only the drinking water source but the storage and distribution system as well. Currently, the Town of Athol's DPW is rated a medium-sized community public water supplier by the Massachusetts Department of Environmental Protection (DEP), with two well sources located within the core of Athol.

Athol's wells are now within the Town center, but over a century ago, the water sources were located in the Town's highlands, away from industrial development and the Millers River. In 1879, the Town constructed the Phillipston Reservoir (*see the Water Resources and Wildlife Habitat Map*), located in the eastern section of Town and now situated between Routes 2 and 2A. The water was gravity fed through a ten-inch (10") diameter transmission main approximately eleven thousand, four hundred feet (11,400') in length. In 1902, another gravity fed reservoir was constructed near South Royalston Road. The Newton Reservoir utilized a main approximately twenty thousand, four hundred feet (20,400') in length, ranging in size from sixteen inches (16") to eight inches (8") in diameter. Later, during the early 1900s, the Thousand Acre Reservoir was connected to the Newton Reservoir to supplement the Town's supply through a twelve-inch (12") diameter main approximately nine thousand feet (9,140') in length. At the same time, a slow sand filtration plant was constructed on Summer Street to treat the highly colored water from the Thousand Acre Reservoir. However, because of the water's undesirable color, this last source has been inactive for approximately fifty years.

In 1938, a water treatment facility was constructed on Hillside Terrace to treat the surface waters from the Newton and Phillipston Reservoirs. That equipment remained in use for over sixty years. The plant contained a dual chamber mixing basin, two sedimentation basins, and three rapid sand filters. The raw water was treated with lime, alum and sodium hypochlorite. Then the treated water flowed into the two sedimentation basins and into three sandbed filters. After chemical treatment, settling, and filtration, the water flowed into a clearwell and then was pumped into storage tanks.

As the Town's population gradually expanded, summer months brought water shortages. Beginning with a water supply and distribution report by Tighe & Bond in 1959, the Town identified a supply problem and began working to improve the quantity and quality of public water. The surface supply system suffered from severe depletion during the dry summer months because the Phillipston Reservoir would drop to a point where it could no longer furnish water to the public system. Water was pumped from Lake Ellis to supplement the supply, but it was not a satisfactory source because the recreation area contained a school, a park, and camps, which contributed to pollution through septic systems. The water report identified two abundant sources for in-ground wells within the Town's core, a location west of Jones Street near the Millers River (South Street Well) and a site near Pequoig Avenue along the Tully River (the most recently developed Tully Well Field). The South Street Well was installed in 1961 because the Town could more easily acquire the land. This source was an eighteen-inch (18") diameter pipe, gravel-packed production well installed to a depth of ninety-eight feet (98') below grade. It quickly became a source for twenty percent (20%) of

the Town's water, with the other eighty percent (80%) supplied by the reservoirs. After the well was installed, the Lake Ellis pumping facilities were no longer used though they were still operable.

According to the Town's Master Plan in 1964, the South Street Well had a pumping capacity rated at over two million gallons per day (2 MGD). The South Street Well is only used as an emergency supply because after protracted pumping, its water can become contaminated with phenol, a volatile organic compound (VOC), from a gas manufacturing plant formerly located nearby whose wastes were dumped onto the nearby low-lying lands. The impurities imparted an unpleasant taste and odor, as well as rendering it useless for industrial processes.

In 1986, amendments to the Safe Drinking Water Act set Maximum Contaminant Levels (MCLs) for VOCs including benzene, toluene and xylene. These contaminants were detected in the South Street Well resulting in its closure. VOCs can occur in water supplies as a result of the chemicals' use as industrial solvents, soil fumigants, and as additives in gasoline. According to Hawley's Condensed Chemical Dictionary (1993), all three chemicals are considered to be toxic by ingestion and benzene is also known to be a carcinogen. A groundwater contamination study conducted at that time found that a thick layer of fine, stratified sand and silt restricted the vertical flow of groundwater and formed a semi-confining unit. This caused the South Street Well to draw water from the lower levels of the aquifer, resulting in the in-migration of the contaminant plume. With this well off-line, the Lake Ellis water body was again utilized as an emergency source. Subsequently, a three-vessel, granular activated carbon (GAC) adsorption pressure, contact system, treatment facility was constructed at the South Street Well to remove the VOCs. Each vessel was loaded with twenty thousand (20,000) pounds of GAC media. With treatment now in place and closely monitored for contaminant levels, the reactivated South Street Well became a primary water source in combination with the reservoirs. The treatment plant built to remove VOC's has a capacity of 750 gallons per minute which translates to 1.08 million gallons per day. This is roughly half of the original capacity of the South Street Well.

Other elements of the Town's aging water supply system encountered difficulties as the years progressed. During the construction of the Route 2 bypass in the 1950s, the water level of the nearby Phillipston Reservoir watershed was severely impacted when the flow of its feeder streams and underground springs was reduced due to heavy blasting for rock excavation. The resultant heavy siltation may also have been the cause of lowered capacity in the water main to the filtration plant. In addition, the flow of water from the Newton Reservoir dropped noticeably as the old cast iron main, constructed in 1902, lost capacity from rust. Finally, the Hillside Terrace Water Treatment Plant, constructed in 1938 for the surface water reservoirs, was unable to meet new, more stringent state and federal regulations.

In the early 1990s, the Town was placed under a Consent Order with the DEP to upgrade the treatment facility for the surface water reservoirs or to develop alternative water supply sources. In 1995, the engineering firm Tata & Howard, Inc. developed the comprehensive Report on Water Supply and Distribution System for Athol. The report evaluated the Town's water distribution and supply options through the design year 2020 and found the existing supply to be inadequate for even moderate population expansion over the next twenty-five

years. Recommendations included the development of either a well at Third Island on Lake Ellis, a well at the previously mentioned site near the Tully River, or a new surface water treatment plant. Weighing all of the options, the development of the Tully River Well was the most economical in terms of cost per million gallons of water.

In 2000, the Town installed three new wells at that site for a new primary community drinking water supply source. Known as the Tully Well Field, the three individual wells are located along the Tully River, off of Pequog Avenue in the protected Cass Meadow Conservation Area (*see the Community Facilities and Services Map*). The southern end of the well field is approximately one hundred (100) yards north of the confluence with the Millers River. The wells are installed to an approximate depth of between sixty-five and seventy feet (65'-70') below grade and are equipped with vertical turbine submersible pumps rated at one hundred to one hundred fifty horse power (100-150 h.p.). Each well has different pumping capabilities. Overall, the Tully Well field has a safe yield of approximately three million gallons per day (3 MGD) according to Dana Cooley of the Athol DPW Water Division.

In April of 2000, the Hillside Terrace Treatment Plant was removed from service, as the Tully Wells were placed on-line. With this new water source, the South Street Well became the backup and emergency source for the Town. The reservoirs were taken off-line and their outflow pipes severed. The DEP has established an approved pumping rate for the Town's public water supply, because the average withdrawal rate is more than one hundred thousand (100,000) gallons per day. The registered withdrawal rate for these combined four wells is one million and forty thousand gallons per day (1.04 MGD), which is equivalent to seven hundred and twenty-two gallons per minute (722 gpm), twenty-four hours per day. The DPW - Water Division currently pumps the four wells on an as-needed basis with average annual daily withdrawal of approximately eight hundred and forty-six thousand (846,193) gallons per day.

Three storage tanks, used to generate water pressure and to collectively store three million gallons of water, are located above ground on high elevation points of the distribution system. The main storage facility is located on Hillside Terrace and supplies water to the low service area with a two million (2,000,000) gallon tank. This storage tank and a booster pump is located in back of the old water treatment plant. The High Knob Tank, sited on Pleasant Street, stores seven hundred and fifty thousand (750,000) gallons and supplies the high service area. The Garfield Road storage tank is the smallest of the three at two hundred and fifty thousand (250,000) gallons and supplements storage for the high service area.

Drinking water supplies are measured in terms of the safe yield and the registered withdrawal rate, though the latter is only used when a community water supplier withdraws, on an annual average basis, at least one hundred thousand gallons per day (100,000 GPD). The safe yield is the amount of the water that could be withdrawn from a well every day of the year without decreasing its capacity to supply the amount of water in the future. The safe yield does not necessarily take into account the impact of draw down on local wetlands or the risk of contamination within the recharge area.

The Massachusetts DEP, Bureau of Resource Protection – Drinking Water Program, requires Community Public Water Systems to submit a Public Water Supply Annual Statistical Report. In 2000, the Athol Water Division reported water consumption for each month of the year. During the month of March, the average daily use climbed to over eight hundred and ninety-eight thousand (898,189) gallons per day. The maximum daily consumption reported was on December 18, 2000, with one million, one hundred and five thousand (1,105,000) gallons per day. This was an unusual occurrence and may have been the result of a fire or another emergency event. However, the average annual daily use was just over eight hundred forty-six thousand (846,193) gallons per day (*see Table 2-1*). Based on these figures and the DEP’s authorized withdrawal rate of one million forty thousand gallons per day (1.04 MGD), the Town currently uses approximately eighty-one percent (81.3%) of its authorized withdrawal volume on an average daily basis. For now, Athol has an ample water supply. However, if the Town wishes to encourage new industrial development, which uses water in its processing, it may need to request a permit from the DEP for an increase to its authorized withdrawal volume.

Table 2-1: Data for the Public Water Supply in Athol, 2000

Public Water Supply Name	Athol DPW – Water Division
Service Type	Public Distribution
Summer Population	9,300
Winter Population	9,300
Source(s) Status	Active
Authorized Withdrawal	1.04 million gallons per day
Average Daily Withdrawal	0.85 million gallons per day
Maximum Daily Use (12/18/00)	1.105 million gallons per day
Maximum Average Monthly Daily Use (occurred in March)	0.90 million gallons per day
Safe Yield	Approximately 3 million gallons per day
# Service Connections	3,227
Storage Capacity	3 million gallons
Emergency Response Plan	Yes

Sources: Massachusetts Department of Environmental Protection, 2001; Athol Department of Public Works-Water Division.

Distribution and Treatment

The Town’s water distribution system is divided into high and low service areas containing approximately fifty (50) miles of water mains ranging in diameter from six to sixteen inches (6”-16”), and in ages from the late 1800s to the 1980s. Smaller mains, four inches (4”) in diameter and less, exist in the distribution system and generally act as service connections. The low service area represents approximately seventy percent (70%) of the distribution system and contains downtown Athol while the remaining thirty percent (30%) is in the high service area and includes neighborhoods just north of Lake Ellis. The system serves approximately ninety-three hundred (9,300) customers in Town and approximately sixty (60) customers in the Town of Orange. Customers from Orange are serviced through a single eight-inch (8”) diameter main on Tully Road located off of Pinedale Road.

The Town is separated into two distribution service areas because the Town's high elevation area would create too much water pressure in the low-lying district. The uptown section of Town is referred to as the high service area and the downtown is the low service area. The distribution system is comprised of the three individual wells in the Tully Well Field, which manifold into one sixteen-inch (16") transmission pipeline on Pequig Avenue. This main enters the DPW in-line treatment facility on Unity Avenue where chemicals are injected directly into the pipe as water flows through it. Because no dedicated feeder lines are utilized, water then enters the distribution system to supply residences and businesses while filling the two million (2,000,000) gallon storage tank located on Hillside Terrace (*see the Community Facilities and Services Map*). Adjacent to the tank, the Booster Pump Station distributes water throughout the high service area while simultaneously filling the higher-elevation Garfield and Pleasant Street storage tanks.

An important component of the distribution system, are the pipes through which the water travels. Most of the mains between the Tully Wells and the Hillside Terrace tank are twelve to sixteen inches in diameter (12"-16" dia.). The final two thousand feet (2,058') of twelve-inch diameter (12" dia.) pipe along Green Street to the main tank were augmented with a sixteen-inch (16") main as an amendment to the Tully contract, because that area has traditionally been a difficult-to-maintain section across a ravine. While the new wells and the Hillside Terrace tank are adequately connected with new mains, the pipes supplying water to the high service areas are a mix of twelve, eight, and six-inch (12", 8", and 6") pipes. Smaller four to one-inch (4"-1") diameter mains connect to individual homes and businesses. These more narrow pipes, when outdated, tend to constrict water flow and are not able to deliver a sufficient water supply in times of emergency. Many of the cast iron water mains in Athol are in fact over one hundred years old. According to Tata & Howard's 1995 Report on Water Supply and Distribution, a number of smaller pipelines need to be replaced in order to insure an adequate flow for fire protection to all businesses and residences. Several recent fire flow tests conducted by the DPW in Town verify this assessment. Until the sections of outdated narrow pipe are identified and replaced with larger mains, future private investment in Athol's local economic infrastructure may be curtailed due to the fire protection limits related to low flow. A study identifying the most important mains in need of replacement is addressed in the Capital Improvement Program section of the Master Plan.

The treatment systems at both the Tully Well field and the South Street Well use Sodium Hypochlorite for disinfection, Sodium Hydroxide for pH adjustment, Orthophosphate for corrosion control, and Sodium Fluoride for dental fluoridation. In addition, the South Street Well has a Water Treatment Plant, which uses granulated activated carbon filters to remove the VOCs. Both treatment systems are activated when the well pumps start.

An emergency water plan has been submitted to the Massachusetts DEP. The three storage tanks hold approximately a three-day supply of water. In the event of a power failure, the DPW currently alerts the fire department so its tankers can be used for emergency short-term backup of water supplies. The DPW has recently put out a request for bids to supply an auxiliary diesel-powered, trailer-mounted power generator for the South Street Well pump. The DPW-Water Division expects that South Street Water Treatment Plant will be able to handle most contaminants that would show up in the groundwater. Therefore, the South

Street Well is considered to be the emergency source if the Tully Well Field were to be compromised.

In addition to the water supply improvements, the Town received a technological upgrade. The entire water distribution system is computer operated from a workstation located in the DPW facility on Unity Avenue. All the pumps, storage tanks, buildings, and pressure gauges are monitored by the computer and linked to an alarm system to notify the plant operators by pager if significant changes occur. Labor man-hours in the DPW-Water Division have been reduced but the new systems are more complex, requiring more technical training time.

Fee Structure

Athol presently collects revenues from metered water charges and connection fees. The price per gallon for water is determined by the Water Department budget and the total amount of annual water usage. The current charge is \$2.20 per 100 cubic feet of water. Athol's water budget for operations and maintenance is approximately \$550,000 per year. The money is borrowed from taxes in a revolving account and then recouped through revenues. Any improvements to water mains have been funded through grant monies. In addition, Athol has received nearly three million dollars (\$2,923,829) in loans for infrastructure replacement with the new Tully Well field installation and repairs to the Hillside Terrace and Pleasant Street storage tanks. Funds were borrowed from the Drinking Water State Revolving Fund and private sector sources.

Conservation Actions to Sustain Drinking Water Quality and Quantity

The Town has taken precise steps to safeguard the quality of drinking water pumped from the South Street Well and the Tully Well Field, including the delineation of their Zone II Recharge Areas (*see the Community Facilities and Services Map for the locations of Athol's Zone II and Zone III Recharge Areas*). Delineating Zone II Areas is necessary before land uses can be properly assessed to determine whether they might contribute to the contamination of the ground water, the aquifer, or the well. Water testing and bylaw adoption are other ways in which the Town is working to protect the quality and quantity of its water supply.

The United States Environmental Protection Agency (EPA) lists a five-part process for wellhead protection including, forming a community group, mapping water protection areas, identifying potential contamination sources, managing the protection area, and planning for the future. Identification of water protection areas should include overlay maps of watersheds, aquifers and their recharge areas; wellhead zones of influence and contribution; direction of ground water flow, soil, geology; FEMA floodplain maps; and all wetlands, streams, lakes and ponds from which wells may induce recharge.

The EPA-designated zones of protection comprise several levels of safety. The Zone I designation is a four hundred foot (400') radius around the wellhead for primary resource protection. Because any breach within this first zone of defense could directly and immediately impact water quality, acquisition or control of land in this zone is imperative for

protection. The Interim Wellhead Protection Area reaches to a radius of one-half mile and is intended to be a temporary designation until a Zone II protection area can be established by a pump test. The Zone II designation extends to the area drawn upon if no rain falls for 180 days. Zone II areas supply recharge water to the public supply well under the most severe pumping and recharge conditions that can be realistically anticipated. Local regulation of land use activity in this area is critical to maintain potable water supplies. Contaminants that percolate down through the unsaturated zone to the aquifer have the potential to move with the ground water flow and pollute a public supply well. Unlike the mixing and dilution that occurs between pollutants and the water in surface water bodies such as lakes and streams, pollutants in the ground water often remain concentrated in a contaminant plume. The area of land that contributes surface and groundwater to a Zone II area is called a Zone III area.

The Safe Drinking Water Act of 1974 designated the Environmental Protection Agency as the federal authority for implementation of this new law. In Massachusetts, authority was delegated to the DEP to govern the oversight of public water supplies in the state. Because the double protection of federal and state-mandated restrictions is in place, municipal public water supply systems are closely regulated and monitored for quality.

The Massachusetts DEP has approved the Conceptual Zone II Delineation for the Tully Well Field and the South Street Well. The engineering firm Tata & Howard prepared the Conceptual Zone II Delineation for the Tully Well field, as part of the Source Water Assessment Program (SWAP) before drilling the new wells, as was described in the Natural Resources and Open Space chapter. The delineated Zone II Recharge Area for the Tully Well field occupies an area in Athol between North Orange Road and Sportsman's Pond and is contained within the South Street Well delineation. Tighe & Bond completed the Conceptual Zone II Delineation for the South Street Well in January of 1999. The Zone II Recharge Area for the South Street Well occupies an estimated one point six (1.6) square miles in Town between Ice Company Brook, Mill Brook, and Sportsman's Pond and includes the delineation for the Tully Well Field. The Zone II Recharge Areas are shown on the Community Facilities and Services Map. The Zone II Areas are currently zoned for industrial, commercial, and residential uses. According to the 1997 Mass GIS land use coverage, these as well as mining, transportation, and cropland uses dominate the areas. The Millers River east and upstream of the Town center, Route 2A, and the railroad tracks are also located within the Zone II Recharge Areas.

The Zone III boundaries for both Conceptual Zone II delineations encompass much of the Millers River Basin, extending into Orange, Warwick, Royalston, Phillipston, Templeton, Hubbardston, Westminster, Gardner, Ashburnham and Winchendon, as well as north into New Hampshire. Because the area was so extensive, the engineering firms were not required by DEP to delineate exact boundaries. However, a senior hydrogeologist at Tighe & Bond has identified the Zone III outline, which can be seen on the Water Resources and Wildlife Habitat Map presented in Chapter 1, Natural Resources and Open Space. The closest portions of Zone III include the bedrock/till upland areas that drain surface water and groundwater into Zone II.

Groundwater Protection District Bylaw

In 2000, the Town amended its Zoning Bylaws to include an Overlay Groundwater Protection District that provides use restrictions and hazardous waste regulations for the purpose of protecting the aquifer from contamination. The boundaries of the Groundwater Protection District are described as the delineated Zone II Recharge Areas for the Tully Well field and the South Street Well. The Groundwater Protection District Bylaw applies standards and language similar to many other watershed and aquifer protection bylaws adopted by communities in Massachusetts. The overlay district applies to all new construction, reconstruction or expansion of existing buildings and new or expanded uses. However, it does not regulate already existing buildings or uses. Many uses like gas stations that clearly use, store, and dispose of hazardous materials are already well monitored and regulated. Other businesses or industries that use materials, which may not seem to be hazardous, like printing shops or beauty parlors, may be less regulated. Residents can also inadvertently, yet adversely, impact the aquifer by accidentally disposing of hazardous materials onto the ground like pesticides, gasoline, motor oil, etc. Because the Tully Well field and South Street Well are in Athol's inner core near industrial, commercial and residential areas, the Town might consider educational programs and environmentally sensitive Best Management Practices for existing uses, to protect the quality of the drinking water.

Health Regulations to Control Toxic and Hazardous Materials

The Board of Health also adopted regulations last year to prohibit the release of hazardous materials that might impact the ground water aquifer. Industrial or commercial floor drains are not allowed to release chemicals and the discharge of toxic materials to water or land is forbidden. The storage of hazardous materials must also be controlled and inventoried.

Water Quality Testing

Water quality testing is performed after treatment at the Water Treatment Plants. The Town has received an Inorganic Compound (IOC) monitoring waiver for the South Street Well since February of 1995, and regular testing is done to insure that the VOCs are removed. The Source Water Assessment Program reviewed water quality data for 1998 at Athol's South Street Well and found that levels for contaminants detected were well within Massachusetts Drinking Water Standards and Guidelines for Chemicals in Massachusetts Drinking Waters.

In July of 2000, the Tully Well field water quality testing indicated that radon levels were detected at 670+/-32 picocuries per liter (pCi/l). While radon is a radioactive gas that naturally occurs in some ground water, radon gas released from drinking water is a relatively small part of the total radon in the air. The current recommended maximum contaminate level is 10,000 pCi/l in Massachusetts but the DEP is reportedly planning to lower that level. Current debate surrounding the projected level ranges from 400 to 4,000 pCi/l. If the State does lower the level to 400 pCi/l, the Town may have to install an air-stripping system on the Tully Well field that aerates the water, then filters it through scrubbers that collect the radon.

Water Use Restrictions

The Town does not have mandatory water use restrictions, but voluntary guidelines were in effect during the years that Athol suffered severe summer water shortages. Now that the Town has a new water source, the DPW – Water Division does not expect to utilize water use restrictions. If the Town expands its industrial base however, it may have to reevaluate water conservation. Also, because water use impacts the overburdened Wastewater Treatment Plant, water conservation may be advised during certain times.

Leak Detection

If leaks are detected when they are small, major leaks are prevented and possible property damage and emergency conditions are avoided. A reduced pumping time also extends the life of pumps and maintenance time needed to service them. In January of 2001, Pipe Line Testing Service conducted a water leakage survey using a sonic sound system on hydrants and main gate valves and detected five leaks in the Town's water supply system. All of these leaks have been repaired.

Public Drinking Water Issues

Current vs. Potential Future Demand

Table 2-1 clearly indicates that the registered supply of drinking water in the public distribution system surpasses current average daily demand by one hundred and ninety-four thousand (194,000) gallons per day (0.194 MGD). This surplus represents a buffer equivalent to approximately nineteen percent (18.7%) of the authorized daily withdrawal amount. The Department of Housing and Community Development's (DHCD) Growth Handbook, states that a figure of seventy-five gallons per person per day is a reasonable multiplier for planning purposes. Given this factor, it is reasonable to expect that an additional 2,586 residents could be supported by the community drinking water supply.

Demographics are useful for forecasting the type and amount of municipal services that will be required by residents. The US Census reported 11,299 persons residing in Athol in 2000. According to the population projections made by the Massachusetts Institute of Social and Economic Research (MISER), 11,641 residents are expected in Athol by the year 2010. This represents an increase of 342 new residents in ten years. This number falls comfortably below the 2,586 residents mentioned above and represents approximately thirteen percent (13%) of the water supply's present surplus capability.

Table 2-2: Percentage of Total Daily Water Use (2000) by Land Use Type, and the Number of Water Service Connections for the DPW Water Division

Land Use	% of Total Water Consumed	# of Water Service Connections
Residential	66%	3,161
Flushing, Hydrants, Street Sweepers	9%	NA
Unaccounted for Water	8%	NA
Mixed-Use: Commercial-Residential	8%	34
Industrial	7%	19
Municipal (Schools, Govt, Medical)	2%	13
TOTAL	100%	3,227

Source: *The DEP Public Water Supply Annual Statistical Reports, 2000;*
Personal interview with Dana Cooley, Primary Certified Water Operator, 2000.

As seen in Table 2-2, industrial uses in Athol currently represent only seven percent (7%) of Athol’s water usage. However, new commercial and industrial uses could potentially have high water demands. For example, in Deerfield, daily water withdrawals averaged about eight hundred thousand gallons per day in 1999. Nearly half of this amount was demand from an industrial use, a local pickle factory. If Athol wishes to expand its industrial base, it may wish to seek a permit to withdraw an additional amount of water beyond their registered volume or attract low water usage businesses.

Aquifers, Recharge Areas, and the Potential for Contamination

Understanding which land areas are responsible for recharging the aquifers containing the Town’s drinking water is important, to ensure that surrounding land uses do not jeopardize the quality of the water within the aquifers. The risk of water supply contamination is evident in tests seen throughout the state. According to the DEP, two hundred and thirty-one (231) public water sources were permanently closed due to ground water contamination in eighty-nine (89) Massachusetts communities as of January 1998. Volatile organic compounds were the cause of contamination in fifty-nine percent (59%) of cases; twenty-seven percent (27%) were closed due to inorganic compounds, synthetic organic compounds and natural causes; eight percent (8%) were discontinued due to a combination of these; and the rest were closed due to varied causes. Because preventive measures are much more cost effective than remedial efforts, protection of public water supplies is best done before problems arise.

Contaminants may be residential, agricultural, commercial, or industrial in origin. Ground water contamination may result from hazardous material leaks, leaking sewers or septic tanks, landfill leachate, road salt, surface impoundments, pipelines, fuel storage tanks, and agricultural and golf course runoff. Waste disposal practices for sanitary, solid, and industrial waste are the most serious sources of ground water pollution. According to the 1990 census, approximately twenty-two percent (22%) of all homes in Athol rely on septic systems to dispose of human waste. Fortunately, most of the homes within the Zone II wellhead protection area are already connected to the municipal sewer system.

Ground water conductivity is determined by gravity, pressure, material permeability, and slope. Well pumping alters the natural movement of ground water. When pumped, ground water around the well is pulled down and into the well. This area may extend to many miles, depending on local hydrogeological conditions. Replenishment of the ground water aquifer is known as recharge and occurs primarily from precipitation percolating through the land's surface. Under certain conditions, surface waters also provide ground water recharge, called induced recharge. For example, the USGS hydrogeologic atlas maps indicate that the South Street Well is particularly abundant because it receives induced recharge from the Millers River.

In general, the protection of water resources, particularly wellheads, is critical because ground water pollution is difficult to correct and the cost of clean-up and remediation is usually prohibitively expensive. The purpose of delineating wellhead protection areas is to define the geographic limits most critical to the preservation of a well field. Properly identifying the recharge area is critical because the introduction of contaminants into the recharge area can cause aquifer contamination and loss of the public water supply.

In 1999, the Athol DPW participated in the DEP's Source Water Assessment Program (SWAP), which resulted in conceptual Zone II delineations of the recharge areas for the Tully Well Field and the South Street Well (*see the Community Facilities and Services Map*). Because the recharge area is equal to the portion of the watershed that would contribute sub-surface water to the wells during a drought lasting one hundred and eighty (180) days, the above ground land uses within the recharge area could potentially affect the quality of the drinking water supply. The Athol DPW and many residents recognize the importance of the recharge area and delineating it was the first step.

According to the SWAP, the aquifer for both the South Street Well and the Tully Well Field is located within a large glaciofluvial deposit of outwash sand and gravel. This deposit extends six thousand (6,000) feet southeast of the South Street Well site and over fourteen thousand (14,000) feet north into the Tully River watershed. Large areas surrounding the wells are identified as undifferentiated glaciofluvial deposits and recent alluvium. The area is underlain by glacial till and bedrock of layered gneiss. Areas to the southeast and north are characterized by extensive kame and kame terrace deposits, originally created by meltwater streams within and beside glacial ice. As a rule, these deposits are well sorted and highly permeable. The source water areas are composed of predominately fine-grained, relatively homogeneous soil units, specifically, fill, fine to coarse sand, silt to very fine sand, and till. The United States Geological Survey (USGS) hydrogeologic maps indicate that the saturated thickness of these sand and silt deposits is approximately sixty-four (64) feet in depth. The transmissivity of the aquifer was estimated to be 489,211 gallons per day per foot.

The South Street Well SWAP report (Tighe & Bond) compiled a list of fifty existing establishments, which could become potential sources of contamination for the wells within the Zone II delineation. Each source is ranked by DEP in a risk category ranging from low to high. Typical high risk uses are businesses utilizing chemicals or petroleum-based products, such as service stations, auto repair shops, printing and photo processing, dry cleaners, machine shops, and industrial manufacturing. Medical facilities, schools, and cemeteries are listed as medium risks. Beauty salons and funeral homes are considered to be low risk

businesses. In addition, while aging underground storage tanks have been replaced throughout Town, aboveground storage tanks (ASTs) for residential heating oil are ranked by the DEP as medium level threats to groundwater supplies.

With the completion of the SWAP and the Zone II delineations, Athol has now completed three of the five steps recommended by the EPA for wellhead protection. It has formed a community group, mapped water protection areas, and identified potential contamination sources. The next step for protection is management of the Zone II area. The Town has recently adopted a Groundwater Protection District Bylaw, which regulates land uses and businesses that store and use hazardous materials in quantities that would be considered dangerous to the water supply. The Board of Health has also adopted health regulations to control hazardous materials, particularly through floor drain releases. All of these plans and programs will help to make sure that the Town is doing all it can to protect its community public water supply.

Other management options for Athol's Zone II wellhead protection include non-zoning strategies such as public education, acquisition of lands, well monitoring to detect pollution, water conservation, and Best Management Practices (BMPs). The high and medium risk uses listed by the DEP are particularly important to address with BMPs, as well as road maintenance and construction. Because the Town center is inside a Zone II area and because its pre-existing industrial, commercial, and residential uses can directly impact the quality of the public drinking water, public education and Best Management Practices will be critical to maintaining Athol's drinking water supply.

Water Line Boundary and Sprawl

It makes sense to try to control sprawl by encouraging higher housing densities in areas that already exhibit the look and feel of the traditional Town center, where the distances between houses are small. Most of the areas with public water are also served by the Town sewer system. One way of controlling sprawl may be to establish boundaries to water and sewer expansion. The boundaries could coincide with Athol's natural topographic limitations to development.

The Economic Development Associates, Inc. documented the limits to Athol's extension of its public water supply in the 1964 Athol Master Plan. The extension of the water and sewer lines beyond the boundaries outlined in that plan was reportedly too expensive, due to topographic limitations and cost obstacles. Since that time, the infrastructure has extended only a short distance beyond the published boundaries. Limits to sprawl are discussed in more detail in the Land Use and Zoning chapter of the Master Plan.

Adequate Water Flow for Fire Protection

The Town needs to consider the replacement of outmoded water mains for adequate flow for fire protection. Many of the century old cast iron water mains in Athol are in desperate need of capital improvements. The narrow diameter mains are not able to deliver a sufficient water supply in times of emergency. Any pipe smaller than twelve inches in diameter has the

capacity to restrict flows. According to Tata & Howard's 1995 Report on Water Supply and Distribution, a number of smaller pipelines need to be replaced in order to insure an adequate flow for fire protection to all businesses and residences. Several recent fire flow tests conducted by the DPW in Town verify this assessment. Tata & Howard, Inc. recently updated the Town's Hydraulic Computer Model, which included fire flow testing and recommendations to eliminate flow restrictions.

With two ample groundwater sources and three storage tanks, water customers can feel confidence that the Water Division has worked hard to supply clean drinking water. The Town has also continued to upgrade its community drinking water distribution system as needed. However, the most important drinking water issues are still the need for protecting the aquifer from known and unknown sources of pollution, and the replacement of narrow and/or old mains. Contamination of the aquifer feeding both the Tully Well Field and the South Street Well would reduce the Town's supply back to South Street Well alone, and then only if the water treatment plant was designed to handle the particular contaminant. Residents and Town Officials should seek out and apply whatever methods have been shown to reduce the misuse of hazardous materials, including spent motor oil and gasoline, anywhere within the recharge area. In addition, investing in new large diameter water mains could mean the difference between complete and conditional fire protection services, which could impact economic development opportunities that Athol cannot afford to miss.

Water Supply Recommendations

- Protect existing water supplies through implementation of the Groundwater Protection District.
- Identify specific Best Management Practices and create a public education pamphlet to distribute to businesses and residents located in the Groundwater Protection District to prevent hazardous materials spills.
- Continue to provide training for municipal employees to respond to hazardous materials spills and maintain an Emergency Response Plan to protect public water supplies.
- Maintain options for future public water supplies by protecting the water quality of the reservoirs and surrounding open space.
- Identify the next potential well location and associated recharge area and secure funding sources for acquisition.
- Upgrade smaller water mains identified by the DPW to provide adequate flows for fire protection.
- Maintain appropriate buffer distances from rivers and water bodies for snow disposal that may be contaminated with salt.
- Identify improvements needed in the distribution system and plan for future expenditures in the Capital Improvement Program.

- Limit the expansion of public water supply mains to areas where the Town wishes to encourage growth consistent with the findings of the Master Plan.

Solid and Hazardous Waste Disposal

All towns in Massachusetts are faced with similar challenges concerning the disposal of municipal solid waste. Massachusetts is a densely populated state where landfill space is limited. When landfills become full, communities must seek other locations and methods of disposal for waste generated by residents and institutions. Many communities have dealt with these challenges by identifying the most cost effective sites for disposal and by organizing to purchase stable long-term trucking and disposal contracts. Other methods for reducing solid waste disposal costs include increasing the participation and efficiency of a town's composting and recycling program. For example, many communities have adopted "pay as you throw" fee programs that encourage people to recycle by requiring payment for every bag of trash put out for pickup.

This section presents information about the methods used to dispose of solid and hazardous waste in Athol. The amount of solid and hazardous waste generated, method of collection and disposal, costs and important issues and concerns are described. In addition, the current conditions, concerns, and future uses of Athol's landfills are discussed.

Although Athol does not manage trash, composting, and recycling programs for its residents, this may not be a long-term situation. Athol residents chose through Town Meeting vote to pursue individual contracts with trash haulers rather than pay for a Town-wide system, which would have probably included a pay-as-you-throw program and recycling. Currently, people pay weekly to have haulers remove their trash and recycling. Residents also have the option of paying to bring their trash to the Orange transfer station. Perhaps in the future there may arise opportunities for securing cost-saving hauling contracts in combination with neighboring towns within the region, that would save tax payers money. In addition, Athol should maintain a policy to increase recycling and composting rates, whether it manages a solid waste program or not. In addition, the town should continue to sponsor household hazardous waste collection days.

Goals:

- To support the management of solid waste using an integrated management system that includes waste reduction, recycling, composting, and appropriate disposal techniques.
- To support the collection and disposal of hazardous waste in an environmentally sound manner.

Objectives:

- Consider establishing priorities for the handling of solid waste. The first priority is to reduce the amount of waste as much as possible. The second priority is to recycle or compost waste that cannot be avoided. The third priority is to treat waste that cannot be recycled or composted. Finally, wastes must be landfilled if they cannot be recycled, composted, burned, or treated in some other manner.
- Decrease the volume of solid waste disposed of at incinerator and landfill facilities by maximizing participation in recycling and composting programs through public education or by providing incentives to recycle like variable rate disposal fees.
- Continue and expand regular hazardous waste collection.
- Continue to require commercial and industrial businesses that use, store, generate, or transport hazardous materials or wastes to prepare and maintain an emergency response plan that identifies potential environmental and health risks and recommends ways to reduce those risks. These plans are provided to local officials responsible for emergency response coordination.

Solid Waste

Many landfills have been closed throughout New England in the last ten years. There are several reasons for landfill closure, including lack of space, environmental concerns, and the will of local community groups. However, the major reason is Subtitle D of the Federal Resource Conservation and Recovery Act, which mandates the closure of unlined landfills.

Since 1989, the Massachusetts Department of Environmental Protection has conducted environmental assessments of operating town landfills, which is the first step in closure. After landfill operations cease, capping of the site requires three to four months when the weather is most conducive to earthmoving functions, usually July through October. The procurement of funding to cap landfills presents a challenge to towns as costs average \$45,000 to \$100,000 per acre for capping. In addition, ground water testing and monitoring must be maintained for up to thirty years at neighboring sites.

The various components involved in landfill closure are:

- Excavation and removal of refuse
- Impervious cover layer
- Drainage layer, loaming, and seeding
- Site Preparation
- Gas vents
- Rip-rap

The closure of local unlined, potentially polluting landfills has generated a need in many towns for regionally integrated waste management systems. However, the Town of Athol does not currently provide solid waste disposal for its residents or institutions. Each resident

and business is responsible for contracting with a private hauler to handle trash and recycling. Hazardous wastes are disposed of through a service provided by the Town on specially designated hazardous waste days once or twice per year at the DPW garage.

In 1993, when the landfill was undergoing closure and capping, the Town attempted to form a joint recycling district with the Town of Orange. The motion did not pass at Town Meeting because residents did not want an increase in taxes. Due to the fact that the Town of Athol does not have an active landfill, and has not joined a regional solid waste district, most residents pay individually to have trash removed to an out-of-town disposal site. Athol residents currently contract with one of the seventeen independent contractors listed on the Board of Health’s Trash Hauler List for their solid waste removal. According to Board of Health Agent Philip Leger, these individual contractors are required to provide recycling. These small, independent haulers usually deliver their trash loads to landfills in Hardwick, Barre, or Orange. Town residents may also utilize the Orange landfill and recycling center themselves after paying for a non-resident sticker and purchasing special landfill bags that provide revenue for the landfill operations. Businesses also use private haulers and must adhere to DEP regulations.

While there are financial advantages to the Town of Athol from this approach to “privatizing” solid waste disposal in Athol, there may be some unintended results of this arrangement. First, Athol residents may not be fully aware of existing opportunities to participate in recycling programs that could contribute to a healthier environment while building community pride. For example, most members of the Community Facilities and Services subcommittee of this Master Plan were unaware that they could use the Orange recycling center located at the Orange transfer station by paying a non-resident fee. Second, there is no way to measure the amount of trash being produced versus what is being recycled, and as a result the Town is consistently given an ‘F’ for recycling by the State, which is not accurate.

Athol Solid Waste Disposal Sites

According to the Massachusetts DEP, there is one solid waste disposal site in Athol (*see Table 2-3*).

Table 2-3: Municipal Solid Waste Disposal Sites in Athol

Landfill Name	Location	Area in Acres	Lined/Unlined	Capped Y/N	Active/Inactive	Dates of Use
West Royalston Road Municipal Landfill	West Royalston Road / East Branch Tully River	16.7	Unlined	YES	Inactive	___ - 1993

Source: Department of Environmental Protection, 2001.

The landfill is located on West Royalston Road along the East Branch of the Tully River, and is currently inactive. The closure took place over several years and capping was completed in 1997. In bid specifications issued in late 1995, the DEP allowed the Town to substitute an alternative low permeability barrier layer for capping material. Typically capping is done with naturally occurring clay or a PVC liner. The final work on the West Royalston Road

Landfill was a fiber clay blended mix of primary paper mill wastewater sludge, secondary biological sludge, and kaolinite clay from Erving Paper Mill. Because the fiber clay mixture was prepared in nearby Erving and Athol stored it on-site before installation, the Town was able to save on landfill closure expenses.

One reason to include a discussion of the landfill in this Master Plan is to allow residents and Town officials the chance to assess their options for its future use based on up-to-date information. Currently, the landfill is fenced and gated, with only the dog pound located there. As the animal shelter will be relocating in the near future, the Town may also wish to consider it as a site for possible recycling or composting services. Many Towns have closed and capped their landfills but have retained an area on the site for collection bins. This would provide a local alternative for recycling by town residents. However, there are costs associated with establishing a recycling center which would need to be addressed by the Town. Typically the cost of operating a recycling center at a transfer station is covered by revenues generated from waste disposal through “pay per bag” program fees.

Although the landfill site is located approximately two and a half miles upstream and is not within the Zone II wellhead protection area, it is located within the same aquifer and is part of the Zone III delineation, which is an area that contributes runoff to Zone II. The public water testing division of DEP stated that at a distance of two and a half miles, the landfill should not constitute a threat to the water supply, but that monitoring should continue to be done at the landfill site. Recently, a beaver dam caused a rise in surface waters that backed up to the toe of the landfill, raising concerns about leachate draining into the Tully River.

Recycling and Composting

When Athol maintained an operational landfill, the Town offered recycling and voluntary composting. Since the landfill closed, the Town no longer provides a site for composting or recycling services. Recycling could help Town residents minimize refuse disposal costs by reducing the amount of trash that needs to be trucked for incineration or to other landfills. The recycling rate is equal to the amount of trash that is diverted out of the waste system through recycling and composting. The statewide average for recycling in 1999 was thirty-four percent (34%). In Franklin County, the district average for recycling was forty-six percent (46%) in the year 2000. The rates of other communities in the area demonstrate that further reductions may be possible, however, because the recycling rate in Town is no longer monitored it is not possible to measure the current recycling efforts of Athol residents.

Table 2-4: Best Recycling Rates in Franklin County

Town	2000 Recycling Rate
Deerfield	64%
Whately	62%

Source: Department of Environmental Protection, 2001.

Two ways that Athol residents can reduce their waste disposal costs are: 1) utilize the recycling services that private haulers are required to provide according to Athol Board of

Health regulations or 2) recycle at the Orange transfer station by purchasing a non-resident sticker.

Composting is a safe, efficient and relatively inexpensive way to convert food and yard wastes into a usable product. Town and home composting programs, combined with public education, may expand participation. In our region's smaller towns, yard waste has never been a significant part of the waste stream but many larger towns maintain yard waste piles. On-site food composting for schools, hospitals, institutions, and large businesses has been successfully initiated in other parts of the country and could significantly reduce Athol's waste stream further. Composting may be an important way that the schools could contribute to reducing food and yard waste.

Hazardous Waste

While source reduction of solid waste remains a high priority, Athol must also address the use and disposal of hazardous materials. Appropriate hazardous waste management is critical to ensure the protection of the environment and of public health. If hazardous wastes are improperly disposed of down drains and through the incineration process, even though they are in small quantities, they will contaminate air, land, and potentially drinking water supplies. Cost-effective management of hazardous wastes begins with education aimed at minimizing use.

Environmentally safe disposal methods in use include paint swaps, paint collection, and collection of pesticides, solvents and other hazardous wastes. Many towns offer year-round collection of special wastes (also called universal wastes) that require restricted collection and handling. These include fluorescent bulbs, oil-based paint, antifreeze, waste oil, oil filters, and rechargeable and button batteries. The Athol DPW sponsors an annual collection of household hazardous waste. The collected toxic substances can be safely burned using specialized incinerators equipped with scrubbers to remove air-born pollutants. While the household hazardous waste collection program gather many tons of toxic materials, many more tons are still uncollected and may potentially pollute the ground water.

Solid Waste Issues

Possible Participation in a Regional Solid Waste Program

A committee of interested Athol residents could compare average costs that individual homeowners pay for private contracting of household solid waste with the average cost for participation in a neighboring regional program. The Town landfill has been closed for four years and the Town may wish to re-evaluate its options. As regional landfills close, operational expenses for hauling waste to more distant locations will necessarily rise. A unified program would be able to target reduction, recycling, and composting efforts to minimize cost increases, as well as negotiate bulk purchasing of hauling services using the local contractors. By joining a solid waste district such as the Franklin County Solid Waste Management District, the Town may lower costs for individuals and may procure a wider

range of services. The sale of “pay as you throw” trash bags offsets solid waste expenses in many towns. A true-cost accounting for waste disposal typically encourages active participation in recycling. Additionally, an active program that offers a full range of disposal options will help to protect Athol’s water supply by discouraging illegal dumping. The Board of Health should be involved in these plans.

Increasing Participation in Recycling Programs

Athol officials should continue to work to reduce the amount of trash in the waste stream by increasing participation in recycling programs. In the past four years since Athol has closed its landfill, its recycling rate has been unknown, because the rate is no longer monitored. The Town of Athol has several options for increasing its participation in recycling. Provide information to residents about current recycling opportunities at the Orange transfer station and through private haulers. Also, the Town can encourage educational efforts on composting and recycling at the Athol Schools. Composting of food and yard scraps at any institutional building can be a useful demonstration tool showing the simplicity and sense of composting and recycling. Athol residents could review their trash, recycling, and composting options that they now have since the closing of the landfill in 1996.

Future Uses for the Closed Landfills

The Town may wish to review again in the future, the costs and benefits of using a portion of the capped landfill site for a recycling and composting area.

Composting

Because the Town does not provide any options for composting at this time, Athol could appoint a committee to investigate benefits, a possible site, and an educational program.

Solid Waste and Hazardous Waste Recommendations

- Increase awareness of existing recycling options for Athol residents by creating a pamphlet which provides information on the use of the recycling center at the Orange transfer station and recycling services provided by private haulers and send out with tax bills.
- Continue sponsoring household hazardous materials collection days and explore the feasibility of sponsoring a “bulky item” collection day to allow residents to dispose of refrigerators and other appliances.
- Evaluate the cost and benefits of joining a regional solid waste district such as the Franklin County Solid Waste Management District.

- Participate in any future efforts to site a regional landfill to provide for future solid waste disposal for Athol residents.
- Continue monitoring of the closed landfill as required by DEP to prevent contamination of public water supplies.

Wastewater Treatment

The central core of Athol is served by a public sewer system and one wastewater treatment plant. The Town receives wastewater treatment through the DPW, which manages the plant. Public sewer and its expansion have the potential to both limit and encourage development. The ability to expand a sewer collection system is dependent on the capacity of the wastewater treatment facility, the quality of the existing collection system, and the amount of available land surrounding the existing treatment facility. Any expansion of the collection system may contribute to development pressures on lands that were previously without sewer.

This section includes an assessment of the current level of operations within the wastewater treatment facility in Athol based on design capacity and its National Pollution Discharge Elimination System (NPDES) permit. In addition, the issue of excess capacity and the potential for sewer line expansion is discussed.

Goal:

- To provide environmentally sound wastewater treatment while supporting existing development patterns.

Objectives:

- Consider establishing sewer extension limits consistent with the Master Plan and coordinate with any expansion of the public water supply.
- Identify and replace failing sewer pipes that receive infiltration of groundwater resulting in excessive flows of water into the wastewater treatment plant and plan for future expenses through the development and implementation of a Capital Improvements Program for the Town of Athol.
- Determine whether there is a need for increasing the capacity of the wastewater treatment and whether the expansion is feasible at the current location.
- Plan for future expenses through the development and implementation of a Capital Improvements Program for the Town of Athol.

Wastewater Treatment Facility

Athol's central core has long been served by a sewer system to allow the development of a compact town center. The wastewater collection system is situated along major roadways in the Town center and according to the 1990 census, seventy-eight percent (78%) of Athol's housing units are linked to the system. The households are connected to the wastewater treatment plant with 100 year-old, eight-inch (8") diameter vitreous clay sewer mains. Like most early riverside communities, Athol dumped untreated sewage into the Millers River until the mid 1960s, when the Department of Public Health mandated that all towns must build treatment plants. Athol's Wastewater Treatment Plant (WWTP) was completed in 1971 and was followed by other plant improvements in 1986. The facility is located off of South Athol Road and is designed to provide primary and secondary treatment of 1.75 million gallons of wastewater per day.

There is a single wastewater treatment facility serving Athol and Mark Day is currently the Chief Operator. The Athol Wastewater Treatment Plant (WWTP) is located near the junction of South Athol Road and Morton Street, adjacent to the Millers River. It is an extended aeration system. The wastewater inflow arrives at the WWTP carrying waste solids and enters the headworks building to undergo pre-treatment to remove all inorganics. There a grinder chews up materials, a grit chamber removes sand, a fine bar rack performs fine screening, and the pH of the system is monitored to detect toxics which could kill the living microorganisms that allow the system to function.

The wastewater moves into four fixed mechanical aeration chambers where naturally occurring bacteria in the water break down the solids into sludge over a nine-hour detention time. Then the wastewater flows into two circular clarifiers where the sludge settles and solidifies. A portion of this material is recirculated to reinject the active microorganisms back into the system. As the sludge settles to the bottom of the final clarifier, the clear water flows over the top, and receives disinfection via chlorine gas. The sludge is pumped to a gravity thickener to partially dry the solids before being pumped to storage tanks for additional removal of excess water. Here a polymer is added to coagulate solids further and decanting is done to drain water from the mixture. The wet sludge is transported by Waste Stream into Fitchburg for incineration while the treated effluent is discharged into the Millers River.

Table 2-5: Statistics for the Wastewater Treatment Facility in Athol

Facility Name and Location	Facility Type	Number Persons Served	Design Capacity (MGD)	Average Monthly Flow	% of Design Capacity Remaining	Sludge Treatment or Disposal	Effluent Disposal Location
Athol Wastewater Treatment Plant	Extended Aeration	9300	1.75 MGD	1.43 MGD	18%	Waste Stream to Fitchburg for incineration	Millers River

Note: MGD = Millions of Gallons per Day.

Source: Massachusetts Department of Environmental Protection, 2001; Athol DPW, 2001.

Table 2-5 summarizes statistics for the wastewater treatment plant in Athol. Wastewater treatment plants are required by the DEP to initiate plans for expansion when the rate at

which wastewater comes into the system, called the influent loading rate, or hydraulic loading, reaches eighty percent (80%) of the facility's design capacity for ninety (90) days. Hydraulic loading is the term used to measure the quantity of water flowing into the plant. The average monthly flow exceeded the eighty percent (80%) threshold during four months in 2000.

One reason that the Athol Wastewater Treatment Plant is experiencing average daily hydraulic flows that are in excess of design criteria is that water is entering the sewer system from areas other than the initial points of generation, houses and businesses. This problem is referred to as Infiltration and Inflow (I and I). Infiltration represents groundwater entering the collection system via breaks within the piping, open joint pipe, or cracks within manholes. Infiltration can be estimated based on the minimum flow that enters the plant during the time of day when wastewater generation is at a minimum typically between 1:00 a.m. and 6:00 a.m. Inflow represents the water that enters the system through direct connections such as catch basins, roof gutter leaders, and leaking manhole covers. Inflow is estimated by subtracting the peak dry weather flows from the peak wet weather flows.

The monthly reports to the DEP, monitoring hydraulic loading during the year 2000, indicated the monthly average daily flow ranged from 1.03 million gallons per day (MGD) to 2.03 MGD. The average daily flow entering the Athol WWTP during three (3) separate months, in March, April, and May, exceeded the permitted capacity. The Town should take action to remain in compliance with its existing National Pollution Discharge Elimination System (NPDES) permit.

Infiltration and Inflow problems mean that during a major storm event, excessive flow can overwhelm the treatment system so that untreated effluent gets deposited in the Millers River. A study in 1987 reported three major recommendations to remedy I and I problems. One early effort to correct this problem relined the sewers along Cass Meadow. A number of factors complicate the hydraulic loading problem at the WWTP, such as the Town's proximity to the Millers River, the use of sump pumps, roof drain connections with the sewer system, and the aging of the clay sewer mains. The flow of the Millers River is controlled by the Army Corp of Engineers to prevent flooding. In the spring, when the water table is already elevated, water releases behind flood control dams cause the river to run higher. When the river is high, it appears to affect infiltration into the nearby low-lying sewer pipes.

Residential sump pumps contribute to the I and I problem in Town if they are connected to the sewer system. When water tables run normally high during spring melt, some homeowners experience excess water in basements so pumping activities commence. Three years ago, the DPW mailed letters to businesses and homeowners to inform them of this problem. Subsequently, the DPW has made on-site visits to offer advice and many pumps have been rerouted to the storm drains. Difficulties arise when the storm drains are not located near homes using sump pumps. The Pleasant Street area presents a problem because it sits on a ledge of bedrock and clay so drains are difficult to dig. Roof drains are also a contributor to I and I if they are connected to the sewer system instead of to storm drains. Commercial and industrial establishments were notified by the DPW that their flat roofs were contributing to the problem, and a number have responded, however compliance is voluntary. The Town's century old vitreous clay pipes also contribute to I and I because many are in

need of repair or replacement. The DPW is presently working with N. E. Rural Waterworks in Greenfield to explore further ways to conduct I and I tests.

Correction of Infiltration and Inflow problems should be addressed where feasible. Often the cost associated with repairing problem sewer sections is prohibitive in comparison to processing the additional water which the infiltration represents. The Town recently received a quote from an engineering firm for the development of a Sewer System Evaluation Survey (SSES), which would determine which pipe sections should be repaired. Unfortunately the cost for this study was approximately five hundred thousand dollars (\$500,000). Although this may seem extreme, the Town has already spent eight hundred thousand dollars (\$800,000) to reduce Infiltration and Inflow and shown in Table 2-6. Typically, according to engineering studies, one can expect only a forty percent (40%) reduction in the infiltration flow from repairs, given cost constraints. It is therefore crucial to determine which pipe sections should be targeted.

Table 2-6: Actions Taken to Reduce Infiltration and Inflow of the Athol Wastewater Treatment Plant

Time Period	Treatment	Section of Sewer	# Gallons of Infiltration Reduced/Result	Cost/Cost Estimate
1995	1 mile Sliplining	Cass Meadow Sewer Line	Unknown	\$500,000
1999	300 ft. Replacement	Main St. Interceptor	Unknown	\$200,000
1999-2000	2,300 ft. Replacement	Sanders Street Sewer Line	Unknown	\$100,000

Source: Yearly reports by the Athol DPW staff to DEP personnel; Doug Walsh, DPW, 2001.

According to DPW staff, the Town of Athol has fixed a number of sewer sections recently (see Table 2-6) to treat the Infiltration and Inflow problems within the Athol area. Sliplining is a process that inserts a flexible resin lining into an existing pipe. The pipe size is reduced approximately one-half inch, but the lining hardens and reliably seals cracks. The DPW sliplined the entire pipe north of Main Street from Exchange and Maple Streets, and along the Millers River to Canal Street. Several additional problem areas in Town which have been identified using television cameras, are the Tunnel/Carbon Street area and the main line to the WWTP.

Table 2-7: A Comparison between National Pollution Discharge Elimination System (NPDES) Permit Limitations and Actual Rates for BOD and TSS in 2000

Wastewater Treatment Facility	NPDES BOD Average Limit	Actual BOD Average	NPDES TSS Average Limit	Actual TSS Average
Athol Wastewater Treatment Plant	30 mg/l	8 mg/l	30 mg/l	5.2 mg/l

Note: mg/l=milligrams per liter. BOD = Biological Oxygen Demand. TSS = Total Suspended Solids.

Source: Massachusetts Department of Environmental Protection, 2000; Athol DPW.

Biological oxygen demand (BOD) and total suspended solids (TSS) are two design criteria that describe wastewater, both the quality of the water coming into the system, and the water being discharged to the rivers. Biological oxygen demand (BOD) is a measure of the amount

of oxygen consumed by the wastewater in a given period, typically five (5) days. Total suspended solids (TSS) measures the number of particles in the water. The United States Environmental Protection Agency (EPA) and the Massachusetts DEP regulate the levels of these parameters found in the water discharged from wastewater treatment plants. The plant has a National Pollution Discharge Elimination System (NPDES) permit that quantifies the allowable levels of BOD and TSS in the discharged wastewater.

As seen in Table 2-7, weekly monitoring of the actual BOD and TSS averages for the Athol WWT facility indicates they are significantly below permit limits, even during months of excessive hydraulic loading. It appears that on the average, this facility provides environmentally sound wastewater treatment according to BOD and TSS rates and is operating in compliance with the NPDES permit. However, the Infiltration and Inflow problem should be addressed to prevent potential overloading of the system.

Fee Structure

Athol presently collects wastewater revenues from metered water charges and connection fees. A \$1,000 connection fee is instituted for initial hookups. The price for sewer fees is determined by the total amount of annual water usage, as all sewer users are connected to the municipal supply and are already metered. The current charge is \$1.28 per 100 cubic feet of water. Any improvements to sewer lines are funded through grant monies. This approach may need to change as grant funding has become increasingly scarce and future upgrades should be reflected and planned for in the Capital Improvement Program.

Wastewater Issues

Infiltration and Inflow

While the DPW has been able to remedy a number of Infiltration and Inflow problems with sliplining, many more problem areas need to be addressed and corrected where feasible. The Town's century old vitreous clay sewer mains are a major factor in contributing to Athol's WWTP infiltration problems. Many are in need of repair or replacement. During the latter part of the 1990s, Athol directed a great part of its attention and energy to correcting its water supply problems. The Town should now consider pursuing a grant to hire consultants to conduct a Sewer System Evaluation Survey (SSES) for a determination of which pipe sections should be repaired or which upgrades at the WWTP are appropriate. It is very important that the wastewater treatment plant staff, the DPW, and the Town work with State agencies to identify and repair existing Infiltration and Inflow problems to remain in compliance with the existing NPDES permit.

Potential for Sewer Line Expansion

As mentioned in the public water supply discussion, it makes sense to try to control sprawl by encouraging higher housing densities in areas that already exhibit the look and feel of the

traditional town center. Athol already has this higher housing density in its town center and most of the area is served by both water and sewer connections. One way to control sprawl may be to establish boundaries to the water and sewer expansion. The boundaries could coincide with Athol's natural topographic limitations to development.

The Economic Development Associates, Inc. documented the limits to Athol's extension of its public water supply in the 1964 Athol Master Plan. The extension of the water and sewer lines beyond the boundaries outlined in that plan was reportedly too expensive, due to topographic limitations. Since that time, the infrastructure has extended only a short distance beyond the published boundaries. Limits to water and sewer infrastructure are discussed in the Land Use and Zoning chapter of the Master Plan.

Wastewater System Fees

Athol's annual report for 2000 shows revenues at \$416,473 while operational expenses are at \$434,743, with another \$105,000 listed as capital improvement expenses. As with the Town's water system mains, the century old infrastructure is in need of capital improvements. Clearly, the sewer rates must be raised if the Town wishes to continue to fund the wastewater plant and sewer system with user revenues.

Wastewater Recommendations

- Limit the expansion of sewer lines to areas where the Town wishes to encourage growth consistent with the findings of the Master Plan.
- Pursue grant funding for a Sewer System Evaluation Survey to identify the most cost effective measures to reduce Infiltration and Inflow problems.
- Plan for future expenditures related to the wastewater treatment system by developing and implementing a Capital Improvements Program for the Town of Athol which phases in costs and identifies potential funding sources outside of property tax revenues.

Recreational Resources

Diverse recreational opportunities serve a community in many ways. Often the sense of community relates to experiences of neighbors interacting with each other during limited leisure time. The experience of community can be enhanced through activities, events, resources, and programming that seek to bring people together throughout the year. Recreational resources include open space used for this purpose, facilities that provide different recreation activities like baseball fields, and programming for different age groups sponsored by the Town or by volunteer organizations.

The physical environment of Athol provides many opportunities for outdoor recreation, both passive and active. Athol's different natural landscapes, including the hills to the north and south of the Millers River, provide for recreation and relaxation activities for area citizens. The Town's residents recognize that ample green spaces, shade trees, picnic areas, parks, playgrounds, and sports fields are important to the community and the quality of life. There are thirty-one recreational sites identified in this chapter that are open spaces. Clearly, Athol residents understand the value of open space for recreational uses. According to the Athol Open Space Community Survey results, seventy-eight percent (78%) of the respondents felt that it was important to preserve or protect open spaces for recreational purposes.

Athol built open spaces into the neighborhoods as they developed. School playgrounds are centrally located often surrounded by dense neighborhoods. Community parks are also provided in two areas of concentrated residential development. As Athol grew, residents conserved a significant portion of the Town's natural landscapes.

Although recreational facilities often include open spaces, built recreational facilities and programs are the measure by which residents judge the level of service they may be receiving from their community. Overall, fifty-nine percent (59%) of the community survey respondents felt that the most critical open space related issue in Athol was lack of adequate recreational facilities. The types of recreational facilities and programming were also important to respondents. Survey respondents generally felt less than satisfied with the recreational facilities for different age groups of residents but more so for young to middle aged adults. Over the next twenty years, Athol will need to provide services for its significant elder population. Therefore, it will be important for the Recreation Commission and the Council on Aging to address the facilities and programming needs of this group of citizens.

The following section of the Community Facilities and Services chapter of the Master Plan, Recreational Resources, includes goals and objectives, inventories of Athol's recreational facilities and programs, a discussion of recreational issues, and a list of recommendations.

Goals:

- To assess the Town of Athol's recreation facilities and programs and make suggestions for the provision of additional services for its residents.
- To improve the existing recreational infrastructure and plan for the future recreational needs of all residents of the Town of Athol.

Objectives:

- Develop new, and expand existing, multiple-user recreational trails connecting Athol's open space, natural, historic and cultural resources to its residential areas.
- Promote neighborhood-based recreation areas and facilities.
- Explore ways of securing public access to the Millers River for fishing, nature study, and other recreational activities.

- Ensure existing recreation facilities and programs are more accessible to the public.
- Link scattered conservation and recreation areas through the establishment of a continuous greenway network.
- Expand recreational programming by providing year-round activities for youth and adults of all ages.
- Address safety, maintenance, and operations issues for all recreational sites.
- Address accessibility issues at playgrounds and parks for the physically challenged of Athol.
- Address issues of the Recreation Commission’s budget and its role in the provision of comprehensive, year-round recreational programming.

Recreational Facilities

The top five types of recreational facilities desired by community survey respondents were the following (ranked in order of importance): Improved sidewalks, multi-user trails, family picnic areas, neighborhood parks and gardens, and a skateboard park. Residents want to be able to walk to different areas of Town: the ir neighborhoods, downtown, South Athol, and Bearsden Conservation Area. They also want additional neighborhood-based facilities. Table 2-8 identifies the facilities, common activities, ownership, size, extent of resources, and issues and opportunities associated with each area or facility identified in the 2000 Open Space and Recreation Plan

Table 2-8: Recreational Facilities in Athol

Map #	Name of Area or Facility	Main Recreational Value or Use	Owner of Land/ Manager	Size of Area	Extent of Resources	Issues/ Opportunities
1	Bearsden Forest Conservation Area	Hunting, fishing, camping, picnicking, snowmobiling nature study, and hiking	Town of Athol/ Athol Conservation Commission	1,033.5 acres	Maintained trails, cabin for camping available and access to the Millers River.	Rare opportunity to have largest single open space parcel in Town ownership. Residents are relatively free to set policies and increase use as a potential site for increased nature programs and stewardship work.
2	Rowe Half Acre	Picnic area and nature study	Town of Athol/ Athol Conservation Commission	0.5 acres	<i>No info.</i>	<i>No info.</i>

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Map #	Name of Area or Facility	Main Recreational Value or Use	Owner of Land/ Manager	Size of Area	Extent of Resources	Issues/ Opportunities
3	Cass Meadow Conservation Area	Fishing and nature study	Town of Athol/ Athol Conservation Commission	8.4 acres	Area of open field with pioneer vegetation abutting Tully River. Contains Tully Well Field.	Due to the presence of the well field, the meadow needs to be maintained mechanically. It is also a potential area of contribution for pollutants getting into the wells.
4	Dr. A Drury Conservation Area	Fishing and nature study	Town of Athol/ Athol Conservation Commission	3 acres	<i>No info.</i>	<i>No info.</i>
5	Minnie French Conservation Area	Hiking and nature Study	Town of Athol/ Athol Conservation Commission	20 acres	Open space near residential uses. No visible trail facilities.	Being used as a site for dumping of trash and lawn and landscaping wastes. May not be fulfilling its intended purpose.
6	Tully River Conservation Area	Fishing and nature study	Town of Athol/ Athol Conservation Commission	45 acres	Accessible off of side streets by way of formal and informal trails, though no visible signage present.	Lack of official access points and maintained signage produce a sense of neglect and lack of importance, which could lead to improper uses.
7	Gulf Conservation Area (Neale Area)	Camping, hunting, picnicking, snowmobiling and nature study	Town of Athol/ Athol Conservation Commission	30 acres	Located on a closed Road, the extent of the resource is unknown.	Given accessibility limitations, the opportunities for this property may be ideally suited for hunting and snowmobiling.
8	Tully Lake Reservation	Fishing, boat launch-ramp area, hunting, hiking, ice fishing, snowmobiling picnicking, and camping	United States Army Corps of Engineers	83 acres	In Athol, there is an access route that does not allow motorized vehicles off of Old Keene Road.	Parking area at end of Old Keene Road may not be adequate for more than one vehicle. The recreational purpose of this access point is unclear.

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Map #	Name of Area or Facility	Main Recreational Value or Use	Owner of Land/ Manager	Size of Area	Extent of Resources	Issues/ Opportunities
9	Petersham State Forest	Boating, fishing, ice fishing, and snowmobiling	Commonwealth of Mass. / Dept. of Environmental Management (DEM)	123 acres	No signage or marked trails present.	Although Sherborn can be a busy road, this may be a public access way to Riceville Pond.
10	Lawton State Forest	Hunting, snowmobiling and hiking	Commonwealth of Mass. / DEM	422 acres	Extremely scenic state forest with no visible marked trails, though gated but poorly maintained ways common.	Represents a significant opportunity to bridge gap with trails between Bearsden and open space near Tully Lake and Tully Mt.
11	Millers River Wildlife Management Area (WMA)	Camping, hunting, horse back riding, nature study, snowmobiling, off-road vehicles, picnicking, and hiking	Commonwealth of Mass. /Div. of Fisheries and Wildlife (DFW)	1,042 acres	No visible signage or trail facilities from public roads. WMA has horse back riding trails.	This large contiguous forest block is important for hunting. Is Athol taking advantage of this economic-open space connection? Possible linkage in regional greenway.
12	Power-Biggs Parcel	Hiking and nature study	Mt. Grace Land Conservation Trust (MGLCT)/ MGLCT	13.5 acres	No visible signage or trail facilities from public roads.	Possible linkage in regional greenway between Town land on the Tully River and the Lawton State Forest.
13	Silver Lake Park	Swimming, fishing, ice skating, picnicking, softball and basketball	Town of Athol/ Park Dept. and Recreation Commission	40 acres	Picnic areas barbecues, three swing sets, beach and swim area with life guard in summer, four baseball diamonds, benches, and two tennis courts	Excellent site for community events. The site does not meet Americans with Disabilities Act (ADA) access standards as per MA Division of Conservation Services.

Chapter prepared by the Franklin Regional Council of Governments

Map #	Name of Area or Facility	Main Recreational Value or Use	Owner of Land/ Manager	Size of Area	Extent of Resources	Issues/ Opportunities
14	Fish Park	Playground, softball, and tennis	Town of Athol/ Park Dept.	5 acres	Two tennis courts, large lawn area, swing set, gazebo, fenced in full court basketball court with two nets, one softball diamond, and picnic benches. Night Lights for tennis and basketball.	Tennis courts need repair, missing a net. ADA access issues.
15	Lake Ellis Park	Swimming, fishing, ice skating, and softball	Town of Athol/ Park Dept.	8 acres	Appears to have two beaches with park benches, swing sets, slide, parking and boat ramp.	Located back of Athol High School. Potential for nature study swimming sports. ADA access issues.
16	Phillips Park Uptown Common	cultural arts	Town of Athol/ Park Dept.	1.7 acres	Off Main Street/Grove Street. No benches, lawn area, with shade trees, hedges, and flagpole.	Potential for memorials, benches, etc.
17	Sanders Street School Playground	Playground and softball	Town of Athol/ Park Dept.	7 acres	One swing set, three play-ground structures, three basket-ball nets, and one baseball diamond.	Although there are new benches and some new play structures, the basketball area needs resurfacing. ADA access issues.
18	Pleasant Street School Playgrounds	Playground	Town of Athol/ School Dept.	10 acres	Elementary School has one field in front with baseball diamond, stop and benches, three swing sets, one play structure, and two basketball nets. Middle School has one baseball field, two large soccer/football fields and two basketball half-courts with nets.	Although the land abuts Lake Ellis, there are no facilities that take advantage of that fact. Use of the outdoor Middle School basketball Courts appear to be dependent on no one using the lower parking area.

Chapter prepared by the Franklin Regional Council of Governments

Map #	Name of Area or Facility	Main Recreational Value or Use	Owner of Land/ Manager	Size of Area	Extent of Resources	Issues/ Opportunities
19	Silver Lake School Playgrounds	Playgrounds	Town of Athol/ Individual School or School Dept.	2 acres	Four play-ground structures, two swing sets, one basketball court, one baseball field, trees and benches.	All materials and grounds appear to be in good condition. ADA access issues.
20	Ellen Bigelow/ River Bend School	Playgrounds	Town of Athol/ Individual School or School Dept.	2 acres	Two backstop areas, one swing set, one play structure, and a large asphalt area.	The large asphalt area could be better utilized.
21	T.J. O'Brien Athletic Field	Baseball, basketball, soccer, softball, football, tennis, running	Town of Athol/ School Dept.	20 acres	Two basketball nets, two baseball diamonds, one soccer field, one football field with stands and outdoor lighting, and one running track.	Well maintained. Potential site for community-wide events.
22	Early Learning Center	Small Playground	Town of Athol/ Individual School or School Dept.	0.2 acres	Small fenced in playground for pre-school aged children	Attached to Middle School. Opportunity for selective teen job training.
23	“Wooden Park”	Large Playground	Town of Athol/ Park Dept.	2 acres	Very large wooden playground structure and open lawn area, fenced in with benches and parking.	Consider using this “Community Park” as a model by providing theme parks throughout Town that offer similar uses in a unique way.
24	Pine Beach Complex	Swimming, fishing, ice skating, picnicking, playground, and softball	Private/Rodney Hunt Co.	71.7 acres	Beach swimming area. Private access to Sportsman’s Pond off of Pinedale Ave.	<i>No info.</i>
25	Lake Rohunta-Eagleville Complex	Boating, fishing, ice fishing, ice skating, nature study, picnicking, and hiking	Private/Private	5 acres	Boat launch site. <i>No info on other resources.</i>	<i>No info.</i>

Chapter prepared by the Franklin Regional Council of Governments

Map #	Name of Area or Facility	Main Recreational Value or Use	Owner of Land/ Manager	Size of Area	Extent of Resources	Issues/ Opportunities
26	Morgan Memorial Complex	Swimming, camping, fishing, ice fishing, ice skating, nature study, picnicking, snowmobiling softball, tennis, hiking.	Private/Morgan Memorial	226.5 acres	Athletic fields and grounds, tennis courts, beach with swimming area; many camp houses, a dining area, pavilion, nature building, Methodist Church, in-ground swimming pool, with frontage on South Athol Pond.	Level of public access for residents
27	Ellinwood Country Club	Golfing	Private/Ellinwood Country Club	240 acres	An 18-hole golf course that is open to the public.	Consider supporting this local business by allowing appropriate signage.
28	Little League Ball Field	Softball and baseball	Private/American Legion	3.5 acres	Very well maintained baseball diamond with two dugouts, audience stands, and an announcer's box.	The Little League ball field could be used as a model for enhanced facility maintenance by other private organizations.
29	Woodsman Rifle & Pistol Range	Rifle & Pistol Range, Trap Shooting	Private/Woodsman Rifle & Pistol Club	20 acres	A club house with a large area surrounded with a sand berm between 8-15' high.	Located north of Doe Valley Rd. opposite several houses right on the road.
30	Athol Archery Club	Archery Range	Private/Pequoig Bowmen	111 acres	A club house and grounds probably containing facilities to support 3-D model shooting.	The Town could potentially protect this parcel if it were ever to be sold for development since it is a Ch. 61 B property.
31	Hutchinson Parcel	Hiking and Nature Study	Private; CR held by the USDA & Mt. Grace Land Conservation Trust	345 acres	No visible signage or trail facilities from public roads.	Possible linkage in regional greenway

Source: Athol Open Space and Recreation Plan 2000 and Field Survey by Franklin Regional Council of Governments Planning Department, August 2001.

Recreational Programs

When residents were asked in the Athol Open Space community survey, “Which of the following special events, programs or efforts, if any, would you like to see more of in Athol,” the top five responses were: youth programming activities, concerts, holiday events, nature outings, and drama productions.

According to the Athol Open Space and Recreation Plan, there are three entities in Town that provide residents opportunities to recreate: the Athol Recreation Commission, Athol Cultural Council, and the Council on Aging. The Athol Recreation Commission offers a five-week summer playground program (Monday through Friday) for local youth, which is held at Athol High School. During the summer of 2001, three hundred and seventy-five (375) children five to twelve years of age were registered in the program with daily attendance of between two hundred and seventy-five to three hundred (275-300). An additional twenty teens participated as unpaid counselors-in-training (CITs). The program employs a director, an assistant director, and twenty counselors. The Recreation Commission also manages two beaches for ten weeks at Lake Ellis and Silver Lake and employs nine lifeguards. The summer program also includes one week of orientation where all employees learn safety training including CPR.

The Council on Aging offers a number of recreation and fitness programs for seniors sixty years and over. These programs are completely supported through grants. They include: Senior Fitness, two times per week at the Town Hall; a walking program that covers times when the Senior Fitness program is not in session; a craft class once a month at the Senior Center at the Pequiog Hotel; a senior arts program (art therapy) once a week, ten months a year; and a special concert once a year funded through the Athol Cultural Council. In addition to recreational activities, the Council on Aging is evaluating the feasibility of establishing a new Senior Center to centralize and potentially expand the many functions and activities which it currently supports. This includes preventative health services (screening for blood pressure and cholesterol, flu clinics, foot care, etc.), providing meals on-site and to homes, and coordinating transportation for medical appointments, shopping and on-site meals. The Council on Aging is currently preparing a survey to identify recreational and other services which the elderly population in Athol requires. A new larger Senior Center would not only provide needed recreational facilities for elders but would also allow the Council on Aging to better coordinate and possibly expand the many services it provides at one location. For example, ten different sites are currently used to conduct health screenings and clinics and this service could be consolidated at a new Senior Center.

The Athol Cultural Council directs state funding to support a wide range of cultural and educational programs for children and adults including concerts, multidisciplinary performances, arts and craft classes for seniors, pottery workshops, festivals, arts and craft exhibitions, and field trips.

Table 2-9: Recreational Programs, Town of Athol

Program	Program Provider	Group Served	Facility Used
Ten-week Beach Access with Lifeguards	Recreation Commission	All ages	Lake Ellis and Silver Lake
Five-week Summer Program	Recreation Commission	Youth 5-12 yrs as participants; Teens as CIT's; and Teens as Paid Counselors	Athol High School and Lake Ellis
Ten-month, 2X week, Senior Fitness	Council on Aging	Seniors 60 yrs. +	Town Hall
Two-month Walking Program	Council on Aging	Seniors 60 yrs. +	Various sites
Ten month, 1X week, Senior Arts	Council on Aging	Seniors 60 yrs. +	Senior Center
Environmental Education	Athol Bird & Nature Club	All ages	Millers River Environmental Center
Once/year Special Concert	Council on Aging	Seniors 60 yrs. +	Unknown.

Source: Athol Recreation Commission, 2001; Athol Council on Aging, 2001.

Recreational Resource Issues

The Recreational Resource Issues section of this chapter discusses the challenges Athol faces in delivering the quality of services that residents expect. These issues are evident in the community survey results and in the inventory of recreational facilities described in Table 2-8.

An analysis of survey results indicates support for the enhancement of Athol’s existing recreational opportunities. Sixty-six percent (66%) would like the maintenance of existing recreational facilities to improve, while most felt that more programs and/or facilities were needed. Fifty-nine percent (59%) felt that facilities were insufficient for young to middle-aged adults. Meanwhile, only fifty-eight percent (58%) of respondents were either satisfied or very satisfied with facilities for seniors and only fifty-seven percent (57%) felt that facilities for children were adequate. These sentiments were echoed in the comments, where many respondents voiced concern about poor maintenance and the lack of recreation opportunities for teenagers.

Survey respondents hope to see the construction of improved sidewalks for walking/ jogging, the creation of multi-purpose trails for hiking, biking and cross-country skiing, the development of family picnic areas, and the establishment of neighborhood parks and gardens. Many respondents also expressed interest in youth programming and activities, concerts, holiday events, drama productions, and nature outings. Several comments indicate that residents are unaware of the Town’s existing recreational opportunities and most feel that Athol should publicize its existing programs and facilities.

The main recreational resource issues are:

- Improved maintenance of existing recreational facilities;
- Signage and trail/pedestrian facilities on and between open spaces used for recreational purposes;

- Recreational programming for all ages;
- Equal access to school and community parks for people with physical disabilities; and,
- Additional neighborhood and community parks: gardens, picnic areas, and a skateboard park.

Improved maintenance of existing recreational facilities

From a preliminary field survey of Athol's recreational parks, sports fields, and playgrounds it is apparent that although there is evidence of upkeep on most of these areas, there remains a need for improved maintenance of structures and equipment. The sites are clean and the lawns are cut, but more resources are needed to maintain some of the facilities. According to the community survey results, residents may want and expect more. An example of the level of care residents may be expecting, which is inferred in the survey results, is mentioned in Table 2-8 and is a potential model for a different level of maintenance: the Little League Field. Rarely does a parks department receive the funding or time allotment to invest the kind of care that was required to produce the Little League Field located in back of the American Legion Hall on Pequog Avenue. Athol Town Officials may want to work with other willing civic organizations and local businesses to adopt community parks and playgrounds to provide the high level of maintenance desired by Athol residents.

Signage and trail/pedestrian facilities on and between open spaces for recreational purposes

According to field survey findings, there appears to be a lack of signage and pedestrian/trail facilities on and between open spaces that are, or could be, used for passive and active recreational activities. The Bearsden Conservation Area may be the one exception. This may be an area to focus on given the numbers, location and qualities of open space parcels across Town. As lands become integrated into Athol's conservation holdings through their protection, the first level of stewardship may be based on their location relative to public access routes and neighborhoods. Parcels like the Gulf Conservation Area, off of Gulf Road in northern Athol, are accessible by foot for those willing to walk in over a mile, or by use of a four-wheel drive vehicle. The level of trail maintenance expected by users here could be less than areas closer to Athol Center like the Tully Brook Conservation Area, nearby a dense residential neighborhood.

The second level of stewardship becomes a possibility only when enough parcels with public access contain their own unique trail facilities, or when a major trail effort linking parcels together gets under way. Usually these linkage trails require a long-term effort. However, there are many successful examples in the region: Millers River Greenway, Tully Loop Trail, Metacomet-Monandnock Trail, the Mahican-Mohawk Trail, and the Franklin County Bikeway. Other trails are possible in Athol linking existing and future trail systems between neighborhoods and conservation lands, within the Town, and between Athol and other communities in the region.

Recreational programming for all ages

The Recreation Commission provides an essential base line service to the community: the provision of summer youth programs for children seven to twelve years of age and safe, beach access for ten weeks during the summer. During the time of year when children have the most opportunity to recreate in Town, the Commission provides a service, without which the quality of life for young children in Athol would surely decline. What the Commission recognizes, and what is reflected in the community survey results, is the additional need for programming for all ages of residents in Town.

Currently, the annual budget is approximately forty-five thousand dollars per year, though these funds are expended for the summer program alone. Employing twenty counselors, two directors, and nine lifeguards over the summer consumes most of these funds. The chair of the Commission invests a considerable amount of hours during the summer weeks to ensure the success of the programs. It is unlikely that additional volunteer services can be counted upon when the leadership role requires such an inordinate commitment of energy and time.

Despite these obstacles the demand for additional programming for teens, for young to middle aged adults, and for elders may require a response. Recreational activities help build community spirit and well maintained, often-used facilities are less likely to get vandalized. Teen programs can provide structured, skill and confidence building activities. According to the community survey results, many residents feel the absence of these types of programs for Athol youth. Recreational activities for adults and seniors are also important as a means of maintaining generational ties and by providing support to an aging population. Finally, a fully funded recreation program reflects an understanding that a healthy local economy often rests on the well being of its people.

The elderly population in Athol is provided with a wide array of recreational activities through the Council of Aging. Current offerings are hampered by lack of adequate space for facilities and programs at the existing senior center. A larger Senior Center would provide needed recreational facilities for elders and would also allow the Council on Aging to offer the many services it provides at one location. A location in the central business which has good access to transit services and reuses an existing vacant or underutilized structure would benefit both downtown revitalization efforts and the elder population.

Equal access to school and community parks for people with physical disabilities

The ADA survey findings in the 2000 Open Space and Recreation Plan indicate that the community does not adequately address the recreation needs of handicapped residents. Although Athol launched serious efforts to make the Town's public buildings handicapped-accessible, recreation and conservation lands are largely out of reach to this special interest group. An inventory of facilities at the Bearsden Conservation Area, Silver Lake and Lake Ellis revealed that access to these areas is very limited. Now that public buildings are accessible, the Town should extend its commitment to accommodate the recreation needs of handicapped residents by making at least one beach and one trail at the Bearsden Forest Conservation Area accessible.

Additional neighborhood and community parks

According to the community survey, there is a desire for additional neighborhood and community parks including gardens, picnic areas, and a skateboard park. Based on a preliminary field survey accomplished in August 2001, and as described in Table 2-10, there are a number of school playgrounds, community parks, and areas that are available for picnicking and that could be evaluated for a new skateboard park. There are two large community parks in Athol: Silver Lake and Lake Ellis Parks. Neighborhood Parks are smaller and are not associated with a school. There are two of these: Fish Park and Wooden Park. The other playgrounds are school related: Pleasant Street Playground, Early Learning Center, Sanders Street School, Ellen Bigelow/River Bend School, and Silver Lake School. Finally, there is at least one place in Athol that is a common area with neither park or picnic facilities at the present time: Phillips Park.

Table 2-10: Park and Picnic Facilities, Athol

Location	Type of Park	Playground Equipment	Picnic Facilities	Potential Space for Community Gardens/Skateboard Park? (Yes/No/Maybe)
Silver Lake Park	Community Park	Swing sets	Tables/Barbecues and Lawn	Yes/Maybe
Lake Ellis Park	Community Park	Swing sets and slide	Tables	No/No
Fish Park	Neighborhood Park	Swing sets	Tables and Lawn	Yes/No
Wooden Park	Neighborhood Park	Major pay structure	Tables and Lawn	No/No
Pleasant Street Playgrounds	School Playground	Swing sets and pay structure		No/No
Early Learning Center	School Playground	Structures	None	No/No
Sanders Street School	School Playground	Structures and swing sets	Benches and Lawn	No/Maybe
Ellen Bigelow/River Bend School	School Playground	Asphalt area, swing set, jungle	No benches, some lawn	No/No
Silver Lake School	School Playground	Swing sets and structures	Benches	No/No
Phillips Park	Common	None	Lawn	Yes/No

Source: Field Survey by Franklin Regional Council of Governments Planning Department, 2001.

Both community gardens and a skateboard park might be located within existing town-owned land or on other properties. The most cost-effective method is probably seeking out ideal locations on existing Town land. Perhaps as Athol builds in the future, additional lands can be targeted for town ownership for multi-recreational uses. From Table 2-10 it appears that community gardens could be located on portions of the land adjoining Silver Lake, on some of the expansive lawn in Fish Park, or to a lesser degree in Phillips Park. A skateboard park would ideally require separation from other activities but also exposure to adult supervision. Silver Lake may provide ample land next to the gravel pit, but because the park is removed from the neighborhoods, it may not be an ideal choice for parents of youth using the site. On the other hand, the Sanders Street Playground contains an old tennis, or basketball area, which is partially fenced in and in dire need of resurfacing. This might be a location that combines the right level of separation and exposure. However, CFS subcommittee members

recommend that additional research be conducted to document the need and costs for a skateboard park given the considerable expense associated with constructing, maintaining and supervising such a park. In addition, more study is needed to determine suitable locations for a skateboard park. The Town of Orange has recently established a skateboard park and it would be useful to learn from their experience what the costs, use and maintenance issues have been.

The community survey demonstrates a consensus among some residents that there is a need for additional recreational facilities in general. It is difficult to measure whether the Town has enough facilities. One method compares community facilities and resources with standards that landscape architects and urban planners use for urban centers. As of 1990, Athol had eleven thousand, four hundred and fifty-one (11,451) residents. The Time Saver Standards for Landscape Architects from Harris & Dines shown in Table 2-11, estimates the ideal numbers of facilities for a particular population size based upon a single use of a specific surface and does not take into consideration multiple sports using the same field.

Table 2-11: Recreational Sports Fields Standards for Landscape Architects

Sport	Facilities per 1,000 population	Total number of facilities required based on 1990 Population Figure	Total number of facilities currently present in Athol	Total # of facilities potentially needed in Athol for 1990 Population
Basketball	1 goal/1,000 + 1 full court	11 goals + 1 full court	2 full courts + 9 goals	None needed
Baseball	1/3,000	3 diamonds	11 diamonds (including 1 little league)	None needed
Football/Soccer	Minimum 1 + 1/8000	2 football fields	4 fields	None needed
Tennis	1/2000	5 courts	4 courts	1 court needed

Source: Harris & Dines, Time Saver Standards for Landscape Architects.

Based on these standards, the Town of Athol is providing ample basketball, baseball, and football/soccer facilities. Only one more tennis court is needed to meet these standards. It appears there may be a surplus of baseball diamonds and other sports fields. It would be important to determine usage figures by residents and members of surrounding communities before utilizing these fields for other purposes. If it is determined that there is an excess of baseball diamonds, there may be an opportunity to turn one or two into community gardens, picnic spaces, or a skateboard park.

Recreational Resource Recommendations

- Support the creation of a new Senior Center which could offer expanded recreational activities as well as additional services important to the elder population.
- Develop new, and expand existing, multi-use recreational trails connecting Athol's open space, natural, historic and cultural resources to its residential areas.
- Develop an “adopt a park” program focusing on participation by local businesses, neighborhood associations and youth groups which can help to maintain and improve existing facilities given municipal budget constraints.
- Identify sites that could provide public access to the Millers River for fishing, nature study, and other recreational activities and apply to the Self-help program to obtain funding to acquire land and construct facilities (i.e. parking, trails to river) to support these recreational activities.
- Conduct additional research to determine the need for a skateboard park and associated costs including site acquisition, construction, maintenance, and staffing.
- Improve facilities in existing parks through town appropriations or by applying for grants such as DEM’s Self Help program and plan for future expenditures in the Capital Improvement Program.
- Link scattered conservation and recreation areas through the establishment of a continuous greenway network to create a “Gateway to the Quabbin” area of protected open space which could support recreational tourism.