WATER, WATER EVERYWHERE?

WATER SUPPLY & TREATMENT

TAP WATER

Tap water is provided to State College Borough residents from the State College Borough Water Authority, which was incorporated by the Borough and has the power under the Pennsylvania Municipality Authorities Act to construct, acquire, own , operate, improve and maintain water works, water supply works and water distribution systems.

Quick Facts

- 99% of drinking water in our watershed is pumped from groundwater – 16 million gallons per day (MGD) in total.
- The State College Borough Water Authority is permitted to provide 9.1 MGD.
- The public water supply in the region is most susceptible to pollution from transportation corridors (roads are near all well fields), followed by contamination from land use in residential and light commercial areas.
- SCBWA's service area (67,000 users located in State College, Benner, Harris, Halfmoon, Patton, and Ferguson) consume 5.0 MGD (74 gallons per capita) on an average day and 6.3 MGD (94 gallons per capita) at peak demand.
- The average daily water use in Pennsylvania has increased 900% from 5 gallons per capita in 1900 to 62 gallons per capita today.

WASTEWATER

The University Area Joint Authority (UAJA) tries to promote water conservation even if water conservation decreases revenues to the Authority. UAJA supports water conservation as a means to increase flow to Spring Creek and to delay or eliminate the need for expansion of treatment facilities. According to UAJA:

> *State College, Pennsylvania is a vibrant and growing community near the headwaters of Spring Creek, a high quality, cold water fishery. The high quality designation of Spring Creek by the Pennsylvania Department of Environmental Protection places strict limitations on both the quality and volume of treated effluent discharge allowed from UAJA. A discharge volume cap of 6 million gallons per day has been established. Spring Creek is the only major surface water discharge source in UAJA's service area. Current zoning in UAJA's service area already predicts an eventual influent flow to UAJA of over 8 million gallons per day. Water conservation measures promoted by UAJA could lower this predicted influent flow, delaying or eliminating the need for expensive capital improvements (expansion) to its treatment facility. These measures could result in significant savings to UAJA customers over time.*

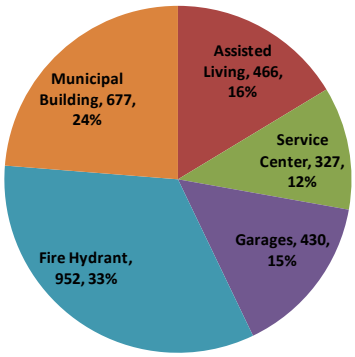
Quick Facts

- Wastewater from State College Borough is sent to the PSU treatment facility (0.6 MGD) or diverted to UAJA (up to 1 MGD).
- The PSU treatment facility receives a little less than three million gallons per day from the Penn State Campus and State College Borough.
- Unlike the rest of the region served by UAJA, State College Borough residents' sewer rates are billed based on metered water use. The rest of the UAJA service area is billed based on the Equivalent Dwelling Unit method, not actual water use (each residential unit receives a quarterly sewer bill for an approximate use of 175 gallons per day of wastewater. Some believe the EDU method does not encourage water conservation.

State College Borough Municipal Use

- The municipality spends approximately $40,000 each year for the cost of water use and sewage treatment from Borough owned facilities such as the Municipal Building, the Service Building, and the use of fire hydrants.

Water Use (Thousand Gallons)



*The total yearly costs for water and sewer at Borough owned facilities is approximately $40,000 (9% of total utility costs).

ASSESSMENT OF CODES/ORDINANCES

POST-CONSTRUCTION STORMWATER MANAGEMENT

Through the Borough's Stormwater Management ordinance almost all new construction and renovations that increase the size of impervious surfaces require the submission of a stormwater management plan to obtain a zoning permit, except for instances of land disturbances associated with 1- and 2-family single dwellings. Stormwater management is unique in the Borough in that the Borough Engineer gives comment on all stormwater management plans and addresses the issues of stormwater runoff on a case by case basis rather than adopting a universal stormwater design manual. This method encourages performance based decisions rather than prescriptive design choices.

Interesting Fact

50% of the points available for stormwater management in the National Green Building Standard are achieved through the Borough's Storm Water Management Ordinance.

EPA Sustainable Design and Green Building Toolkit Assessment

Post-Construction Stormwater Management (A.4)

Required by code/ordinance:

- Post-construction control through the Borough's Storm Water Management Ordinance
- Maintenance of pre-development hydrology in both recharge amounts, direction of runoff to waterways, and water quality

Incentivized:

- Redevelopment projects for green buildings in areas zoned as Commercial Incentive District.
- Credits to reduce the required recharge volume for sheet flow directed to undisturbed natural buffer areas, flow from sidewalks to grass strips between sidewalks and the curb and other situations which negate recharge deficiencies from impervious surface areas
- The use of non-structural best management practices (BMPs) over the use of structural BMPs.

Expressly allowed:

- Options for green streets or alleys is expressly allowed because the Borough has control over the majority of street construction and is supportive of and practices the narrowing of streets and the use of permeable pavements, curb cuts, and rain gardens
- Options for shared parking to discourage overbuilding of parking lots

Code/ordinance silent, but typically allowed

- Options for green parking lots including permeable pavements, rain gardens, substitution of curb and gutter systems

WATER CONSERVATION

Although most of the Centre Region is fortunate to have plentiful water supplies, the supplies are not endless. The State College Borough Water Authority notes that water use has already decreased stream flows and impacted many shallow wells. With growth in the region, this impact will become more severe over time.

State College Borough residents have a greater monetary incentive to decrease water consumption than residents in the rest of the Centre Region, because they are billed for wastewater treatment based on actual water use rather than estimated water use. However, many apartment dwellers have water included as part of their rent rather than paying individual utility bills by unit thus negating the market signal to conserve water.

WHERE IS THE HIGHEST WATER CONSUMPTION

- The bathroom is the home's largest water user (>50% of all indoor water use).
- Up to 75% of a typical home's total water used during the growing season is for outdoor purposes.

WHY CONSERVE WATER?

Cost – According to EPA's Water Sense, If all U.S. households installed water-efficient appliances, the country would save more than 3 trillion gallons of water a year ($18 Billion). The average household, which spends approximately $500 per year on water, could save about $170 per year by installing water-efficient appliances.

Energy – Water supply and treatment facilities consume about 56 billion kilowatt-hours per year, the equivalent of powering 5 million homes for a year. Letting your faucet run for five minutes uses as much energy as letting a 60-watt bulb run for 14 hours.

Resource Conservation – Diminishing water levels can put water supplies, human health, and the environment at serious risk. The Borough's water use impacts Spring Creek a valuable trout hatchery. Lower water levels can contribute to higher concentrations of natural or human pollutants and could cause intermittent streams in the headwaters of the Spring Creek Watershed to run less frequently. By maintaining current water use or decreasing

water usage the Borough can eliminate or decrease expenses related to expansion of water treatment operations and increased sewage system failures.

WHAT CONTROL DOES THE BOROUGH HAVE OVER WATER USE OR STORMWATER RUNOFF DURING CONSTRUCTION?

Not much:

- The Borough has limited control over water–efficient plumbing and metering, which is regulated by the Centre Region Code Agency and the State College Borough Water Authority respectively through its partnerships with these organizations.
- Grey water is regulated by the Commonwealth of Pennsylvania. All untreated gray water must be discharged to a sanitary sewer.
- Any runoff that would occur during construction is controlled through permits obtained from the Conservation District. The Borough Engineer will not approve a new construction unless this permit has been obtained.
- In cases of drought Pennsylvania has developed three drought phases. Under the first two phases the Commonwealth asks for voluntary reductions in water use. Under a Drought Emergency the Commonwealth imposes mandatory restrictions on watering lawns, golf courses, washing paved surfaces, operating fountains and filling swimming pools, washing vehicles, and serving water in eating places unless requested by the customer.

Notes