Water conservation is a major component of sustainable building programs, and in many cases an untapped source of operational cost reduction with short paybacks. This summary is a comparison of overall water use and average unit water cost for water for the Minnesota Green Communities Initiative pilot projects. The information has been gathered by the Center for Sustainable Building Research with the cooperation of developer-owners and residents as part of a larger verification and case study effort. Water data is based on first year of building occupancy.

The following is a comparison of the water use intensity in gallons/person/day (g/p/d). The average indoor water consumption for the US is estimated at 69.3 g/p/d by the American Water Works Association (AWWA). The average water use rate for the projects shown is 55 g/p/d. (Building system description can be found on page two of this summary.)

The following is a comparison of combined water and sewer cost based on first year of occupancy. The cost is presented as a rate of dollars per person per year. The cost of water varies greatly by municipality. Costs in the Twin Cities are considerably higher than rates in Greater Minnesota. Based on the AWWA water use average of 69.3 g/p/d the annual cost of water in the Twin Cities would be $194.55 per person (rate calculated based on average per gallon costs for pilot projects).
PROJECT DESCRIPTIONS

The information below briefly describes the projects in this summary. For further information on the projects included in this summary and discussion of energy and water use for projects tracked by CSBR, visit the case study section of the Minnesota Sustainable Housing Initiative website. Additional information including details on project funding are available on the Minnesota Green Communities website under the “Projects” tab.

New San Marco, Center City Housing Corporation, Duluth, MN is a 70 unit mixed-resident type development, with SRO and supportive housing wings. The fixtures specified consist of 1.6 gallon-per-flush (gpf) toilets, 2.2 gallon per minute (gpm) kitchen sinks, 2.2 gpm bath sinks and 2.5 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 52.4 gallons/person/day, or a 24% less than the average.

Cloverfield Marketplace, AEON, Chaska MN is a three building, 117 unit mixed use development. The fixtures specified consist of 1.6 gpf toilets, 1.5 gpm kitchen sinks, 1.5 gpm bath sinks and 2.5 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 49.1 gallons/person/day, or a 29% less than the average.

Park Avenue Apartments, Lutheran Social Services, Minneapolis, MN is a 48 unit development attached to the Center for Changing Lives. The fixtures specified consist of 1.1 and 1.6 gpf toilets, 2.2 gpm kitchen sinks with low-flow aerators, 1.5 gpm bath sinks and 2.5 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 49.1 gallons/person/day, or a 29% less than the average.

Wellstone Apartments, Hope Community and AEON, Minneapolis, MN is a 49 unit mixed-use development. The fixtures specified consist of 1.6 gpf toilets, 1.5 gpm kitchen sinks, 0.5 gpm bath sinks and 1.6 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 41.7 gallons/person/day, or a 40% less than the average.

Winnipeg Apartments, Legacy Management, Saint Paul, MN is a 56-unit, two building apartment development. The fixtures specified consist of 1.6 gpf toilets, 1.5 gpm kitchen sinks, 1.5 gpm bath sinks and 2.5 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 49.1 gallons/person/day, or a 29% less than the average.

Brook Commons Apartments, PPL and Cabrini Partnership, Minneapolis, MN is a 50 unit apartment building. The fixtures specified consist of 1.6 gpf toilets, 2.2 gpm kitchen sinks, 0.5 gpm bath sinks and 2.0 and 2.5 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 46.7 g/p/d, a predicted reduction of 33% compared to the average.

Ripley Gardens, AEON, Minneapolis MN project comprises 52 units of rental housing and 8 owner-occupied town homes in 6 buildings. Water information is only available on the rental units. The fixtures specified consist of 1.6 gpf toilets, 1.5 gpm kitchen sinks, 2.2 gpm bath sinks and 2.5 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 50.9 gallons/person /day, or a 27% less than the average.

Viking Terrace, Southwest Minnesota Housing Partnership, Worthington MN is a 3-building, 60 unit renovation of a 1970 housing project. The fixtures specified consist of 1.0/1.6 gpf dual flush toilets, 1.5 gpm kitchen sinks, 0.5 gpm bath sinks and 2.0 gpm shower heads. Utilizing the AWWA standard and based on the fixtures specified, the modeled water consumption is 42.3 gallons/person/day, or a 39% less than the average.