



Water Reuse Benefits Information Sheet

What is Water Reuse?

Water reuse is a term commonly used to explain the capture and reuse of reclaimed water. There are several types of water reuse that are designed to accomplish different goals; examples include water reuse for industrial cooling, toilet flushing, and irrigation of agricultural crops. This information sheet will review the benefits of stormwater reuse irrigation projects.

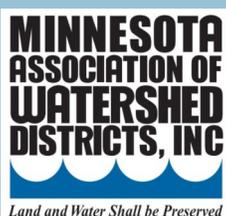
Stormwater is an all-inclusive term that refers to the water running off of the land's surface after a rainfall or snowmelt event (MPCA, 2017). Stormwater reuse irrigation projects capture, store, and reuse excess stormwater runoff to meet the irrigation demands for turf, trees, or gardens. Properties with high water demands including golf courses and public parks are often good candidates for stormwater reuse irrigation projects. Interest in stormwater reuse irrigation projects has increased in the last few decades because it can produce multiple benefits to resources while providing potential cost savings.

Benefits to Groundwater Resources: Supplies

Stormwater reuse irrigation projects have demonstrated the potential to increase the quantity of groundwater supplies available for both natural resources and consumers alike.

Stormwater reuse irrigation projects reduce the amount of stormwater that flows out of a watershed by capturing and distributing it over a vegetated surface through irrigation. This reclaimed water evaporates during irrigation, evapotranspires through plants, or percolates through the soil where it has the potential to replenish local groundwater supplies (WERF, 2001).

Reuse irrigation projects benefit groundwater resources by reducing consumption of available groundwater supplies. Properly designed stormwater reuse systems can meet a significant portion of annual irrigation demand. This reserves groundwater supplies for public consumers and natural resources that may depend on stable groundwater levels, such as wetlands, lakes, and streams (RCWD, 2011).



The Minnesota Association of Watershed Districts (MAWD) provides educational opportunities, information, and training for watershed district managers and staff through yearly tours, meetings, and regular communication. MAWD represents 45 watershed districts in the state. The watershed districts are partners in water protection and management.

Benefits to Surface Water Resources: Reducing flood risk and improving water quality

The collection and reuse of stormwater runoff has emerged as an effective method for water volume control and yields potential flood reduction benefits. In highly developed areas with large amounts of impervious areas, stormwater runoff causes large peaks in stormwater discharge flows (EOR, 2013). Water reuse projects are designed to capture and store stormwater runoff. This reduces these peak discharges and alleviates related flooding risks.

Capturing excess stormwater runoff yields water quality benefits. Stormwater runoff is commonly associated with pollutants such as phosphorus and total suspended solids. Reducing runoff volume reduces nutrient loads and pollutants entering surface water resources. This may be an important strategy in achieving future nutrient load allocations resulting from an approved Total Maximum Daily Load (TMDL) including the Lake Pepin TMDL.



Other Benefits

Stormwater reuse irrigation projects have potential financial benefits. Once a project is implemented, costs associated with pumping municipal water for irrigation can be avoided. According to a survey by the American Water Works Association, average monthly residential water and wastewater bills have been steadily increasing since 1988, and they are increasing at a substantially higher rate than the consumer price index (AWWA, 2015). Financial benefit could be realized through offsetting municipal water demands by using stormwater runoff for irrigation instead of municipal groundwater supplies.

A reduction in groundwater use has the potential to benefit private and public sectors (HEI, 2016). Some lakes are hydraulically connected to groundwater aquifers. Declining groundwater aquifer levels can impact lake levels in these lakes. Low lake levels can cause public beach closures, limit boat access, and affect fisheries. This relationship yields private sector use impacts and economic ramifications. Lakefront properties can be severely impacted by declining water levels; closures of beaches or marinas negatively impact business owners on the lake and throughout the community. Making progress towards stabilizing and recovering groundwater aquifer levels may yield positive progress towards maintaining local lake levels hydraulically connected to aquifers. This ensures that local lakes continue to benefit the public and support the businesses that rely on them.

References

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