

Arlington-Pascal Stormwater Project

Winner: 2007 Sustainable Saint Paul Water Quality Award

Capitol Region Watershed District and its partners solve community flooding problems and reduce nutrient pollution in Como Lake with the Arlington-Pascal Stormwater Project.

"This project is an example of efficient public sector collaboration."

— Mayor Chris Coleman

Three rain gardens on Pascal Street.



1410 Energy Park Drive, Suite 4
Saint Paul, MN 55108
651-644-8888
www.capitolregionwd.org



Arlington-Pascal Stormwater Project

Project Background

In urban areas like Capitol Region Watershed District, opportunities to build stormwater improvement projects are limited because much of the land is already developed. Como Lake and its neighborhood are significantly impacted by stormwater runoff from city streets during rain events and snowmelt. This stormwater is the primary water source for the lake and carries along with it anything that is in the street. Sand, salt, yard and animal waste, and pesticides are pollutants that enter the lake via storm drains in the watershed. Yard waste and fertilizer in particular are phosphorus nutrient sources that allow algae to proliferate.

Como 7, a subwatershed of Como Lake, drains to the lake via a pipe running through Como Park. During large rain events, the pipe could not handle the volume of runoff. The City of Saint Paul initially estimated that a second pipe was needed within the park to convey water during storm events and reduce flooding in the neighborhoods

at an estimated cost of a \$2.5 million – a very high cost for no treatment or other benefits. So, in 2005-06, CRWD and the cities of Saint Paul, Falcon Heights, Roseville and Ramsey County worked together to construct stormwater features as part of planned street reconstruction. Project goals were to improve stormwater by slowing it down, capturing it to prevent flooding and pollution transport and to beautify the neighborhood. These goals were achieved through rain gardens, infiltration trenches, an underground stormwater storage facility and improvements to Como Park Regional Pond.



Each partner shared a percentage of the cost:

Capitol Region Watershed District, 50% | City of Saint Paul, 37%

City of Falcon Heights, 10% | City of Roseville, 2% | Ramsey County, 1%

Project Elements

After a detailed study, the following flood control and runoff pollution reduction structures were built:

- Eight **rain gardens** to reduce stormwater volume and prevent nutrient and sediment pollution
- Eight **infiltration trenches** under Arlington and Nebraska Avenues to reduce the amount and speed of stormwater entering Como
- A large, **underground stormwater storage and infiltration facility (AHUG)**
- A **redesign of Como Park Regional Pond**

Rain gardens contribute to water quality improvement as well as rate and volume control by receiving the first, most polluted flush of stormwater off the street. If the system overflows it will drain to the storm drain system. Rain gardens are also a neighborhood amenity, contributing beauty, traffic calming and pollinator habitat in the neighborhood. A 2009 survey of homeowners in the project area showed 92% of residents strongly favor having the gardens in place of turf grass.

Eight **infiltration trenches** were constructed underneath Arlington and Nebraska Avenues to capture neighborhood stormwater runoff and improve water quality by infiltrating water back into the soil naturally. On Arlington and Nebraska Avenues, runoff flows off

driveways and streets into catch basin pretreatment units to collect trash, leaves, sand and other debris before flowing into the trenches.

Arlington Hamline Underground Stormwater Facility is 850 feet of 10-foot-diameter perforated pipe that receives, stores and infiltrates street runoff. The storage facility helps reduce flooding to Como Lake by allowing polluted stormwater to flow into the pipes and soak into the ground instead of flowing to Como Lake through the city's storm drain system.



In conjunction with the Arlington Hamline Underground Storage Facility, the **Como Park Regional Pond redesign** eliminated the need for an expensive and obtrusive pipe expansion through Como Park. The redesign involved a diversion pipe to route flows from a 650-acre drainage area into an existing low point in the northwest corner of Como Golf Course. The low area was regraded and expanded and the elevation of the adjacent fairways was raised to prevent flooding

that previously led to days of lost play for the course. In 2013, native plants were planted around the perimeter of the pond to stabilize the banks and keep geese off the fairway.





CRWD facts

- CRWD covers 40-square miles that include portions of the cities of Falcon Heights, Lauderdale, Maplewood, Roseville and Saint Paul within Ramsey County.
- CRWD has a population of 225,000 people.
- The primary water resource is the Mississippi River to which the districts drains.
- Lakes within the district are Como Lake, Crosby Lake, Lake McCarrons and Loeb Lake.

Water Monitoring

Stormwater flow monitoring equipment measures inflow and outflow volumes of water in the Arlington Hamline Underground Facility and along the Nebraska Infiltration Trenches in order to determine infiltration rates and total stormwater volume reduction. Sampling is performed to quantify pollutant load reductions such as removal of total phosphorus (TP) and total suspended solids (TSS).

Project Results

All water quality practices combined result in a projected phosphorus reduction of 155 pounds per year.

Arlington Hamline Underground Stormwater Storage Facility is projected to remove 35 pounds of phosphorus pollution and 32,000 pounds of solid and particulate pollution from reaching Como Lake each year.

Como Park Regional Pond retains water before it gets to Como lake preventing 90 pounds of phosphorus and 156,000 pounds of solid and particulate pollution from entering the lake annually.

1410 Energy Park Drive, Suite 4
Saint Paul, MN 55108
651-644-8888
www.capitolregionwd.org

