

Partnerships for Cleaner Water at Clear Lake

April 2017 Snapshot

As part of the City Center redevelopment, the City of Forest Lake partnered with Rice Creek Watershed District (RCWD) to develop a plan for capturing and treating polluted rainwater on site before it reaches nearby Clear Lake. The City was awarded a Clean Water Fund Grant, from the Clean Water Land and Legacy Amendment, in the amount of \$382,000 for the project with an additional \$95,000 in local matching funds provided by the City and RCWD.

The goals of this project were to slow down the polluted runoff allowing dirt and other material to be deposited on site and remove excess nutrients such as phosphorous from the water to help clean up Clear Lake. Project features include iron-enhanced sand filters (IESF), tree trenches, a stormwater pond, and bioswale.

Iron-enhanced sand filters are one of the most exciting features of this project and can be found in three locations. These filters are designed to remove phosphorous from the water. Phosphorous provides “food” for plants and in high amounts causes algae blooms in Clear Lake. During rainstorms, water washes through a mixture of sand and iron, which binds to the phosphorous, preventing it from flowing into the ditch and to the lake. Two of the three filters are incorporated into rock ditch checks to treat low flows. The third and largest filter runs parallel to the redirected ditch and treats water in the constructed ditch floodplain during big rainstorms.



Iron enhanced sand filter ditch



Tree trenches

The floodplain is the area of land surrounding the ditch that consists of grasses and wildflowers. During large rainstorms, water in the ditch rises over the banks and onto the floodplain. As water enters the floodplain, it slows down depositing dirt and other materials, preventing it from flowing to Clear Lake. Water then filters through the IESF before discharging back to the ditch.

In addition, two tree trenches were constructed to capture and treat polluted runoff from the City Center parking lot during rainstorms. The trees “drink” the water and make use of any extra nutrients, and then the water flows into a stormwater pond on the north end of the property. The stormwater pond was built to capture and slow runoff during rainstorms allowing dirt and other material to settle before flowing into the new ditch. Lastly, a bioswale consisting of grasses was created alongside of the pond to slow and treat offsite runoff. The plants in the bioswale use the materials and nutrients left behind to grow and flourish.