

Cost Benefit of Groundwater-friendly Practices Falls Road Golf Course, Maryland



Site Background

Falls Road Golf Course is a 150-acre 18-hole public golf course with a 22-stall driving range located east of the Village of Potomac, Maryland. It was completed in 1961 on the site of a former dairy farm. In 2003 the course completed a renovation of all 18 holes.

Falls Road has an on-site irrigation storage pond, and a drinking water well that supplies drinking water to the maintenance shop and water and ice for water coolers on the golf course. Golf course staff manages and prepares the golf course for daily play within the operating budget and in a way that allows golfers to have an enjoyable playing experience and minimizes the course's impact on the environment.

Falls Road is operated by the Montgomery County Revenue Authority, which also operates eight other golf courses in and around the Baltimore and Washington, DC metro area including Hampshire Greens, Laytonsville, Little Bennett, Needwood, Northwest, Poolesville, Rattlewood Golf Courses, all of which are designated as Groundwater Guardian Green Sites.

Groundwater-friendly Practices

Soil testing

Falls Road conducts annual soil testing. In the past, the course utilized a soil consultant on retainer for approximately \$475 per month. The consultant performed unlimited soil and water testing services. After four years of utilizing the consultant's services, Falls Road staff noticed that the nutritional requirements of the course's primary playing surfaces were beginning to equalize. For example, when the consultant first started work, there were eight different fertilizer program recommendations for different groups of fairways; now there are typically just one or two.

Currently the site utilizes John Deere/Lesco soil testing, which will perform 18 free soil tests per year. Falls Road Golf Course Superintendent Jon Lobenstine noted they are able to test soils with similar chemistry in groups "now that we have the course a little better dialed in."

Initially, Lobenstine reported that the course spent more on fertilizers and soil amendments to correct major nutrient deficiencies in the soil around the course. However, because of the soil test history, some applications of fertilizer have been reduced in scope; so while certain applications cost more, there were also cost savings with other applications. In 2010, the course spent about \$5,000 less on fertilizer than in previous years.

Lobenstine notes, "We do notice though, that once soil nutrition is at an optimal level for all of the primary and secondary nutrients, we are able to extend our window on pesticide applications, so there is a savings on chemicals in general." 2010, however, was an exception because of the

extreme heat and weather in July and August that was characterized as the toughest summer to grow grass in the Mid-Atlantic in over 30 years.

Staff estimates that at least \$10,000 has been saved per year in pesticide applications by cumulatively skipping two applications of fungicides on greens, tees, and fairways throughout the year by extending our spray intervals from 14 days to 17-18 days at certain times.

Irrigation Upgrades

Falls Road's pump station has been upgraded to a variable frequency drive, which ultimately reduces wear and tear on pipe as well as saves money on electricity. Lobenstine estimates that the course has saved at least 25% of the electricity cost of the previous system through the upgrade.

In addition, sprinkler heads in certain areas around the course have been changed from full-circle to part-circle heads, especially where no-mow areas have been implemented around some tees and fairways. The sprinkler heads located in completely no-mow areas have been abandoned. The course doesn't pay for city water, so there's not a significant cost savings, except for the run time of irrigation cycles that reduces the electricity cost from the pump station. Lobenstine estimates this to be approximately 1%, since many of the abandoned sprinkler heads were rough heads that weren't used frequently. Of the 650 sprinkler heads on the course, about 25 of those have been changed or abandoned.

Integrated Pest Management

Because soil testing and proper nutrient application have led to ideal levels for primary and secondary nutrients, staff is able to extend time between pesticide applications, leading to a cost-savings on chemicals.

Approximately \$10,000 has been saved per year in pesticide applications by limiting applications based on disease scouting and reducing applications only where necessary. As mentioned previously, staff omits two fungicide applications throughout the year by extending spray intervals from two weeks to 17 to 18 days.

Chemical Storage

The course's chemical storage facility was upgraded in 1992 for a cost of about \$20,000. The new facility was built to include spill containment features.

Water Well Testing

Water well testing is performed on an annual basis for coliform and other harmful bacteria. The course spends approximately \$125.00 for the important testing.

Fuel Storage

In 1992 Falls Road upgraded its fuel storage tanks. An above ground, double-walled, 1000-gallon fuel storage tank was purchased for \$8,975.

Fuel Economy

Falls Road has implemented the use of various fuel additives and performed exhaust system upgrades with on-road vehicles to improve fuel economy and reduce emissions. Monster Diesel is a treatment designed for use in diesel trucks. Just \$20 treats 250 gallons of fuel and provides for better fuel economy, reduced soot emissions, and better engine lubrication. The course's diesel engine vehicles have improved their fuel economy by at least one mile per gallon with the use of this product. A larger, four-inch exhaust pipe was also installed on the diesel truck, providing an additional 1.5 mile per gallon increase in fuel economy. In addition, a cold air intake was installed that increased fuel economy an additional .5 mile per gallon.

When all is said and done, the three miles per gallon increase in fuel economy allows the course's diesel vehicles to use 500 fewer gallons of diesel fuel per year (approximately 35,000 miles driven annually). Falls Road Golf Course Superintendent Jon Lobenstine reports that this saves the course about \$1,400 in fuel per year at 2010 prices. The upfront cost of the upgrades – the fuel additive, four-inch exhaust pipe, and cold air intake – was about \$900 (the fuel treatment costs roughly \$140 per year).

Lobenstine notes that “In the first year, we only saved about \$360, but every year after we will save an estimated \$1,260 just for this one vehicle, plus the environmental benefit of burning 500 gallons less fuel!”