I. Abstract

The impervious material used in Myers Park has increased the stormwater runoff volume and added pollutants to the runoff. This excess runoff is causing erosion problems at various locations around the parking lot. One part of the parking lot (42,000 square feet) is located right above the culvert that discharges into a stream that discharges into Honey Creek, which is a tributary of the East Fork of the Trinity River that eventually discharges into Lake Lavon. One of the best management practices that could reduce the runoff volume and improve its quality is a rain garden. The construction of a rain garden to collect parking lot runoff is uncommon in Texas and this project will serve as a demonstration to show the benefits of this BMP as well as reduce erosion in Myers Park.

II. Overall Progress and Results by Task

Task 1: Construct a rain garden (bioretention area) that will collect parking lot runoff at Myers Park Reduce the runoff volume and flow rate and will decrease the pollutants discharged into the storm drain

A demonstration rain garden was installed at the edge of a large parking lot at Myers Park and Event Center. The rain garden is designed to capture at least 1 inch of rain water from the parking lot. The water is stored in the rain garden, utilized by the plants, filtered by the soil, and infiltrates into the soil beneath the garden. Excess rain water is filtered and released into a storm water drainage system that is installed at the bottom and surface of the rain garden. The initial phase of the rain garden installation was conducted through a Storm Water Management Workshop that was available to the public.

A timeline of the activities for constructing the rain garden are listed below:

1. On April 23rd following the Rain Garden Installation Workshop held at Myers Park, the attendees assisted in the installation of the components for the rain garden. This included the installation of gravel to form the base, the addition of a 4” perforated poly drain pipe to remove excess water, a cloth barrier over the drain to prevent roots from clogging the drain and a layer of soil over the cloth barrier for plant installation.
2. As a result of the bed for the rain garden being excavated wider than planned, there was not enough soil to complete the rain garden on that date. On June 4th additional soil and compost was added to the bed.

3. On June 6th, due to the irregular edge of the asphalt surface at the rain garden entry, a straight line was created using spray paint to guide the park maintenance crew as they saw cut the asphalt.

4. On June 8th the maintenance crew broke up the uneven asphalt along the saw cut line.

5. On June 26th the broken pieces of asphalt were moved to the back side of the rain garden to re-enforce the back berm and the soil was graded to even out the bed.

6. On July 29th 3 trenches were dug for the 4" drainage lines discharging from the garden. This included the (3) above ground drain boxes that were installed that day.

7. On August 4th the County Sheriff’s Department provided (10) community service people to assist with the reconstruction of the rain garden. With their assistance, the back berm was reinforced using available pieces of asphalt from the parking lot. The soil/expanded shale mixture in the rain garden was then raked onto the berm to cover the asphalt.

8. On Aug 17th the County Sheriff’s Department provided (6) community service people to assist with the final addition of soil/compost to the rain garden.

9. On Oct. 24th, Park maintenance installed a water line into Rain Garden to provide irrigation during times of drought.


11. On Nov. 7th we added mulch donated from Arborilogical Services to Rain Garden.

12. On Nov. 18th, additional soil and mulch was used to complete the East end of the rain garden. Flagstone was also used to support the back side of the berm at the East end of the garden.

Figure 1: Trench dug in the parking lot to build the rain garden
Figure 2. Workshop attendees assisting in laying the gravel at the bottom of the rain garden.

Figure 3. Rain garden after the completion of the gravel and soil laying.
Figure 4. Installing the drainage boxes and the drainage pipes.

Figure 5. Planting before the completion of the rain garden construction.
The following actions have been completed during this reporting period:

100% Complete

Task 2: Reduce the current erosion occurring at Myers Park
The main task of the constructed rain garden are to reduce the erosion that was caused by the runoff from the parking lot at the grassed slope that leads to the main drainage cannal from Myers Park (See Figure 6 and 7).

Figure 6. Location of the rain garden just South of the eroded slope.

Figure 7. Erosion on the slope adjacent to the parking lot.
It is expected that the rain garden will capture the first flush of runoff from the parking lot and divert excess runoff to the drainage system away from the eroded slope.
As the project was completed on November 18th, the slope is still being monitored to estimate the reduction in erosion.
The following actions have been completed during this reporting period:

**80% Complete**

Task 3: *Serve as demonstration and an educational tool for local residents and governments*

1. The initial phase of the rain garden installation was conducted through a Storm Water Management Workshop that was available to the public. The workshop provided an educational presentation by Fouad Jaber, Storm Water Management Extension Specialist, and an opportunity to provide hands-on experience with installation of the rain garden. The program was very successful in educating the public, raising awareness of storm water management best management practices, and providing hands on experience.

2. North Texas Water Education Conference: The conference was planned to provide education to the public and government officials. One of the programs of the conference was a demonstration and tour of the rain garden attended by 88 people on August 14th, 2009. 98% of the participants reported being mostly or completely satisfied.

3. As part of the Collin County Master Gardener Training, 37 students (future Master Gardener Volunteers) were provided education on water related topics including: Storm Water Management, Rain Gardens, Rain Water Harvesting, Landscape Irrigation, and Water Conservation On Sept. 8th. A tour of the rain garden was provided to the participants of the program.

4. Additional programs are planned for the coming year.

The following actions have been completed during this reporting period:

**80% Complete**