



LANDSCAPE PERFORMANCE SERIES

Ruth Mott Foundation Gilkey Creek Relocation and Restoration – Flint, MI Methodology for Landscape Performance Benefits

Environmental

- ***Reduced impervious surfaces and stormwater runoff by 22% and uses natural systems to manage all stormwater runoff generated on site.***

These numbers reflect the conversion of paved surfaces to green areas and added stormwater features. There were no actual calculations performed to verify the actual percentage. The 22% is the percentage of the project area that was converted from paved surfaces to native landscapes and low-mow turf areas. These paved areas were located over sandy, free-draining soils and much of the runoff now infiltrates into the soil. In two locations, stormwater features were constructed as wetland habitat.

One feature (1/2 acre wetland) was sized and graded to capture runoff for a first flush storm event (1" rainfall) for a 6-acre parking lot. A second feature was constructed as a habitat pond and contains a restricted outlet pipe to retain a first flush event from an 8-acre field and the lower gardens. Stormwater from these areas are collected from a new stormwater system that discharges to the pond.

- ***Eliminated flood-related restoration and clean-up costs by over 95%, saving an average of \$10,000-\$15,000 annually.***

In the past, following each flood event (average 2 times per year), Ruth Mott Foundation maintenance staff focused on clean-up operations in the lower garden area. Costs were attributed to removal and replacement of silt laden aggregate across the gravel path system, cleaning and drying flooring within the two affected structures and sediment removal from paved surfaces and plant beds. The work was performed principally by staff and the majority of costs were attributed to labor. It is difficult to quantify that actual cost for this since the clean-up is dependent upon the severity of the flooding. The creek restoration project all but eliminated flooding (up to a 500-year flood event) in the lower gardens and no additional clean-up costs are anticipated. The HEC RAS modeling prepared during the design phase of the project verified this flood reduction.

- ***Restored connectivity to 3 miles of upstream riparian corridor for terrestrial and aquatic species.***

Reflected by field measurements. Prior to the Gilkey Creek Restoration project, the underground portion of Gilkey Creek created a physical barrier along the creek for fish migration and a riparian corridor gap for the migration of terrestrial species commonly observed along riparian habitat. The riparian restoration at Applewood removed this obstruction. Now there is a continuous, unobstructed 3-mile long riparian corridor that starts at the creek confluence with the Flint River upstream to the northern end of the Flint park system. Fish and terrestrial species can now migrate upstream in a natural habit with no physical obstructions such as pipes and roads which is uncommon in an urban setting.

Social

- ***Expanded capacity of RMF's environmental education outreach through the development of programming at Applewood with a focus on habitat restoration, native landscapes, stormwater management and wetland ecology.***

These new educational opportunities complement Applewood's outreach and programming related to gardening and the history of the Applewood estate.

Economic

- ***Reduced long-term site maintenance costs by 50%, an estimated annual savings of \$20,000, by converting 6.6 acres of pavement and lawn to native landscapes.***

This is the result of reductions in labor and materials that the Ruth Mott Foundation horticultural and maintenance staff will realize. Approximately 4 acres of turf area no longer require weekly maintenance by the staff. The annual savings for this work is \$14,000. The removal of 2 acres of the parking lot accounted for the remainder of the savings. Each year, the savings associated with the maintenance of this surface included \$4,000 - \$5,000 for sweeping, pavement sealing and isle striping.

- ***Created local employment opportunities by utilizing contractors from the surrounding four-county region for 80% of work.***

Contractor verified. As part of the bidding and award selection, the contractor was required to utilize local labor forces and to provide documentation prior to contract award. While not a prevailing wage rate project, the general contractor hired local labor and retained local sub-contractors for trucking, clearing and grubbing, fencing, landscape restoration and material suppliers for concrete and quarry stone used for creek restoration.