



PROJECT PROFILE

COON LAKE RETROFITS



Multiple Project Types

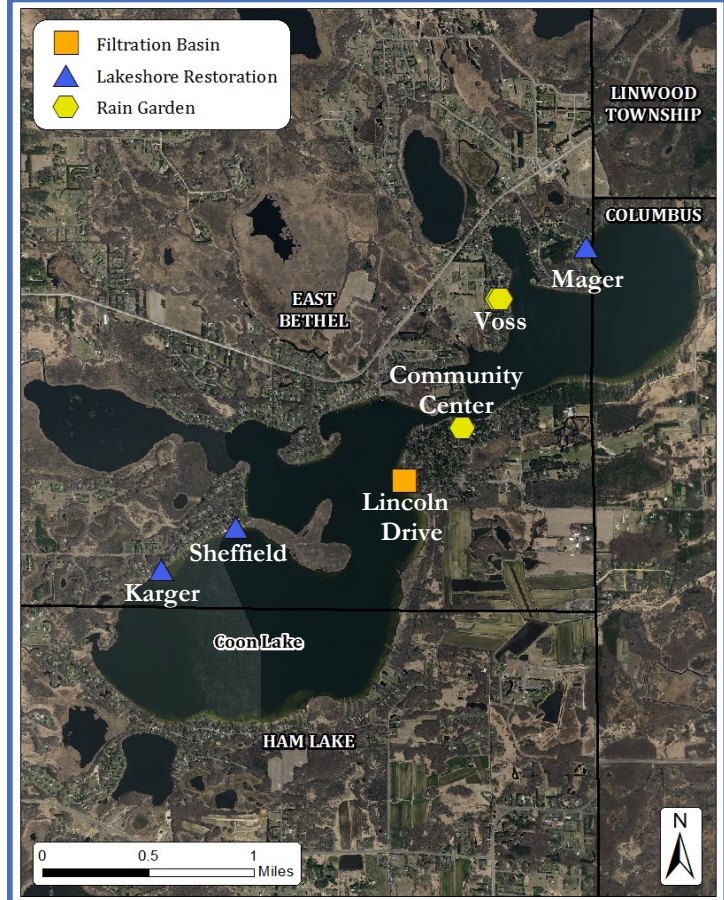


Project Summary

This project installed new stormwater treatment practices in neighborhoods directly draining to Coon Lake. Coon Lake is a priority because it's the county's largest lake, has two public boat accesses and a county park, and is a focus of the community. Improving Coon Lake water quality is a priority because it has approached the state water quality standard of 40 µg/L of phosphorus in some years.

The project aimed to treat stormwater that was previously discharging untreated to the lake, correct shoreline erosion and improve water's edge habitat. The targeted pollutant was phosphorus, which fuels algae growth. The projects installed included 3 curb-cut rain gardens, 3 lakeshore stabilizations, and 1 filtration basin/structural stabilization. Each project was selected for its ability to treat a large drainage area and were chosen for areas where current treatment is inadequate or nonexistent. In total the projects resulted in a reduction of 8.40 lbs-TP/yr, 9,242.83 lbs-sediment/yr and a volume reduction of 2.11 ac-ft/yr from entering Coon Lake.

The total cost of the 7 stormwater retrofits was \$93,503.19. Funding was provided by a Clean Water Fund (CWF) grant, the Sunrise Watershed Management Organization (WMO), the Coon Lake Improvement Association, the Coon Lake Improvement District, and the Coon Lake Beach Community Center.



Project Specs

Project Expenses

Project Funding

Projects Installed.....	7
Date Installed	2015-2016
TSS Reduction (lbs/yr) ..	9,242.83
TP Reduction (lbs/yr)	8.40
Vol. Reduction (ac-ft/yr)	2.11

Install/Materials	\$87,133.64
Develop./Mgmt.	\$4,755.95
Administration	\$1,613.60
Total	\$93,503.19

CWF.....	\$42,987.00
Sunrise WMO	\$25,000.00
Coon Lk. Imp. Ass.	\$2,500.00
Coon Lk. Imp. Dist.	\$2,000.00
Coon Lk Beach Com. Ctr .	\$500.00
Other local funds	\$20,516.19
Total	\$93,503.19



Project Type/Location	Size (LF)	Size (acres)	Storage Volume (CF)	Volume Reduction (ac-ft/yr)	TSS Reduction (lbs/yr)	TP Reduction (lbs/yr)
Rain Garden - Voss	N/A	0.0156	570	0.68	418.00	1.19
Rain Garden - Voss	N/A	0.0104	380	0.38	71.00	0.38
Rain Garden - Community Center	N/A	0.0172	652	0.90	337.00	1.00
Filtration Basin - Lincoln Dr.	N/A	0.0054	142	0.15	59.00	0.19
Structural Stabilization - Lincoln Dr.	35	0.0032	N/A	0	583.33	0.39
Lakeshore - Sheffield	145	0.0963	N/A	0	3,600.00	2.43
Lakeshore - Karger	112	0.0720	N/A	0	1,680.00	1.13
Lakeshore - Mager	83	0.0274	N/A	0	2,494.50	1.68
Total				2.11	9,242.83	8.40

Rain Gardens - Voss

To help mitigate pollutant input and reduce water volume entering Coon Lake, two rain gardens were installed on the Voss properties. The properties are located on the north side of the lake. One rain garden is located on the west side of E Front Boulevard NE and has a drainage area of 3.07 acres. The other rain garden is on the east side of E Front Boulevard NE and has a drainage area of 1.01 acres.

WinSLAMM water quality modeling results estimate the two gardens will annually reduce TSS loading by 489 lbs, TP loading by 1.6 lbs and stormwater volume by 1.1 acre-ft.



Rain Garden - Coon Lake Community Center

To help mitigate pollutant input and reduce water volume entering Coon Lake, a rain garden was installed at the Coon Lake Community and Senior Center. The property is located on the south side of the lake and the rain garden was installed on the east side of Forest Road. It has a drainage area of 1.11 acres.

WinSLAMM water quality modeling results estimate the rain garden will annually reduce TSS loading by 337.0 lbs, TP loading by 1.0 lbs and stormwater volume by 0.90 acre-ft.

Filtration Basin and Stabilization - Lincoln Drive

Stormwater runoff from Lincoln Drive was entering Coon Lake with no treatment and was causing erosion of sediment into the lake. A filtration basin was installed to reduce stormwater volume and filter pollutants. The areas that chronically washed out were stabilized to prevent future erosion. Materials used included concrete Flexamats on the road edge, rock, and a native vegetation. The filtration basin was a small flow-through basin between the road and lake. The basin was planted with native vegetation and included a rock overflow spillway.

WinSLAMM water quality modeling results estimate the filtration basin will annually reduce TSS loading by 59.0 lbs, TP loading by 0.19 lbs and stormwater volume by 0.15 acre-ft. WI NRCS Direct Volume/BWSR Pollution Reduction Estimator estimates the stabilization will annually reduce TSS loading by 583 lbs and TP loading by 0.39 lbs



Before



After

Lakeshore Stabilization - Sheffield

Prior to the project, the lakeshore was actively eroding and little buffer existed between the lake and the mowed turf grass. To improve shoreline stability, the shore was regraded. Due to its history of wave erosion and ice damage, the shoreline was fortified with a unique wrap of rock and native soils, into which native plants were installed.



Benefits:
WI NRCS Direct Volume/BWSR Pollution Reduction Estimator estimates the stabilization will annually reduce TSS loading by 3,600 lbs and TP loading by 2.43 lbs. It will also improve runoff infiltration and enhance habitat.

Lakeshore Stabilization - Karger

Prior to the project, the lakeshore was actively eroding and little buffer existed between the lake and the mowed turf grass. To improve shoreline stability, the shore was regraded, and native plants and erosion control blankets were installed. The techniques described above for the Sheffield project were also used here.

Benefits:
WI NRCS Direct Volume/BWSR Pollution Reduction Estimator estimates the stabilization will annually reduce TSS loading by 1,680 lbs and TP loading by 1.13 lbs. It will also improve runoff infiltration and enhance habitat.



Lakeshore Stabilization - Mager

Prior to the project, the lakeshore was actively eroding and little buffer existed between the lake and the mowed turf grass. To improve shoreline stability, the shore was regraded, and native plants and erosion control blankets were installed.



Benefits:
WI NRCS Direct Volume/BWSR Pollution Reduction Estimator estimates the stabilization will annually reduce TSS loading by 2,494.50 lbs and TP loading by 1.68 lbs. It will also improve runoff infiltration and enhance habitat.