Table 3.12 Minnehaha Creek Subwatershed CIP

Project	Stormwater Volume and Pollutant Load Reduction
Description	Implementation of opportunities to reduce stormwater volumes and nutrient loading to Minnehaha Creek and Lake Hiawatha, including but not limited to construction of infiltration or filtration basins and devices, reforestation, revegetation, ~~and~~ stormwater detention or redirection, and internal sediment load management.
Need	Minnehaha Creek is listed as an impaired water for multiple parameters, including fecal coliform bacteria, chloride, low dissolved oxygen, and fish and macroinvertebrate communities. Further, due to the sediment and nutrient loads transported by Minnehaha Creek, downstream receiving waterbody Lake Hiawatha is impaired for excess nutrients, and, along with Minnehaha Creek, has an approved Total Maximum Daily Load (TMDL) study. The Minnehaha Creek-Lake Hiawatha TMDL report identifies the need to reduce phosphorus and bacterial (E. coli) loading to meet water quality targets for Lake Hiawatha and Minnehaha Creek. The TMDL draft report calls for a reduction of 1,907 lbs/year throughout the subwatershed in order for Lake Hiawatha to meet an in-lake nutrient concentration of 50 ug/L. The TMDL draft report also identifies a need to reduce bacterial (E. coli) loading in order to meet the standard of 126 organisms/100 ml. At this time with our current understanding, the best approaches for addressing excess bacteria loads appear to be source reduction or volume control practices. In addition, the 2003 and 2012 Minnehaha Creek Stream Assessment(s) identified two major issues impacting water quality and biotic integrity in the Creek: flashy storm event flows that often result in streambank erosion; and low base flows, which reduce habitat and limit biotic integrity. The high percent of impervious surface in this urbanized subwatershed has reduced the amount of stormwater that naturally infiltrates to surficial groundwater and which helps sustain base flow. This stormwater is efficiently conveyed to the creek through stormsewers, which results in the flashy flows. Previous diagnostic and water quality studies within the Minnehaha Creek subwatershed indicate that internal sediment phosphorus release is a substantial contributor to water quality in select lakes, including Cedar Lake and Lake Nokomis. In these systems, legacy phosphorus stored in bottom sediments can continue to drive algal blooms and reduced water clarity even after watershed nutrient inputs are reduced. Internal load management represents a potential long-term strategy to address these internal nutrient sources in conjunction with upstream work. Specific project locations and methods will be identified and implemented to reduce nutrient and bacterial loading to Minnehaha Creek and thus to Lake Hiawatha; decrease peak discharge rates in Minnehaha Creek to reduce streambank erosion; and increase baseflow in the Creek to improve its biotic integrity. These projects are intended to reduce annual volume and peak flows discharged to the Creek; increase infiltration to surficial groundwater; and reduce nutrient and bacterial export to the Creek. Identifying specific implementation sites under this capital project element will be an ongoing process informed by refined technical knowledge of pollutant sources and geomorphological phenomena, available land and willing public or private partners. Priorities are set foremost by diagnosing the spatial distribution of pollutant loading to Minnehaha Creek.

Outcome	Improve ecological integrity of the stream corridor through this reach; improve stream channel stabilization; intercept and remove storm sewer outfalls; address existing stormwater management issues; minimize new pollutant loads conveyed by runoff and generated within Minnehaha Creek; minimize new volumes generated by new development; protect stream base flows and wetland and surficial groundwater hydrology; enhance riparian habitat and native vegetative communities; work with district partners to address internal loading due to legacy phosphorus.
Estimated Cost and Potential Funding Sources	$2,450,000; District levy, partner contributions, grant opportunities
Schedule	2018-2027