

Project

Taft-Legion Lake Regional Volume and Load Reduction

Description

The City of Richfield proposed the collaborative implementation of an improvement project that, when completed, will provide treatment for urban stormwater runoff discharging into Taft Lake and Legion Lake, subsequently improving the quality of water discharged from the City of Richfield's boundaries to Lake Nokomis and ultimately Minnehaha Creek.

Project plans include several different elements working in combination to achieve water-quality and volume-management improvements. Elements under consideration include:

Irrigation: Stormwater runoff will be withdrawn from stormwater basins and applied via irrigation to adjacent park land at Legion and/or Taft Lakes.

Infiltration: The infiltration system will operate concurrent with the proposed irrigation system. Depending on seasonal rainfall variation, if additional water is available to be withdrawn from the enhanced basins/ponds, water will be directed to underground infiltration systems in park land surrounding Taft Lake and Legion Lake.

Flocculation Enhanced Stormwater Pond: An existing road around the north end of Taft Lake will be removed to facilitate the construction of a stormwater pond with a flocculation system that will remove dissolved pollutants from storm sewer runoff that's delivered to the system.

Flocculation of Water from Taft Lake: In addition to treating runoff delivered to a constructed stormwater pond on the north side of Taft Lake the flocculation system will have the capacity to treat water withdrawn from adjacent stormwater ponds and/or the hypolimnion of Taft Lake, removing dissolved pollutant loads, before it's discharged back into Taft Lake.

Natively Planted Lakeshore Buffers: Native lakeshore buffers will be established in select areas surrounding Legion Lake.

Pre-Treatment of Runoff to Legion Lake: A series of sedimentation ponds and/or enhanced grit-removal chambers will be installed to remove sediment and phosphorus loads prior to being discharged into Legion Lake.

Stakeholder engagement and educational efforts: Efforts to develop a comprehensive outreach, education and stakeholder engagement plan will be integrated into the design of each element of the project, and communications tools will be used to support citizens' understanding of the purpose and function of the project.

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Need

Implementation of this project will address several goals of the 2007 MCWD Comprehensive Water Resource Management Plan and enable the City of Richfield to meet its various obligations to reduce annual stormwater volumes and pollutant loads.

MCWD goals addressed include:

MCWD Goal 1: Abstraction/Filtration. Promote abstraction and filtration of surface water where feasible for the purposes of improving water quality and increasing groundwater recharge throughout the watershed.

MCWD Goal 2: Ecological Integrity. Promote activities that maintain, support and enhance floral, faunal quantity and ecological integrity of upland and aquatic resources throughout the watershed.

MCWD Goal 3. Water Quality. Preserve, maintain and improve aesthetic, physical, chemical and biological composition of surface waters and groundwater within the District

MCWD Goal 5. Water Quantity. Maintain or reduce existing flows from drainage within the watershed to decrease the negative effects of stormwater runoff and bounce from existing and proposed development as well as provide low flow augmentation to surface waters.

MCWD Goal 6. Shorelines and Streambanks. Preserve the natural appearance of shoreline areas.

MCWD Goal 9. Education and Communications. Enhance public participation and knowledge regarding District activities and provide informational and educational material to municipalities, community groups, businesses, schools, developers, contractors and individuals.

Implementation of the various project elements also is expected to address the impairment of Lake Nokomis by excessive nutrients, as described in the Total Maximum Daily Load study for the lake. The study determined that annual phosphorus loading to the lake from stormwater runoff generated by the City of Richfield and the Metropolitan Airports Commission must be reduced by 16 pounds.

Outcome

This project is designed and intended to provide both volume and phosphorus load reductions as shown in the table below:

Project

Taft-Legion Lake Regional Volume and Load Reduction

<u>Project Element</u>	<u>Water Volume Reduction (ac-ft/yr)</u>	<u>P Load Reduction (lbs/yr)</u>
<u>Water Reuse Irrigation System (Legion Lake)</u>	<u>10-40</u>	<u>12-50</u>
<u>Stormwater Infiltration (Legion/Taft Lake) and Ponding (Taft)</u>	<u>120-240</u>	<u>125-240</u>
<u>Mechanical Grit Chambers (Legion)</u>	<u>-</u>	<u>0-24</u>
<u>Native Lakeshore Buffer (Legion)</u>	<u>minor</u>	<u>2-8</u>
<u>Flocculation System (Taft)</u>	<u>-</u>	<u>40-160</u>

<u>Project Element</u>	<u>Estimated Capital Cost</u>
<u>Water Reuse Irrigation System (Legion Lake)</u>	<u>\$ 300,000</u>
<u>Stormwater Reuse Infiltration (Legion/Taft Lake) and Ponding (Taft)</u>	<u>\$ 1,140,000</u>
<u>Proprietary Grit Chambers (Legion)</u>	<u>\$ 300,000</u>
<u>Native Lakeshore Buffer (Legion)</u>	<u>\$ 60,000</u>
<u>Flocculation System (Taft)</u>	<u>\$ 900,000</u>
<u>TOTAL CAPITAL COST</u>	<u>\$ 2,700,000</u>
<u>Annual Operation, Maintenance and Monitoring</u>	<u>\$ 150,000</u>
<u>TOTAL O&M Cost (20 year life)</u>	<u>\$ 3,000,000</u>

To avoid or minimize a levy increase, if the project is ordered, consideration will be given to funding the \$2,700,000 necessary for construction through a combination of upfront city financing of capital costs and a reduced, recurring annual District ad valorem levy over 20 years. Other alternative frameworks and sources of funding, such as grants, also will be considered.

Project Taft-Legion Lake Regional Volume and Load Reduction

**Estimated
Cost** \$2,700,000

Schedule Implementation between 2012 - 2013

Table 31. 2007-2016 Capital Improvement Program.

Subwatershed	Project Name	Estimated Cost 2005 \$	Estimated Cost Future \$	F/S, Design, Legal, Administration	Capital Cost	Recurring Costs (30-year Total)	Total Cost	Net Present Value of Thirty-Year Cost
2007								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
Gleason Lake	Gleason Lake Pond at Lake Inlet	\$276,900	\$287,100	\$46,900	\$240,200	\$549,800	\$837,000	\$536,700
Lake Minnetonka	Stubbs Bay Internal Load Management	\$500,000	\$519,900	\$15,300	\$504,600	\$2,278,900	\$2,798,800	\$1,434,400
Lake Minnetonka	Classen Creek Management	\$90,000	\$93,600	\$0	\$93,600	\$0	\$93,600	\$93,600
Lake Minnetonka	Stubbs Bay Swan Lake Pond Excavation	\$100,000	\$104,000	\$0	\$104,000	\$450,200	\$554,200	\$306,300
Lake Minnetonka	Lake Minnetonka Shoreline Restoration	\$200,000	\$208,100	\$0	\$208,100	\$0	\$208,100	\$208,100
Lake Minnetonka	Lost Lake/Langdon Lake/Cooks Bay	\$375,000	\$390,200	\$0	\$390,200	\$0	\$390,200	\$390,200
Long Lake Creek	Mooney Lake Emergency Pumping Infrastructure	\$125,000	\$129,600	\$20,400	\$109,200	\$21,100	\$150,800	\$139,900
Minnehaha Creek	Reach 8 Channel Restoration and Reconstruction	\$930,000	\$967,600	\$0	\$967,600	\$10,500	\$978,100	\$977,800
Minnehaha Creek	Lake Nokomis Internal Load Management	\$300,000	\$342,100	\$30,600	\$311,500	\$0	\$342,100	\$310,100
Painter Creek	Hwy 26 Pond	\$132,000	\$137,300	\$0	\$137,300	\$332,800	\$470,100	\$290,500
Painter Creek	Painter Drive Culvert	\$100,000	\$104,000	\$0	\$104,000	\$3,200	\$107,300	\$107,100
2007 Total		\$5,128,900	\$5,283,500	\$113,200	\$5,170,300	\$3,646,500	\$8,930,300	\$6,794,700
2008								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
District-Wide	MCWD Opinion Survey	\$20,000	\$20,000	\$0	\$20,000	\$0	\$20,000	\$20,000
District-Wide	MCWD Water Quality Index	\$25,000	\$25,000	\$0	\$25,000	\$0	\$25,000	\$25,000
Lake Minnetonka	Big Island Wetland Restoration	\$103,000	\$108,900	\$19,800	\$89,100	\$22,200	\$131,100	\$119,200
Long Lake Creek	Long Lake Wetland Restoration Project #1	\$350,000	\$434,200	\$47,500	\$386,700	\$27,600	\$461,800	\$431,600
Minnehaha Creek	Volume and Load Reduction Study	\$200,000	\$200,000	\$0	\$200,000	\$0	\$200,000	\$200,000
Minnehaha Creek	Minnehaha Falls/Glen Restoration	\$1,693,750	\$3,287,232	\$104,000	\$3,183,232	\$11,500	\$3,298,732	\$1,796,900
Minnehaha Creek	Minnehaha Creek Infiltration MC-129	\$2,167,150	\$2,299,800	\$0	\$2,299,800	\$8,549,800	\$10,849,600	\$5,866,700
Minnehaha Creek	Browndale Dam Scour Repair	\$50,500	\$50,500	\$0	\$50,500	\$0	\$50,500	N/A
Six Mile Marsh	Parley Tributary Wetland Restoration	\$517,000	\$547,600	\$53,100	\$494,500	\$32,000	\$579,600	\$564,400
Six Mile Marsh	Wasserman Phase I Culvert/Stream/Wetland Restoration	\$681,000	\$721,300	\$67,600	\$653,700	\$33,100	\$754,500	\$737,900
2008 Total		\$7,807,400	\$9,649,532	\$292,000	\$9,402,532	\$8,676,200	\$18,320,432	\$11,761,700
2009								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
District-Wide	Update Wetlands Functions and Values Assessment	\$100,000	\$100,000	\$0	\$100,000	\$0	\$100,000	\$100,000
Gleason Lake	Gleason Lake Infiltration GL-4	\$165,980	\$179,700	\$0	\$179,700	\$777,400	\$957,100	\$528,900
Lake Minnetonka	Halsteds Bay Wetland Restoration	\$545,000	\$588,900	\$49,900	\$539,100	\$29,300	\$618,300	\$601,100

Subwatershed	Project Name	Estimated Cost 2005 \$	Estimated Cost Future \$	F/S, Design, Legal, Admini- stration	Capital Cost	Recurring Costs (30-year Total)	Total Cost	Net Present Value of Thirty-Year Cost
Lake Minnetonka	Lake Minnetonka Direct Infiltration GB-LM	\$52,920	\$57,300	\$0	\$57,300	\$247,900	\$305,100	\$168,600
Langdon Lake	Langdon Lake Infiltration LL-2	\$17,200	\$18,600	\$0	\$18,600	\$80,600	\$99,200	\$54,800
Minnehaha Creek	Minnehaha Creek Infiltration MC-147	\$3,263,960	\$3,533,000	\$0	\$3,533,000	\$13,134,400	\$16,667,400	\$9,012,500
Painter Creek	Painter Marsh Improvements	\$995,000	\$1,077,000	\$0	\$1,077,000	\$306,300	\$1,383,400	\$1,366,300
Painter Creek	Painter Marsh Outlet Structure	\$75,000	\$81,200	\$0	\$81,200	\$89,600	\$170,800	\$126,100
Painter Creek	Painter Creek Infiltration PC-16	\$201,750	\$218,400	\$0	\$218,400	\$935,300	\$1,153,700	\$639,000
2009 Total		\$7,416,810	\$7,854,100	\$49,900	\$7,804,300	\$15,600,800	\$23,455,000	\$14,597,300
2010								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
District-Wide	Conservation Plan	\$300,000	\$300,000	\$0	\$300,000	\$0	\$300,000	\$300,000
Dutch Lake	Dutch Lake Infiltration DL-3	\$107,040	\$118,200	\$0	\$118,200	\$511,400	\$629,600	\$347,900
Gleason Lake	Gleason Lake Detention Pond Upstream of CR 6	\$536,000	\$590,300	\$76,900	\$513,400	\$1,128,700	\$1,719,000	\$1,091,600
Lake Minnetonka	Grays Bay Hwy 101 Causeway	\$1,500,000	\$1,656,100	\$0	\$1,656,100	\$0	\$1,656,100	\$1,656,100
Lake Virginia	Lake Virginia Infiltration LMC-10	\$78,400	\$86,600	\$0	\$86,600	\$374,600	\$461,100	\$254,800
Long Lake Creek	Long Lake Wetland Restoration Project #2	\$350,000	\$370,500	\$43,700	\$326,900	\$23,500	\$394,100	\$379,900
Minnehaha Creek	Reach 19-21 Channel Restoration and Reconstruction	\$1,090,000	\$1,203,400	\$0	\$1,203,400	\$13,100	\$1,216,500	\$1,216,200
Painter Creek	Potato Farm Wetland	\$465,000	\$513,400	\$0	\$513,400	\$60,000	\$573,400	\$562,000
Painter Creek	Painter Creek Wetland Corridor	\$360,000	\$397,500	\$0	\$397,500	\$40,200	\$437,600	\$426,800
Six Mile Marsh	Wasserman Phase II Stream/Wetland Restoration	\$624,000	\$687,500	\$73,600	\$613,900	\$24,900	\$712,400	\$688,800
2010 Total		\$7,410,440	\$7,923,500	\$194,200	\$7,729,400	\$2,176,400	\$10,099,800	\$8,924,100
2011								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
District-Wide	First-order Stream Inventory	\$150,000	\$150,000	\$0	\$150,000	\$0	\$150,000	\$150,000
Dutch Lake	Dutch Lake Infiltration DL-5	\$82,510	\$294,280	\$45,600	\$248,680	\$402,100	\$696,380	\$273,500
Gleason Lake	Projects from Gleason Lake Mgmt Plan	\$503,000	\$566,500	\$0	\$566,500	\$1,241,600	\$1,808,000	\$989,000
Lake Minnetonka	Lake Minnetonka Direct Infiltration HB-LM	\$173,880	\$195,800	\$0	\$195,800	\$847,300	\$1,043,100	\$576,500
Long Lake Creek	Long Lake Creek Infiltration LLC-4	\$104,300	\$117,500	\$0	\$117,500	\$508,300	\$625,700	\$345,800
Minnehaha Creek	Minnehaha Creek Infiltration MC-170	\$2,167,150	\$2,440,600	\$0	\$2,440,600	\$9,073,100	\$11,513,700	\$6,225,700
Painter Creek	Painter Creek Infiltration PC-1	\$174,850	\$196,900	\$0	\$196,900	\$843,300	\$1,040,200	\$576,200
Painter Creek	Painter Creek Channel Restoration & Reconstruction	\$750,000	\$844,600	\$0	\$844,600	\$9,200	\$853,900	\$853,600
Schutz Lake	Schutz Lake Corridor Wetland Restoration	\$318,000	\$357,200	\$46,400	\$310,800	\$34,700	\$391,900	\$370,900
Six Mile Marsh	Turbid/Lunsten Phase I Wetland Restoration	\$179,000	\$2,069,914	\$675,000	\$1,394,414	\$23,600	\$2,093,014	\$205,600
Six Mile Marsh	Six Mile Marsh Infiltration SMC-1	\$700,230	\$788,600	\$0	\$788,600	\$3,412,300	\$4,200,800	\$2,321,400

Subwatershed	Project Name	Estimated Cost 2005 \$	Estimated Cost Future \$	F/S, Design, Legal, Admini- stration	Capital Cost	Recurring Costs (30-year Total)	Total Cost	Net Present Value of Thirty-Year Cost
2011 Total		\$7,302,920	\$10,021,894	\$767,000	\$9,254,394	\$16,395,500	\$26,417,194	\$14,888,200
2012								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
District-Wide	Update Stream Assessment Reports	\$200,000	\$200,000	\$0	\$200,000	\$0	\$200,000	\$200,000
Lake Minnetonka	Lake Minnetonka Direct Infiltration NA-LM	\$12,600	\$14,500	\$0	\$14,500	\$62,600	\$77,100	\$42,600
Lake Virginia	Lake Virginia Infiltration LMC-9	\$21,860	\$25,100	\$0	\$25,100	\$108,700	\$133,800	\$73,900
Langdon Lake	Langdon Lake Infiltration LL-3	\$87,720	\$100,800	\$0	\$100,800	\$436,000	\$536,800	\$296,600
Long Lake Creek	Long Lake Internal Load Management	\$251,000	\$288,000	\$16,900	\$271,100	\$1,224,300	\$1,512,300	\$775,400
Long Lake Creek	Long Lake Creek Channel Restoration & Reconstruction	\$250,000	\$287,200	\$0	\$287,200	\$3,100	\$290,300	\$290,200
Minnehaha Creek	Reach 7 Channel Restoration and Reconstruction	\$570,000	\$654,800	\$0	\$654,800	\$7,100	\$661,900	\$661,700
Minnehaha Creek	Reach 14 Channel Restoration and Reconstruction	\$780,000	\$896,000	\$0	\$896,000	\$9,700	\$905,700	\$905,500
Minnehaha Creek	Minnehaha Creek Infiltration MC-134	\$422,600	\$485,400	\$0	\$485,400	\$1,804,600	\$2,290,000	\$1,238,300
Painter Creek	Ponds PC-13	\$120,000	\$137,800	\$0	\$137,800	\$338,300	\$476,200	\$293,800
Painter Creek	Painter Creek Channel Restoration & Reconstruction	\$500,000	\$574,300	\$0	\$574,300	\$6,200	\$580,600	\$580,400
Painter Creek	Jennings Bay Internal Management Project	\$254,200	\$291,700	\$16,900	\$274,800	\$1,240,900	\$1,532,600	\$785,800
Six Mile Marsh	Turbid/Lunsten Laketown Rd Wetland Restoration	\$433,000	\$496,300	\$54,100	\$442,200	\$31,100	\$527,400	\$502,700
Six Mile Marsh	Steiger Lake Wet Detention Pond	\$703,000	\$805,600	\$96,800	\$708,700	\$1,542,600	\$2,348,200	\$1,484,200
2012 Total		\$6,605,980	\$7,257,500	\$184,700	\$7,072,700	\$6,815,200	\$14,072,900	\$10,131,100
2013								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
District-Wide	Update HHPLS	\$300,000	\$300,000	\$0	\$300,000	\$0	\$300,000	\$300,000
Dutch Lake	Dutch Lake Wetland Restoration	\$624,000	\$730,100	\$51,700	\$678,400	\$28,100	\$758,200	\$732,100
Lake Minnetonka	Lake Minnetonka Direct Infiltration SL-LM	\$12,600	\$14,800	\$0	\$14,800	\$448,400	\$463,100	\$43,500
Langdon Lake	Langdon Lake Alum Injection System*	\$531,000	\$620,500	\$82,700	\$537,800	\$199,800	\$820,300	\$675,600
Langdon Lake	Langdon Lake Wet Detention Pond	\$686,000	\$801,700	\$103,400	\$698,300	\$1,521,600	\$2,323,300	\$1,239,700
Long Lake Creek	New Pond at LLC-51 Outlet to Long Lake Creek Corridor	\$407,250	\$475,800	\$65,500	\$410,400	\$914,200	\$1,390,000	\$874,500
Minnehaha Creek	Minnehaha Creek Infiltration MC-95	\$1,896,000	\$2,221,500	\$0	\$2,221,500	\$8,258,600	\$10,480,100	\$5,666,800
Painter Creek	Painter Creek Infiltration PC-2	\$174,850	\$204,900	\$0	\$204,900	\$877,400	\$1,082,300	\$599,400
Six Mile Marsh	Parley Lake Internal Load Management	\$198,000	\$231,600	\$17,200	\$214,400	\$968,400	\$1,200,000	\$615,600
Minnehaha Creek	Taft-Legion Improvement	=	=	=	\$2,700,000	\$3,000,000	\$5,700,000	=
2013 Total		\$6,829,700	\$7,600,900	\$320,500	\$7,280,500	\$13,216,500	\$20,817,300	\$12,747,200

Subwatershed	Project Name	Estimated Cost 2005 \$	Estimated Cost Future \$	F/S, Design, Legal, Admini- stration	Capital Cost	Recurring Costs (30-year Total)	Total Cost	Net Present Value of Thirty-Year Cost
2014								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
Dutch Lake	Dutch Lake Infiltration DL-7	\$33,450	\$40,000	\$0	\$40,000	\$173,000	\$213,000	\$117,700
Gleason Lake	Gleason Curly Leaf Pond Weed - Chemical Application	\$30,000	\$35,800	\$2,300	\$33,500	\$387,000	\$422,800	\$264,700
Lake Minnetonka	Lake Minnetonka Direct Infiltration CLC-2	\$86,700	\$103,600	\$0	\$103,600	\$448,400	\$552,000	\$305,000
Lake Virginia	Lake Virginia Infiltration LV-5	\$39,290	\$47,000	\$0	\$47,000	\$203,200	\$250,100	\$138,200
Long Lake Creek	Long Lake Creek Infiltration LLC-8	\$178,800	\$213,700	\$0	\$213,700	\$924,600	\$1,138,300	\$629,000
Minnehaha Creek	Reach 4 Channel Restoration and Reconstruction	\$790,000	\$944,100	\$0	\$944,100	\$10,300	\$954,400	\$954,100
Minnehaha Creek	Minnehaha Creek Infiltration MC-97	\$1,258,900	\$1,504,500	\$0	\$1,504,500	\$5,593,200	\$7,097,700	\$3,837,900
Painter Creek	Ponds PC-6 & PC-7	\$300,000	\$358,500	\$0	\$358,500	\$805,800	\$1,164,300	\$727,000
Painter Creek	Painter Creek Infiltration PC-25	\$282,450	\$337,600	\$0	\$337,600	\$1,445,700	\$1,783,200	\$987,700
Painter Creek	Painter Creek Carp Gate	\$50,000	\$59,800	\$0	\$59,800	\$117,400	\$177,100	\$127,300
Schutz Lake	Schutz Lake Wet Detention Pond	\$946,500	\$1,128,600	\$126,500	\$1,002,100	\$2,163,400	\$3,292,000	\$2,073,000
Schutz Lake	Schutz Lake Infiltration SL-2	\$112,200	\$134,100	\$0	\$134,100	\$580,200	\$714,300	\$347,100
Schutz Lake	Schutz Lake Infiltration SL-3	\$43,350	\$51,800	\$0	\$51,800	\$224,200	\$276,000	\$134,100
Six Mile Marsh	Auburn East Internal Load Management	\$157,000	\$187,300	\$17,600	\$169,700	\$766,400	\$953,700	\$489,400
Six Mile Marsh	Six Mile Marsh Infiltration SMC-11	\$576,660	\$689,200	\$0	\$689,200	\$2,982,100	\$3,671,300	\$2,028,800
Six Mile Marsh	Six Mile Marsh Infiltration SMC-55	\$494,280	\$590,700	\$0	\$590,700	\$2,556,100	\$3,146,800	\$1,739,000
2014 Total		\$7,379,580	\$8,426,300	\$146,400	\$8,279,900	\$19,381,000	\$27,807,000	\$16,900,000
2015								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
Dutch Lake	Dutch Lake Wet Detention Pond	\$1,608,000	\$1,956,100	\$202,000	\$1,754,100	\$3,750,800	\$5,706,900	\$3,590,900
Gleason Lake	Gleason Lake Infiltration GL-9	\$27,020	\$32,900	\$0	\$32,900	\$142,500	\$175,500	\$97,000
Lake Minnetonka	Halsteds Bay Internal Load Management	\$442,000	\$538,400	\$17,900	\$520,500	\$2,350,800	\$2,889,200	\$1,476,200
Long Lake Creek	Long Lake Creek Infiltration LLC-10	\$134,100	\$163,500	\$0	\$163,500	\$707,300	\$870,800	\$481,200
Minnehaha Creek	Reach 6 Channel Restoration and Reconstruction	\$370,000	\$451,000	\$0	\$451,000	\$4,900	\$455,900	\$455,800
Minnehaha Creek	Reach 9 Channel Restoration and Reconstruction	\$720,000	\$877,700	\$0	\$877,700	\$9,500	\$887,200	\$887,000
Minnehaha Creek	Minnehaha Creek Infiltration MC-70-75	\$400,000	\$487,600	\$0	\$487,600	\$1,812,700	\$2,300,300	\$1,243,800
Minnehaha Creek	Minnehaha Creek Infiltration MC-146	\$462,900	\$564,300	\$0	\$564,300	\$2,097,800	\$2,662,100	\$1,439,400
Painter Creek	Pond PC-25	\$176,000	\$214,500	\$0	\$214,500	\$503,000	\$717,600	\$445,500
Painter Creek	Katrina Marsh Improvements	\$295,000	\$359,600	\$0	\$359,600	\$121,200	\$480,800	\$466,900
Painter Creek	Katrina Marsh Outlet Structure	\$50,000	\$60,900	\$0	\$60,900	\$50,400	\$111,400	\$62,700

Subwatershed	Project Name	Estimated Cost 2005 \$	Estimated Cost Future \$	F/S, Design, Legal, Administration	Capital Cost	Recurring Costs (30-year Total)	Total Cost	Net Present Value of Thirty-Year Cost
Painter Creek	Painter Creek Infiltration PC-21	\$242,100	\$295,100	\$0	\$295,100	\$1,263,900	\$1,559,100	\$863,500
Six Mile Marsh	Six Mile Creek Stream Repairs	\$50,000	\$60,900	\$0	\$60,900	\$600	\$61,600	\$61,600
Six Mile Marsh	Wasserman Lake Internal Load Management	\$174,000	\$211,700	\$17,900	\$193,800	\$875,400	\$1,087,100	\$556,900
2015 Total		\$7,151,120	\$8,274,200	\$237,800	\$8,036,400	\$13,690,800	\$21,965,500	\$14,128,400
2016								
District-Wide	Land Conservation Program	\$2,000,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$2,000,000
Lake Virginia	Lake Virginia Infiltration LV-1	\$56,840	\$70,700	\$0	\$70,700	\$305,800	\$376,500	\$208,100
Langdon Lake	Langdon Lake Infiltration LL-5	\$67,080	\$83,400	\$0	\$83,400	\$360,900	\$444,300	\$245,500
Long Lake Creek	New Pond at LLC-48 Outlet to Long Lake Creek Corridor	\$512,250	\$635,300	\$80,500	\$554,900	\$1,221,900	\$1,857,200	\$1,161,900
Long Lake Creek	Long Lake Creek Infiltration LLC-26	\$149,000	\$185,300	\$0	\$185,300	\$801,700	\$986,900	\$545,400
Minnehaha Creek	Reach 12 Channel Restoration and Reconstruction	\$1,110,000	\$1,380,100	\$0	\$1,380,100	\$15,000	\$1,395,200	\$1,394,800
Minnehaha Creek	Minnehaha Creek Infiltration MC-58	\$350,000	\$435,200	\$0	\$435,200	\$1,617,800	\$2,053,000	\$1,110,100
Painter Creek	Jennings Bay Wet Detention Pond	\$1,608,000	\$1,995,200	\$206,000	\$1,789,200	\$3,825,800	\$5,821,100	\$3,656,400
Schutz Lake	Schutz Lake Infiltration SL-1	\$99,450	\$123,700	\$0	\$123,700	\$535,100	\$658,700	\$312,700
Six Mile Marsh	Six Mile Marsh Infiltration SMC-66	\$1,153,320	\$1,434,000	\$0	\$1,434,000	\$6,205,100	\$7,639,100	\$4,221,500
2016 Total		\$7,105,940	\$8,342,900	\$286,500	\$8,056,500	\$14,889,100	\$23,232,000	\$14,856,400
Total 2007-2016		\$70,138,790	\$80,679,326	\$2,592,394	\$78,086,926	\$114,488,000	\$195,167,926	\$125,729,100
Additional Identified Projects, Unfunded in the 2007-2016 CIP								
Christmas Lake	Christmas Lake Management Study	\$48,000	\$60,900	\$0	\$60,900	\$85,600	\$146,500	\$99,800
Dutch Lake	Dutch Lake Internal Load Management	\$200,000	\$253,300	\$18,700	\$234,600	\$1,059,600	\$1,312,900	\$671,100
Lake Minnetonka	Halsted's Bay Tributary Alum Injection System	\$2,565,000	\$3,247,300	\$288,500	\$2,958,800	\$24,796,400	\$28,043,700	\$15,554,500
Lake Minnetonka	Stubbs Bay Curly Leaf Pond Weed - Chemical Application	\$27,000	\$34,200	\$2,500	\$31,700	\$366,700	\$400,900	\$250,800
Lake Minnetonka	Lake Minnetonka Direct Infiltration CLC-3	\$54,670	\$69,300	\$0	\$69,300	\$300,000	\$369,400	\$204,100
Lake Minnetonka	Lake Minnetonka Direct Infiltration SB-2	\$35,400	\$44,900	\$0	\$44,900	\$194,300	\$239,200	\$132,200
Long Lake Creek	Long Lake Curly Leaf Pond Weed - Chemical Application	\$25,500	\$32,300	\$2,500	\$29,800	\$344,700	\$377,000	\$235,800
Long Lake Creek	Long Lake Creek Infiltration LLC-29	\$178,800	\$226,800	\$0	\$226,800	\$981,200	\$1,208,000	\$667,500
Minnehaha Creek	Longfellow Lagoon Dredging	\$90,000	\$114,100	\$0	\$114,100	\$293,300	\$407,400	\$249,800
Minnehaha Creek	Minnehaha Creek - Diagnostic/TMDL Study	\$150,000	\$186,500	\$186,500	\$0	\$0	\$186,500	\$109,000