

Appendix F

Capital Improvement Program (CIP)

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**Pioneer-Sarah Creek Watershed Management Commission
Third Generation Watershed Management Plan
Capital Improvement Projects and Funding**

Projects proposed for the Capital Improvement Program (CIP) are shown in Table F.1 and described in more detail following the table. This initial CIP was prepared from projects submitted by the member cities and reviewed and prioritized by the Commission's professional Technical Advisory Committee (TAC). Projects and studies that implemented Lake Independence and Lake Sarah TMDL load reduction or other actions were given the highest priority.

It is anticipated that this CIP will be reviewed annually, and additional projects and studies may be added by major or minor plan amendment as submitted by the member cities or as recommended by the TAC. In addition, the WRAPS currently underway will be complete by 2017, and it is expected that additional projects and studies will be identified in that study and considered for addition to the CIP.

The TAC met twice to review and prioritize the submitted projects. It is anticipated that TAC will meet 2-3 times per year to review submittals and make recommendations to the Commission. It is the intent of the Commission to finance these projects using its current Cost Share Policy as funds are available and through local funds and grants as available.

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Table F.1. Capital Improvement Program.

Note: See project descriptions following the tables. PSC = Pioneer-Sarah WMC

Year	Project	Project Name	Total Cost	Commission Share	Potential Funding Source(s)	2014	2015	2016	2017	2018	2019	2020
CAPITAL PROJECTS												
2014-2015	ME-1	Lake Ardmore infiltration basin	30,000	3,000	PSC, Medina	3,000						
	IN-1	Lake Sarah curlyleaf pondweed treatment	40,000	4,000	PSC, Independence, Greenfield, lake assn		4,000					
	IN-2	Hydrologic restorations: HR 67, 68, 29, and 33	200,000	20,000	PSC, Independence		20,000					
	ME-2	Lake Independence curlyleaf pondweed treatment	122,000	12,200	PSC, Medina, Independence, lake assn		12,200					
		Subtotal	\$392,000	\$39,200		\$3,000	\$36,200					
2016	GR-3	Dance Hall Creek BMPs	200,000	10,000	PSC, Greenfield, grants			10,000				
	GR-4	Feedlot improvements: Dance Hall Creek	35,000	1,750	PSC, Greenfield, grants			1,750				
	GR-9	Buffer strips: Dance Hall Creek	35,000	1,750	PSC, Greenfield, grants			1,750				
	GR-11	Control carp population: Lake Sarah	10,000	500	PSC, Greenfield, DNR, grants			500				
	GR-11	Control carp population: other lakes	10,000	500	PSC, Greenfield, DNR, grants			500				
	IN-3	Lake Sarah curlyleaf pondweed treatment	32,000	3,200	PSC, Independence, Greenfield, lake assn			3,200				
	IN-4	Gully restorations: GS50 (design)	120,000	12,000	PSC, Independence, grants			12,000				
	ME-4	Lake Ardmore neighborhood projects	80,000	8,000	PSC, Medina, grants			8,000				
		Subtotal	\$522,000	\$37,700				\$37,700				
2017	IN-5	Lake Sarah curlyleaf pondweed treatment	26,000	2,600	PSC, Independence, Greenfield, lake assn				2,600			
	IN-7	Raingardens in targeted areas	75,000	7,500	PSC, Independence, property owners				7,500			
	IN-9	Shoreline restoration – Sarah and Independence	125,000	12,500	PSC, Independence, Greenfield, Medina, property owners, grants				12,500			
	GR-4	Feedlot improvements: Dance Hall Creek	35,000	1,750	PSC, Greenfield, grants				1,750			
	GR-9	Buffer strips: Dance Hall Creek	35,000	1,750	PSC, Greenfield, grants				1,750			
			Subtotal	\$296,000	\$26,100					\$26,100		
2018	GR-3	Hafften, Schendel, Schwauppauff BMPs	100,000	10,000	PSC, Greenfield, grants					10,000		
	IN-6	Lake Sarah curlyleaf pondweed treatment	20,000	2,000	PSC, Independence, Greenfield, lake assn					2,000		
	MP-6	South Ravine cleanup	260,000	26,000	PSC, Maple Plain, grants					26,000		
		Subtotal	\$380,000	\$38,000						\$38,000		
2019-2020	ME-5	Sediment sampling in Lake Independence	18,500	1,850	PSC, Medina, Independence, 3 Rivers						1,850	
	IN-8	Sediment sampling in Lake Sarah	12,000	1,200	PSC, Independence, Greenfield						1,200	
	IN-9	Shoreline restoration – Sarah and Independence	125,000	12,500	PSC, Independence, Medina, Greenfield, property owners, grants						12,500	
	GR-4	Feedlot improvements	35,000	1,750	PSC, Greenfield, grants						1,750	
	IN-2	Hydrologic restorations GS50 (install)	200,000	20,000	PSC, Independence, grants						20,000	
	ME-6	Tomahawk Trail wetland project	230,000	23,000	PSC, Medina, grants						0	23,000
		Subtotal	\$620,500	\$60,300							\$37,300	\$23,000

Year	Project	Project Name	Total Cost	Commission Share	Potential Funding Source(s)	2014	2015	2016	2017	2018	2019	2020
SPECIAL STUDIES												
2015	MP-4	Ravine study	3,000	300	PSC, Maple Plain		300					
2015	ME-3	Lake Independence Subwatershed Assessment	15,000	1,500	PSC, Medina		1,500					
2018	GR-1	Subw Assess-Hafften, Schendel, Schwauppaufl	20,000	1,000	PSC, Greenfield					1,000		
Subtotal			\$38,000	\$2,800			\$1,800			\$1,000		
SUBTOTAL			\$2,248,500	\$204,100		\$3,000	\$38,000	\$37,700	\$26,100	\$39,000	\$37,300	\$23,000
Capital Projects Account Est January 1 Balance							\$27,300	\$9,300	\$0	\$0	\$0	\$0
Annual Capital Projects Fund Contribution							20,000	20,000	20,000	20,000	20,000	20,000
Estimated Expenditures						3,000	38,000	37,700	26,100	39,000	37,300	23,000
Other Funding Sources								8,400	6,100	19,000	17,300	3,000
Capital Projects Account Estimated December 31 Balance						\$27,300	\$9,300	\$0	\$0	\$0	\$0	\$0
No Year Assigned												
	CIP-7	Lindgren Lane Pond	100,000	10,000								
	CIP-8	Koch's/Mill's Creek Inlet Ponds (now HR 97 and 29)	200,000	20,000								
	CIP-11	Manure Management Cost-Share Projects	250,000	25,000								
	LO-1	Chippewa Road Drainage	21,000	2,100								
	LO-2	Creekview Road Drainage	21,000	2,100								
	LO-3	Retention Pond mapping and cleanup	10,000	1,000								
	LO-4	Ditch Cleaning at Ballpark	10,000	1,000								
	LO-5	Sediment Pond Cleanout	25,000	2,500								
	LO-6	Sediment Pond Cleanout	80,000	8,000								
	MP-1	Drainageway Cleaning -E of Budd	55,000	5,500								
	MP-2	Rock checks, Main St Ravine	23,700	2,370								
	MP-3	Washout, Main St Ravine	8,000	800								
	MP-5	North Ravine Cleanup	286,000	28,600								
Subtotal			\$1,089,700	\$108,970								
TOTAL COST			\$3,738,200	\$323,070								
Other Related Local Projects, No Commission Contribution												
	GR-2	Whisper Creek WWTP	\$500,000	\$ -								

Note: See project descriptions following the tables.

Project Descriptions

Unless otherwise noted, it is assumed that the Commission's share will be as shown on Table F.1, with the balance funded by the member city, supplemented as necessary through grant funds and stakeholder and land owner financial participation.

2014-2015

ME-1 Lake Ardmore Infiltration Basin

Build a sump and infiltration basin (or equivalent) on city-owned property within the Lake Ardmore Neighborhood to treat the 1" 'water quality' event in order to reduce the amount of untreated stormwater entering the lake. Lake Ardmore will likely be listed as impaired in 2016. This older neighborhood currently does not have any stormwater infrastructure and this will reduce from 60 to 100% of particulate and dissolved phosphorus and Total Suspended Solids.

IN-1 Lake Sarah Curlyleaf Pondweed Treatment

Utilizing a volunteer-driven model, and in partnership with the DNR and the Lake Sarah Improvement Association, apply herbicide (Aquathol) to non-native curly-leaf pondweed (CLP) which was included in the TMDL Implementation Plan as a solution to the large in-lake load for Lake Sarah (900 lbs/yr or 17% overall load). This is Year 3 of a 5 year project.

IN-2 Hydrologic Restorations

Restore hydrology to drained wetlands by adding box inlets to existing culverts, priority projects HR 67, 68, 29, and 33 as identified in the Lake Independence and Sarah Subwatershed Assessment.

ME-2 Lake Independence Curlyleaf Pondweed Treatment

Apply herbicide (Aquathol) to non-native curly-leaf pondweed (CLP) which was included in the TMDL Implementation Plan as a solution to the large in-lake load for Lake Independence.

2016

GR-3 Dance Hall Creek Drainage Area BMPs

The Lake Sarah TMDL identified flow discharging from Dance Hall Creek into Lake Sarah as a significant source of nutrient load to the lake. In 2014, the City of Greenfield is partnering with Hennepin County Environmental Services, Three Rivers Park District, and the Commission to complete a subwatershed assessment of the Dance Hall Creek drainage area. This project would implement high-priority BMPs identified in that study.

GR-4 Feedlot Improvements: Dance Hall Creek Area

This project would provide cost-share assistance to property owners installing improvements to feedlots to reduce the export of nutrients and bacteria to downstream waterbodies. Various locations with priority in the Dance Hall Creek drainage area.

GR-9 Buffer Strips: Dance Hall Creek Area

This project would provide cost-share assistance to property owners installing buffer strips and other structures to retain and filter stormwater runoff to reduce the export of nutrients and bacteria to downstream waterbodies. Various locations with priority in the Dance Hall Creek drainage area.

GR-11 Control Carp Population: Lake Sarah

Rough fish management in Lake Sarah to reduce lake internal load and improve water clarity.

GR-11 Control Carp Population: Other Lakes

Rough fish management in priority waterbodies to reduce lake internal load and improve water clarity.

IN-3 Lake Sarah Curlyleaf Pondweed Treatment

Utilizing a volunteer-driven model, and in partnership with the DNR and the Lake Sarah Improvement Association, apply herbicide (Aquathol) to non-native curly-leaf pondweed (CLP) which was included in the TMDL Implementation Plan as a solution to the large in-lake load for Lake Sarah (900 lbs/yr or 17% overall load). This is Year 4 of a 5 year project.

IN-4 Gully Restorations

Reduce direct flows and anchor gullies that have occurred near the lake primarily near Baker Regional Park, priority project GS 50 as identified in the Lake Independence and Sarah Subwatershed Assessment. This project would complete filed work and design for the proposed improvement.

ME-4 Lake Ardmore Neighborhood Projects

After the subwatershed is completed, determine Best Management Practices (BMPs) including raingardens, infiltration basins, etc. for an existing neighborhood with little to no stormwater infrastructure that directly or indirectly drains into Lake Independence or Lake Ardmore.

2017

IN-5 Lake Sarah Curlyleaf Pondweed Treatment

Utilizing a volunteer-driven model, and in partnership with the DNR and the Lake Sarah Improvement Association, apply herbicide (Aquathol) to non-native curly-leaf pondweed (CLP) which was included in the TMDL Implementation Plan as a solution to the large in-lake load for Lake Sarah (900 lbs/yr or 17% overall load). This is Year 4 of a 5 year project.

IN-7 Rain Gardens in Targeted Areas

Determine location and provide incentive to landowners to install the most cost-effective raingardens utilizing the Lake Independence and Sarah Subwatershed Assessment.

IN-9 Shoreline Restoration – Sarah and Independence

Determine location and provide incentive to landowners to install the most cost-effective shoreline restorations utilizing the Lake Independence and Sarah Subwatershed Assessment.

GR-4 Feedlot Improvements: Dance Hall Creek Area

This project would provide cost-share assistance to property owners installing improvements to feedlots to reduce the export of nutrients and bacteria to downstream waterbodies. Various locations with priority in the Dance Hall Creek drainage area.

GR-9 Buffer Strips: Dance Hall Creek Area

This project would provide cost-share assistance to property owners installing buffer strips and other structures to retain and filter stormwater runoff to reduce the export of nutrients and bacteria to downstream waterbodies. Various locations with priority in the Dance Hall Creek drainage area.

2018

GR-3 Hafften, Schendel, Schwauppauff Lakes Drainage Area BMPs

Following completion of a subwatershed assessment (GR-1), this project would implement high-priority BMPs identified in that study.

IN-6 Lake Sarah Curlyleaf Pondweed Treatment

Utilizing a volunteer-driven model, and in partnership with the DNR and the Lake Sarah Improvement Association, apply herbicide (Aquathol) to non-native curly-leaf pondweed (CLP) which was included in the TMDL Implementation Plan as a solution to the large in-lake load for Lake Sarah (900 lbs/yr or 17% overall load). This is Year 5 of a 5 year project.

MP-6 South Ravine Cleanup

The scope of the project is to cleanup various spots along the ravine to the south of Main Street West via toe protection, realign channel, riffle pool, riprap channel, etc. Purpose of the project is to prevent the ravine sediment loss to the north wetland complex.

2019-2020

ME-5 Sediment Sampling Lake Independence

Obtain and analyze sediment cores from Lake Independence to evaluate the type of mobile and organic phosphorus contributing to the lake's internal loading, and to determine the internal loading rate. As mentioned in the TMDL Implementation Plan, after watershed inputs are reduced, internal load reductions will need to be undertaken in order to meet the MPCA standards for phosphorus. The loading was estimated for the TMDL so the correct dosage and/or best management strategy can be undertaken with this new data.

IN-8 Sediment Sampling Lake Sarah

Obtain and analyze sediment cores from Lake Sarah to evaluate the type of mobile and organic phosphorus contributing to the lake's internal loading, and to determine the internal loading rate. As mentioned in the TMDL Implementation Plan, after watershed inputs are reduced, internal load reductions will need to be undertaken in order to meet the MPCA standards for phosphorus. The loading was estimated for the TMDL so the correct dosage and/or best management strategy can be undertaken with this new data.

IN-9 Shoreline Restoration – Sarah and Independence

Continuation of previous program: determine location and provide incentive to landowners to install the most cost-effective shoreline restorations utilizing the Lake Independence and Sarah Subwatershed Assessment.

GR-4 Feedlot Improvements: Dance Hall Creek Area

This project would provide cost-share assistance to property owners installing improvements to feedlots to reduce the export of nutrients and bacteria to downstream waterbodies. Various locations with priority in the Dance Hall Creek drainage area.

IN-2 Hydrologic Restorations

Restore hydrology to drained wetlands by adding box inlets to existing culverts as identified in the Lake Independence and Sarah Subwatershed Assessment, priority is GS50.

ME-6 Tomahawk Trail Wetland Project

This project was identified in the Lake Independence TMDL Implementation Plan completed in 2007. Reduce external phosphorus loading contributing to impairment of Lake Independence by designing and developing alum treatment and iron enhanced filter system for Tomahawk Trail wetland prior to inlet to Half Moon Lake. Project may include wetland restoration.

Special Studies

MP-4 Ravine study

The scope of the project is to study the costs to cleanup various spots along the ravine to the north and south of Main Street West via toe protection, realign channel, riffle pool, riprap channel, etc.

ME-3 Lake Independence Subwatershed Assessment

Assess a whole or part of a subwatershed within the Lake Independence watershed utilizing the Soil and Water Assessment Tool (SWAT) model to find and estimate costs for individual Best Management Practices that can be implemented in order to reduce nutrient loading.

GR-1 Subwatershed Assessment-Hafften, Schendel, Schwauppauff Lakes Drainage Area

Complete a subwatershed assessment of the drainage area to this lake system to identify sources of phosphorus and sediment load and to identify potential Best Management Practices.

Additional Potential Projects, No Year Assigned

CIP-7 Lindgren Lane Pond

This potential project was carried forward from the Second Generation Plan. Construct retention pond on west side of Independence Road intersection w/Lindgren Lane to impound surface water by means of a dike or excavation to reduce external phosphorus loading contributing to impairment of Lake Independence

CIP-8 Koch's/Mill's Creek Inlet Ponds

This potential project was carried forward from the Second Generation Plan. Construct retention ponds at Koch's Creek and Mill's Creek inlets to Lake Independence to impound surface water by means of a dike or excavation to reduce external phosphorus loading contributing to impairment of the lake. (Now HR 97 and 29 in the Lake Sarah and Independence Subwatershed Assessment.)

CIP-11 Manure Management Cost-Share Projects

Undertake watershed-wide cost-share manure management improvement projects. Projects will reduce external loading to watershed lakes and streams due to livestock activities.

LO-1 Chippewa Road Drainage

Install drain tile along property lines to convey residential sump pump drainage.

LO-2 Creekview Road Drainage

Install drain tile along property lines to convey residential sump pump drainage.

LO-3 Retention Pond Mapping and Cleanup

Complete inventory and map of sedimentation ponds and make minor repairs as necessary.

LO-4 Ditch Cleaning at Ballpark

This ditch at the south end of the ballpark drains into the Loretto Creek system. Cleanout would stabilize the ditch to reduce sediment transport into the Creek and then to Lake Independence.

LO-5 Sediment Pond Cleanout

Cleanout of ponds to restore pollutant removal efficiency.

LO-6 Sediment Pond Cleanout

Cleanout of the Sunnyridge Pond to restore pollutant removal efficiency.

MP-1 Drainageway Cleaning East of Budd

The project is to clean the existing drainage way to the east of Budd Street and north of the Park to improve stability and reduce sedimentation to downstream wetlands.

MP-2 Rock Checks, Main St Ravine

This project would place two rock checks downstream of the existing flared end section in the ravine located on the north side of Main Street West. The purpose of the project is to slow velocities downstream of the flared end.

MP-3 Washout, Main St Ravine

Stabilize a washout area on the Main Street Ravine to reduce sedimentation to the Pioneer Creek outlet wetland.

MP-5 North Ravine Cleanup

The scope of the project is to cleanup various spots along the ravine to the north of Main Street West via toe protection, realign channel, riffle pool, riprap channel, etc. The purpose of the project is to prevent the ravine sediment loss to the north wetland complex.

Related Local Projects, No Commission Contribution

GR-2 Whisper Creek WWTP

Expand the Whisper Creek WWTP to accommodate new development to eliminate future SSTS. The plant treats wastewater from home sin an approximately 180 acre area of Greenfield and discharges to Whisper Creek, a Crow River tributary.