

## MEMORANDUM

**TO:** Board of Managers and Staff  
**FROM:** Tina Carstens, Administrator  
**SUBJECT:** 2020 Budget Discussions  
**DATE:** July 3, 2019

It is that time of year again where we start to discuss the budget for the following year. I have reviewed the current year budget and spending, as well as asked staff and Barr Engineering to give me input on anticipated work plan and budget issues for 2020. On Monday, July 1<sup>st</sup> I held a discussion with staff at our monthly training meeting regarding our work plan and budget. I will take the input from the board at our July meeting along with the staff input to develop the preliminary budget table and narrative that will come back to you at the August 1<sup>st</sup> board meeting.

The information in this memo is to highlight the larger budget items and those that may be different than we have done in the past. Items not covered here are anticipated to remain at or near current budget levels.

At the July board meeting, I will review this memo and respond to any questions from the board. At the August meeting, I will present and review a draft budget table with a line by line description of the items. In September, I will present a revised budget based on our August discussions and we will hold a public hearing on the preliminary budget. The preliminary budget and proposed level with the reflected changes from our September meeting discussion will be send to the county auditor by September 30, as required. This budget and levy can be modified anytime until our December meeting, when we will need to approve our final budget and levy for 2020.

### 1. 2019 Work Program Analysis

The budget and work program analysis from this year shows that everything is proceeding as planned and the significant projects and studies for 2019 should be completed by the end of the year. Many of those studies completed this year will inform budgeting decisions moving forward in 2020, particularly in the Beltline Resiliency Study and flood risk reduction

projects. I have attached the district's implementation table from the plan for your information. It is what guides staff as they prepare their budget recommendations. You will see that we are tracking with the plan very well. Of course, things arise that require new evaluation and the district adapts to those needs. I had hoped to have included a progress analysis of the implementation table for you at this meeting, but I don't have it completed. I will try and bring that to you at the August meeting.

## **2. Overall Budget Reserve Level**

As was indicated in our 2018 audit summary, the District has kept the reserve at an acceptable level. The District currently has just over 108% of its planned year general fund expenditure budget in reserve. As usual, I take that into account as I am preparing the budget and levy for the following year. The board may wish to use some of the budget reserves for 2020 activities or continue to keep that amount available in reserves.

## **3. Staffing and Program Support**

***Salaries and Benefits*** - The draft budget will include salaries for existing staff and interns. Existing salaries will be used in the budget with a calculated 3-5% overall increase as well as an estimated increase due to health insurance premium increases. I hope to have some projection information on insurance increases by the September meeting. As you know, we do have one vacancy for a communications coordinator that I hope to have filled by this fall. I am also contemplating the addition of a permit inspector as a full time position to help manage the work load in our regulatory department. Over the years we have had full time inspectors and then as staffing changes happen we evaluate the needs and have determined whether or not we could use more support. More to come as we evaluate the need for this position.

***Outside Program Support*** - There are a number of outside programs that we have supported in the past to help supplement the work we are doing without having to add to our staff or overreach our existing staff. In the past we have provided financial support to Watershed Partners, Blue Thumb, East Metro Education Collaboration, Cooperative Weed Management Program, and Ramsey County GIS Users Group. The entities that I have listed are all valuable programs that we get tangible benefits from. I will propose in the draft budget that we continue to support those programs as we have in the past.

## **4. Building Maintenance**

Every year as the building gets older we evaluate the potential needs and related budget that would be required. For 2019, we budgeted a large amount to take care of some larger maintenance needs at the office. Many of those items have not been completed yet but we

do anticipate being able to do that by the end of the year. If not, we can carry over the funds to complete at the beginning of 2020. Other than those items, our typical yearly maintenance budget should suffice.

#### **5. Natural Resources Program**

The main focus of the natural resources program in 2020 will be continuing the work with Ramsey County parks on the Snail Lake Regional Park in the area between Snail and Grass Lakes. We will continue to work in the Phalen Chain of Lakes on carp management as we maintain a healthy fish population in those lakes. The Owasso Chain of Lakes carp work will also continue in 2020 and may require another more intensive control year depending on the success of removal this summer. As the staff are watching the migration of carp we are identifying a potential location for an electric cap barrier. This would be a larger purchase or we could rent a unit to test before we make the purchase.

#### **6. BMP Stewardship Grant**

We continue to be successful in our BMP grant program both in residential and larger applications. We bumped up our 2019 budget. I do anticipate there being a fair amount of carry over and would anticipate not budgeting as much in 2020. Some of that carryover is already accounted for in the Snail Lake shoreline restoration project which will continue in 2020.

#### **7. Education, Communications, and GIS Programs**

The education program will continue in 2020 to work in our schools and alongside our natural resources staff with restoration projects. There is also coordination happening with our schools and churches as they relate to our retrofit projects. In 2020, we would like to continue with our master water stewards program as we have seen dedicated volunteers emerge. The Adopt-a-Drain program continues to be of interest to our cities and we are working to support that interest. That program has been a good one for schools to be involved in helping. Sage is exploring an idea with a master water steward, the East Metro Education Collaboration and Woodbury library to have education in the library around water conservation and groundwater through interactive displays and/or events. We are exploring our role in this potential project and would the financial responsibilities might be. I don't see a big need to change the budget for communications for 2020. No big changes to our needs in GIS other than some smaller, new equipment purchases.

#### **8. Water Quality Monitoring Program**

In 2020, water quality monitoring staff will be doing monitoring on a few new BMP projects that will require new equipment. There is also some older equipment that needs replacing

as part of a rotation. We don't anticipate this being a large expense and will be similar to what we have budgeted in the past for equipment replacement. Staff have indicated that adding a second water quality intern this year has been valuable and would like to do that again for next year.

## **9. Permit and Inspection Program**

As discussed under staffing, we are evaluating the need to hire a full time permit/BMP inspector. No other budget needs have been identified for the permitting and inspection program.

## **10. Research**

The District will continue to fund research and seek opportunities to do more research to advance the work that we do. We are currently working with the St. Anthony Falls Research Lab to look at the use of iron to treat phosphorus in stormwater ponds. Another research project is looking at phosphorus in ponds and spent lime applications. We will likely receive another request to support the Minnesota Stormwater Research Council (MSRC) which the board has supported for the last two years. The 2018 request will also come at the August meeting. An update meeting is coming up where I can obtain information and update the board on the research that has come out of that effort to date.

## **11. Capital Improvements Planning and Projects**

***Feasibility Studies*** – As the Beltline Resiliency Study wraps up this year, we will be discussing the next steps for implementation based on the recommendations of that study. More work may need to be done as we evaluate the recommendations and determine how the district would like to proceed. Subwatershed assessments have been done for all impaired and at risk areas of the district and we may consider completing those for our non-impaired water bodies also. This would cover the whole district and add to our list of project potentials throughout. By the end of this year we will have an overall prioritization plan for all of the potential projects and will be a good tool for our BMP incentive and targeted retrofits program. Staff is still pursuing climate resiliency workshops with our cities for this fall. There may be future needs identified as part of those workshops that we will plan for in 2020 if those needs arise.

***Flood Damage Reduction Fund*** – Over the last several years, the board has added money to the fund to prepare for future projects as feasibility studies were being completed. We have been using this fund to address needs in the Grass Lake, Snail Lake and Twin Lake areas. We can continue to draw from this fund as we implement the West Vadnais Lake Outlet project as well as any improvements that are determined for the Twin Lake system.

At the August meeting, the board will be hearing recommendations on the Beltline Resiliency study and potential plans for implementation of projects to reduce the number of at risk homes throughout the district. These projects will be costly and require a number of permits and discussions with our partners. If the board is presented with feasible options, a discussion on the funding for implementing those options will also be had. Brandon Barnes will be at the August meeting to present those findings to the board. We will also have some planning level estimates for CIP money needed to take the next steps.

Keeping this fund at a healthy level has shown valuable as we have seen over the past several years of flood management. While we have implemented and completed much work, it is wise to continue to have the funds available to act swiftly as needs arise. This is also valuable to our city and county partners as they ask for assistance on these matters.

***Planning Projects*** – Just as a note, we will be working both in 2019 and 2020 on a more formalized water quality monitoring program report. And in 2020, we anticipate wanting to do some updates to our watershed management plan to include much of the information learned in the Beltline Resiliency and other flood management projects. We also anticipate needing to update the implementation table to include recommended changes to the CIP program based on the study.

***Lake Internal Load Management*** – The board will be hearing more about our recommendations regarding lake internal load management yet this year in 2019. This discussion will also require the board to make decisions on implementing internal load management projects in the near future. Our plan does indicate that 2020 is the year we had planned to address this issue. As a reminder, the district has typically implemented external load control projects first and then looks to address internal load. This is to make sure we are handling the load coming into the lake so it isn't as readily available for the internal load component. For instance, in Wakefield Lake, we have implemented with our partners projects like Frost/Kennard Spent Lime, Wakefield Park and the upcoming Aldrich Arena which greatly reduces the external load to the lake. That alone though will not help us reach our water quality goals for Wakefield Lake. We must next look at the internal load needs. More to come on this front.

***Targeted Retrofit Projects*** – There are a number of projects that have been in the planning stages this year and will be ready for construction in 2020. Those projects include the North St. Paul and St. Paul Target stores and St. Rosa Lima. We are also working with Motel 6 and the Boys and Girls Club in St. Paul on retrofit projects that area also in our equity initiative area. We will evaluate any available carry over as the year progresses.

***Maintenance and Repair Project***— We continue to find our CIP Maintenance and Repair budget to be adequate even with the additional items that we address each year. We expect a similar level of need for our annual contract and will continue to offer to our cities the ability to add their pond clean out projects on our contract. 2020 is the year to do our 5 year inspection of the Beltline system. As you may recall, we did a very intense inspection in 2015 that lead to a large repair project that just wrapped up last year. This coming year's inspection will not be as intense due to the repairs that have been completed. At the end of the last inspection, the board had said they wanted to commit to a 5 year program for inspection of the system.



# RWMWD VISION

## QUALITY WATER FOR QUALITY LIFE

### Mission

To preserve and improve water resources and related ecosystems to sustain their long-term health and integrity and contribute to the well-being and engagement of stakeholders within the community.

### Core Principles

The Ramsey-Washington Metro Watershed District (RWMWD or District) will adhere to the following core set of principles that will guide their efforts to achieve the mission stated above.

The District will be:

- A leader and innovator in watershed management that integrates natural and built environments.
- An organization focused on high levels of performance and results.
- An organization that uses adaptive management, accurate information, and sound science to guide decision-making.
- A trusted and accountable steward of public resources and moneys.
- An active collaborator with a wide variety of public and private organizations.
- An important and reliable source of information, services, and projects.
- An effective advocate of watershed management principles and values.
- An organization that educates and inspires current and future stewards of the watershed.

### Goals

Accomplishing the vision and mission of the District requires a focus on measurable goals. The District will pursue the following goals to ensure progress towards achieving its vision and mission:



1. **Achieve quality surface water**—Maintain or improve surface water quality to support healthy ecosystems and provide the public with a wide range of water-based benefits.



2. **Achieve healthy ecosystems**—Manage water and related natural resources to create and preserve healthy ecosystems.



3. **Manage risk of flooding**—Reduce the public's risk to life and property from flooding through programs and projects that protect public safety and economic well-being.



4. **Support sustainable groundwater**—Consider groundwater sustainability management and connections to surface waters in decisions and collaborate with others responsible for groundwater management and protection.



5. **Inform and empower communities**—Inform and empower communities to become partners in improving and protecting the watershed through their own efforts.



6. **Manage organization effectively**—Operate in a manner that achieves the District's mission while adhering to its core principles.

**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
	<b>District-wide:</b>				
<b>DW-1*</b>	Inspect stability of creek channel and banks and implement structural improvements and habitat restoration projects to address identified stream bank erosion, gully erosion and other stream degradation problems.	<b>Biennial inspections. Improvements as needed.</b>	<b>\$100,000 (average annual cost)</b>	<b>EC3</b>	<b>Tier 1</b>
<b>DW-2*</b>	Monitor water quality of District lakes and streams to assess trends and evaluate achievement of water quality goals.	<b>Continuous</b>	<b>\$75,000 (average annual cost)</b>	<b>WQ1, WQ3, WQ4</b>	<b>Tier 1</b>
<b>DW-3*</b>	Implement or continue subwatershed outlet monitoring to measure subwatershed pollutant reduction performance.	<b>Continuous</b>	<b>\$25,000 (average annual cost)</b>	<b>WQ4</b>	<b>Tier 1</b>
<b>DW-4*</b>	Implement the District's lake aquatic plant (macrophytes) and filamentous green algae monitoring program and assess data for trends, implementing macrophyte management plans if needed.	<b>Continuous</b>	<b>\$30,000 (average annual cost)</b>	<b>EC2</b>	<b>Tier 2</b>
<b>DW-5*</b>	Inspect and maintain District facilities and consider opportunities to support maintenance activities of others.	<b>Annual</b>	<b>\$700,000 (average annual cost)</b>	<b>WQ9, WQ10, FL1</b>	<b>Tier 1/Tier 2</b>

\*WRAPS strategy

\*\*Relevant Strategic Overview Action Items with "WQ" pertain to the "Achieve Quality Surface Water" goal, with "EC" pertain to the "Achieve Healthy Ecosystems" goal, with "FL" pertain to the "Manage Risk of Flooding" goal, with "GW" pertain to the "Support Sustainable Groundwater" goal, and with "IE" pertaining to the "Inform and Empower Communities" goal and with "MO" pertain to the "Manage Organization Effectively" goal.



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<b>DW-6*</b>	Implement BMP cost-share program to assist citizens, institutions, local agencies, and businesses in implementing water quality improvements.	<b>Continuous</b>	<b>\$800,000</b> (average annual cost)	<b>WQ2, WQ14, WQ17, WQ18, FL8, IE17, MO16, MO17, MO21</b>	<b>Tier 1/Tier 2/Tier 3</b>
<b>DW-7*</b>	Implement, track, and update (as necessary) District rules and permitting program.	<b>Continuous</b>	<b>\$70,000</b> (average annual cost)	<b>WQ12, EC1, FL2, FL8, GW4, MO15, MO20</b>	<b>Tier 1</b>
<b>DW-8*</b>	Monitor and maintain District restoration sites and natural areas.	<b>Continuous</b>	<b>\$40,000</b> (average annual cost)	<b>EC4</b>	<b>Tier 1</b>
<b>DW-9*</b>	Identify, assess, and address potential flooding problems in the District, in cooperation with applicable stakeholders.	<b>As needed</b>	<b>\$300,000</b> (average annual cost)	<b>WQ19, FL3, FL7, FL9</b>	<b>Tier 1</b>
<b>DW-10*</b>	Collaborate with local and state agencies to address groundwater issues, including identify data gaps, identify areas of vulnerability, and develop management strategies and tools.	<b>As needed</b>	<b>\$30,000</b> (average annual cost)	<b>GW1, GW3, GW6, GW7, GW8, GW9</b>	<b>Tier 2</b>

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<b>DW-11*</b>	Implement public information and education program directed at multiple audience groups that includes; education events, K-12 watershed education, public education and outreach, city collaboration and support, and metro education support.	Continuous	\$60,000 (average annual cost)	WQ3, WQ6, WQ10, WQ13, WQ15, WQ16, EC6, EC7, EC8, EC9, EC10, GW10, IE1, IE3, IE4, IE5, IE7, IE8, IE9, IE10, IE11, IE14, IE15, IE17, MO16, MO21	Tier 1/Tier 2
<b>DW-12*</b>	Implement or support research projects, monitoring, and other activities to better understand factors affecting District water quality and seek opportunities to incorporate information into District projects and programs.	Continuous	\$300,000 (average annual cost)	WQ1, WQ7, WQ8, WQ10, WQ11, MO12, MO13, MO14	Tier 2/Tier 3
<b>DW-13</b>	Manage District organization and operation effectively by providing effective and qualified staff, efficient office facilities, operational expenses, services and equipment, Board and staff training, planning support, and accounting and audit services.	Continuous	\$2,000,000 (average annual cost)	MO1, MO7, MO8, MO9, MO10, MO18, MO19	Tier 1
<b>DW-14*</b>	Collaboratively manage invasive species that threaten water resources and associated upland habitats.	Continuous	\$20,000 (average annual cost)	EC5	Tier 2/Tier 3

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**Table 4-1 RMMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>DW-15*</b>	Maintain the District's MS4 permit and assist local communities in meeting the water quality components of their NPDES MS4 permit requirements.	<b>Continuous</b>	<b>\$10,000</b> (average annual cost)	<b>WQ5, WQ10, FL6, IE6</b>	<b>Tier 1/Tier 2</b>
<b>DW-16</b>	Study the connection between surface water and groundwater throughout the District.	<b>2017</b>	<b>\$50,000</b>	<b>GW2</b>	<b>Tier 2/Tier 3</b>
<b>DW-17*</b>	Maintain an inventory of infiltration projects and share information with agencies with groundwater jurisdiction.	<b>Continuous</b>	<b>\$5,000</b> (average annual cost)	<b>GW5</b>	<b>Tier 1</b>
<b>DW-18*</b>	Monitor lake levels within the District.	<b>Continuous</b>	<b>\$5,000</b> (average annual cost)	<b>FL4</b>	<b>Tier 1</b>
<b>DW-19</b>	Implement flood emergency response plans for homes and businesses where a complete structural solution is not feasible or cost-effective and develop additional flood emergency response plans as necessary.	<b>Continuous</b>	<b>\$25,000</b> (average annual cost)	<b>FL5</b>	<b>Tier 2</b>

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Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
<b>DW-20*</b>	Develop and implement methods/programs for measuring, tracking, and reporting progress towards achieving District goals, including the bi-annual evaluation process required by BWSR.  Develop an annual plan and budget, and periodically review vision and mission.	<b>Continuous</b>	<b>\$10,000</b> (average annual cost)	<b>MO2, MO3, MO4, MO5, MO6, MO11, MO12, MO15</b>	<b>Tier 1</b>
<b>DW-21*</b>	Implement tours, workshops, trainings and other events to increase MS4 and community participation and awareness of watershed issues.	<b>As needed</b>	<b>\$40,000</b> (average annual cost)	<b>IE2, IE12, IE13</b>	<b>Tier 1/Tier 2</b>
<b>DW-22</b>	Develop a program to incorporate public art into District projects and programs.	<b>2017-2018</b>	<b>\$50,000</b>	<b>IE16</b>	<b>Tier 3</b>
<b>Willow Creek Subwatershed:</b>					
<b>WC-1</b>	No subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed.	<b>Continuous</b>	--	--	--
<b>Kohlman Creek Subwatershed:</b>					
<b>KC-1*</b>	Implement improvements described in the Markham Ecosystem Restoration Report (2013)	<b>2017-2026</b>	<b>\$2,000,000</b>	<b>WQ2, WQ18, EC3, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>

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<b>KC-2</b>	Study the effect of increasing flood storage in upstream areas on improving flood resiliency in Kohlman Creek and implement recommended projects	<b>2018-2022</b>	<b>\$2,000,000</b>	<b>FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>KC-3*</b>	Manage macrophytes in Casey Lake Wetland	<b>2017-2026</b>	<b>\$100,000</b>	<b>EC4, EC5</b>	<b>Tier 2</b>
	<b>Kohlman Lake Subwatershed:</b>				
<b>KL-1*</b>	Implement a shoreline management study and assist homeowners with lakeshore restoration to enhance lakeshore native habitat and stabilization	<b>2018</b>	<b>\$25,000</b>	<b>EC3, EC9</b>	<b>Tier 2</b>
<b>KL-2*</b>	Research options for control of Kohlman Lake's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$100,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
<b>KL-3*</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Kohlman Lake.	<b>2017-2026</b>	<b>\$200,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>

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<b>KL-4*</b>	Manage the carp population in the Phalen Chain of Lakes	<b>2017-2026</b>	<b>\$240,000</b> <b>(representative of management cost throughout the Phalen Chain of Lakes)</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>KL-5</b>	Visually inspect the connection between Kohlman Lake and Gervais Lake and assess its condition	<b>2017</b>	<b>\$2,000</b>	<b>EC4</b>	<b>Tier 1</b>
	<b>Twin Lake Subwatershed:</b>				
<b>TL-1</b>	No subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed.	<b>Continuous</b>	<b>--</b>	<b>--</b>	<b>--</b>
	<b>Gervais Creek Subwatershed:</b>				
<b>GC-1</b>	Continue to coordinate with DNR and Little Canada to improve habitat in Gervais Mill Park and maintain the urban fishing pond status.	<b>Continuous</b>	<b>\$1,500</b> <b>(average annual cost)</b>	<b>EC6</b>	<b>Tier 3</b>
<b>GC-2*</b>	Research options for control of Round Lake's (Little Canada) internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$50,000</b>	<b>MO13</b>	<b>Tier 2</b>

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Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
<b>GC-3</b>	Prepare and implement a plan for increasing flood resiliency around Owasso Basin	<b>2018-2020</b>	<b>\$500,000</b>	<b>WQ8, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>Gervais Lake Subwatershed:</b>					
<b>GL-1</b>	Implement the Gervais Lake Flood Emergency Response Plan	<b>Continuous</b>	<b>\$5,000</b> (average annual cost)	<b>WQ19, FL5, FL9</b>	<b>Tier 2</b>
<b>GL-2</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Gervais Lake.	<b>2017-2026</b>	<b>\$50,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>GL-3</b>	Manage the carp population in the Phalen Chain of Lakes	<b>2017-2026</b>	<b>See KL-4</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>Keller Lake Subwatershed:</b>					
<b>KeL-1</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Keller Lake.	<b>Continuous</b>	<b>\$50,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>KeL-2*</b>	Manage the carp population in the Phalen Chain of Lakes	<b>2017-2026</b>	<b>See KL-4</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>

\*WRAPS strategy

\*\*Relevant Strategic Overview Action Items with **"WQ"** pertain to the **"Achieve Quality Surface Water"** goal, with **"EC"** pertain to the **"Achieve Healthy Ecosystems"** goal, with **"FL"** pertain to the **"Manage Risk of Flooding"** goal, with **"GW"** pertain to the **"Support Sustainable Groundwater"** goal, and with **"IE"** pertaining to the **"Inform and Empower Communities"** goal and with **"MO"** pertain to the **"Manage Organization Effectively"** goal.

**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
	<b>Lake Phalen Subwatershed:</b>				
<b>LP-1</b>	Coordinate with the City of St. Paul Parks Department, the Minnesota DNR and other agencies and citizen organizations, to address concerns about lake management and conditions.	<b>Continuous</b>	<b>\$5,000</b> (average annual cost)	<b>EC6</b>	<b>Tier 2</b>
<b>LP-2*</b>	Work with the City of St. Paul to improve the PHAL-08 pond	<b>2020</b>	<b>\$150,000</b>	<b>WQ2, WQ17, WQ18, WQ19, FL8, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>LP-3*</b>	Implement a shoreline management study for Round Lake (Maplewood) to enhance lakeshore native habitat and stabilization	<b>2018</b>	<b>\$25,000</b>	<b>EC3, EC6</b>	<b>Tier 2</b>
<b>LP-4</b>	Restore park areas in the Phalen Corridor	<b>2017-2020</b>	<b>\$140,000</b>	<b>WQ18, EC3, EC6, IE7, IE17, MO6, MO21</b>	<b>Tier 3</b>
<b>LP-5</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Lake Phalen and Round Lake (Maplewood).	<b>2017-2026</b>	<b>\$50,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>LP-6</b>	Manage the carp population in the Phalen Chain of Lakes	<b>2017-2026</b>	<b>See KL-4</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>

\*WRAPS strategy

\*\*Relevant Strategic Overview Action Items with **"WQ"** pertain to the **"Achieve Quality Surface Water"** goal, with **"EC"** pertain to the **"Achieve Healthy Ecosystems"** goal, with **"FL"** pertain to the **"Manage Risk of Flooding"** goal, with **"GW"** pertain to the **"Support Sustainable Groundwater"** goal, and with **"IE"** pertaining to the **"Inform and Empower Communities"** goal and with **"MO"** pertain to the **"Manage Organization Effectively"** goal.



**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
<b>Wakefield Lake Subwatershed:</b>					
<b>WL-1*</b>	Implement regional stormwater treatment BMPs in the subwatershed as prescribed in the Wakefield TMDL (Examples include: Enhanced treatment of flows through PHAL-05, Wakefield Park and expansion of spent lime treatment cell on the south end of Wakefield Lake)	<b>2017-2020</b>	<b>\$1,000,000</b>	<b>WQ2, WQ17, WQ18, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>WL-2*</b>	Implement a shoreline management study and assist property owners/homeowners with lakeshore restoration to enhance lakeshore native habitat and stabilization	<b>2018</b>	<b>\$25,000</b>	<b>EC3, EC9</b>	<b>Tier 2</b>
<b>WL-3*</b>	Research future options for control of Wakefield Lake's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$100,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
<b>WL-4*</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Wakefield Lake.	<b>2017-2026</b>	<b>\$100,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>WL-5*</b>	Evaluate water quality benefit of removing accumulated sediment from south end of Wakefield Lake to the improve Lake Phalen water quality.	<b>2018</b>	<b>\$20,000</b>	<b>WQ2</b>	<b>Tier 1</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
	<b>Beaver Lake Subwatershed:</b>				
<b>BL-1*</b>	Implement improvements identified in the Beaver Lake SLMP, including implementation of BMPs in the lake's direct drainage area (BL-203)	<b>2018-2022</b>	<b>\$400,000</b>	<b>WQ2, WQ17, WQ18, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BL-2*</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Beaver Lake.	<b>2017-2026</b>	<b>\$100,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>BL-3*</b>	Research future options for control of Beaver Lake's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$100,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
<b>BL-4*</b>	No other subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed, using past infiltration study work to help inform project decisions.	<b>Continuous</b>	<b>--</b>	<b>WQ17, MO13</b>	<b>--</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
<b>Beltline Subwatershed:</b>					
<b>BELT-1</b>	Implement water quality and flood control improvements listed in the Beltline CIP Feasibility Report, as identified in the Atlas 14 District remodeling effort, and as recommended by additional analyses.	<b>2017-2026</b>	<b>\$500,000</b>	<b>WQ2, WQ17, WQ18, WQ19, FL8, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BELT-2</b>	Complete Beltline tunnel repair projects as recommended in 2015 inspections, Re-inspect tunnel every 5 years.	<b>2017-2026</b>	<b>\$5,000,000</b>	<b>FL1</b>	<b>Tier 1</b>
<b>BELT-3</b>	Prepare and implement a plan for increasing resiliency and controls for overflow from Lake Phalen	<b>2018-2026</b>	<b>\$5,000,000</b>	<b>FL7, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>Mississippi River Bottomlands Subwatershed:</b>					
<b>MR-1</b>	Collaborate with the City of St. Paul and Ramsey County on water management issues related to stormwater runoff from the Beltline Interceptor, Battle Creek, and Fish Creek Subwatersheds.	<b>Continuous</b>	<b>\$5,000 (average annual cost)</b>	<b>WQ19, FL7, FL9</b>	<b>Tier 3</b>
<b>MR-2</b>	Coordinate with the Metropolitan Council and the MPCA on results and issues related to potential phosphorus discharge limits to the Mississippi River.	<b>Continuous</b>	<b>\$5,000 (average annual cost)</b>	<b>WQ2</b>	<b>Tier 3</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)		Relevant Strategic Overview Action Items**	Priority Tier
	Tanners Lake Subwatershed:					
TaL-1	Implement the Tanners Lake Flood Emergency Response Plan	Continuous	\$5,000 (average annual cost)		WQ19, FL5, FL9	Tier 2
TaL-2*	Continue alum treatment system operations and maintenance	Continuous	Utilities (electric, water, comm.)	\$3,000	WQ9	Tier 1
			Chemical supply (alum)	\$60,000		
			Pond floc removal	\$25,000		
			\$88,000 (average annual cost)			
TaL-3*	Continue alum system monitoring and reporting as required by current and future NPDES permit. Continue to monitor research of alum use for stormwater treatment, identifying best practices.	Continuous	\$40,000 (average annual cost)		WQ7	Tier 1

\*WRAPS strategy

<sup>\*\*</sup>Relevant Strategic Overview Action Items with **“WQ”** pertain to the **“Achieve Quality Surface Water”** goal, with **“EC”** pertain to the **“Achieve Healthy Ecosystems”** goal, with **“FL”** pertain to the **“Manage Risk of Flooding”** goal, with **“GW”** pertain to the **“Support Sustainable Groundwater”** goal, and with **“IE”** pertaining to the **“Inform and Empower Communities”** goal and with **“MO”** pertain to the **“Manage Organization Effectively”** goal.

**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
<b>Battle Creek Lake Subwatershed:</b>					
<b>BCL-1</b>	Implement the Battle Creek Lake Flood Emergency Response Plan	<b>Continuous</b>	<b>\$5,000</b> (average annual cost)	<b>FL5</b>	<b>Tier 2</b>
<b>BCL-2*</b>	Research future options for control of Battle Creek Lake's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$100,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
<b>BCL-3*</b>	Perform a feasibility study of retrofit opportunities throughout the Battle Creek Lake Subwatershed to improve water quality	<b>2018</b>	<b>\$30,000</b>	<b>WQ17, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BCL-4*</b>	Implement projects deemed feasible in the Battle Creek Lake Subwatershed Feasibility Study	<b>2019-2026</b>	<b>\$500,000</b>	<b>WQ2, WQ17, WQ18, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BCL-5*</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Battle Creek Lake.	<b>2017-2026</b>	<b>\$100,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>Battle Creek Subwatershed:</b>					
<b>BC-1</b>	Implement the McKnight Basin Emergency Response Plan	<b>Continuous</b>	<b>\$5,000</b> (average annual cost)	<b>FL5, FL9</b>	<b>Tier 2</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items**	Priority Tier
<b>BC-2*</b>	Perform a feasibility study of retrofit opportunities throughout the Battle Creek Subwatershed to reduce watershed TSS load	<b>2017</b>	<b>\$30,000</b>	<b>WQ17, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BC-3*</b>	Implement water quality projects deemed feasible in the Battle Creek Subwatershed Feasibility Study	<b>2018-2026</b>	<b>\$1,000,000</b>	<b>WQ2, WQ17, WQ18, FL8, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BC-4</b>	Study the effect of increasing flood storage in McKnight Basin and upstream of Weir Drive on improving flood resiliency in Battle Creek and implement recommended projects	<b>2018-2022</b>	<b>\$500,000</b>	<b>WQ2, WQ19, FL8, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>Blufflands Subwatershed:</b>					
<b>BLUFF-1</b>	No subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed.	<b>Continuous</b>	--	--	--
<b>Carver Lake Subwatershed:</b>					
<b>CL-1*</b>	No subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed.	<b>Continuous</b>	--	--	--

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>Fish Creek Subwatershed:</b>					
<b>FC-1*</b>	Assist MS4s in implementing the Fish Creek TMDL, such as educating citizens about proper management of pet waste.	<b>2017-2026</b>	<b>\$5,000</b>	<b>IE3, IE5, IE6</b>	<b>Tier 2</b>
<b>FC-2</b>	Study the effect of increasing flood storage upstream of I-494, in Bailey Nursery and other upstream areas on improving flood resiliency in Fish Creek and implement recommended projects.	<b>2018-2022</b>	<b>\$500,000</b>	<b>WQ2, WQ19, FL8, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>Grass Lake Subwatershed:</b>					
<b>GrL-1</b>	Survey the connection between Grass Lake and Vadnais Lake, assess conditions and implement any needed improvements.	<b>2017</b>	<b>\$20,000</b>	<b>FL1, FL7, FL9</b>	<b>Tier 1</b>
<b>Bennett Lake Subwatershed:</b>					
<b>BeL-1*</b>	Implement a shoreline management study and assist with lakeshore restoration to enhance lakeshore native habitat and stabilization (partner with existing efforts)	<b>2018</b>	<b>\$25,000</b>	<b>EC3, EC9</b>	<b>Tier 2</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>BeL-2*</b>	Perform a feasibility study of retrofit opportunities throughout the Bennett Lake Subwatershed to improve water quality, including enhanced treatment of Willow Pond outflows, regional stormwater treatment within Central Park and other options identified in previous studies, including the Bennett Lake TMDL.	<b>2016-2017</b>	<b>\$30,000</b>	<b>WQ17, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BeL-3*</b>	Research future options for control of Bennett Lake's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$100,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
<b>BeL-4*</b>	Implement projects deemed feasible in the Bennett Lake Subwatershed Feasibility Study	<b>2018-2026</b>	<b>\$750,000</b>	<b>WQ2, WQ17, WQ18, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>BeL-5*</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Bennett Lake.	<b>2020</b>	<b>\$100,000</b>	<b>WQ2, EC3</b>	<b>Tier 2</b>
<b>BeL-6*</b>	Evaluate the carp population in the Lake Owasso-Central Park Wetlands- Bennett Lake chain	<b>2017-2018</b>	<b>See LO-6</b>	<b>EC3, EC5</b>	<b>Tier 2</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>BeL-7*</b>	Manage the carp population in the Lake Owasso-Central Park Wetlands-Bennett Lake chain if deemed necessary.	<b>2019-2026</b>	<b>See LO-7</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
	<b>Shoreview Lake Subwatershed:</b>				
<b>ShL-1*</b>	Perform a feasibility study of retrofit opportunities throughout the Shoreview Lake Subwatershed to improve water quality	<b>2017</b>	<b>\$30,000</b>	<b>WQ17, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>ShL-2*</b>	Implement projects that are deemed feasible in the Shoreview Lake Subwatershed Feasibility Study	<b>2018-2026</b>	<b>\$200,000</b>	<b>WQ2, WQ17, WQ18, WQ19, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
	<b>Snail Lake Subwatershed:</b>				
<b>SL-1</b>	No subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed.	<b>Continuous</b>	<b>--</b>	<b>--</b>	<b>--</b>
	<b>Lake Owasso Subwatershed:</b>				
<b>LO-1*</b>	Assess and conduct buffer and natural areas restoration along the Owasso Lakes Area	<b>2024-2026</b>	<b>\$70,000</b>	<b>EC3, EC6</b>	<b>Tier 1</b>
<b>LO-2</b>	Create and implement an Emergency Response Plan for Owasso Lake.	<b>2017-2026</b>	<b>\$50,000</b>	<b>WQ19, FL5, FL9</b>	<b>Tier 2</b>

\*WRAPS strategy

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Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>LO-3*</b>	Perform a feasibility study of retrofit opportunities throughout the Lake Owasso Subwatershed to improve water quality, such as reducing the phosphorus load from tributary wetland systems (Westwood Village Pond, the Central Park Wetlands and Charlie Pond) and implementing a sedimentation pond at the City of Roseville's compost facility.	<b>2018</b>	<b>\$30,000</b>	<b>WQ17, WQ19, FL8, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>LO-4*</b>	Implement water quality projects that are deemed feasible in the Lake Owasso Subwatershed Feasibility Study	<b>2019-2026</b>	<b>\$750,000</b>	<b>WQ2, WQ17, WQ18, WQ19, FL8, FL9, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>LO-5*</b>	Research options for control of Lake Owasso's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$100,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
<b>LO-6*</b>	Evaluate the carp population in the Lake Owasso-Central Park Wetlands- Bennett Lake chain	<b>2017-2018</b>	<b>\$150,000</b> <b>(representative of assessment cost throughout the Owasso Chain of Lakes)</b>	<b>EC3, EC5</b>	<b>Tier 2</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>LO-7*</b>	Manage the carp population in the Lake Owasso-Central Park Wetlands-Bennett Lake chain if deemed necessary.	<b>2019-2026</b>	<b>\$240,000</b> <b>(representative of management cost throughout the Owasso Chain of Lakes)</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
<b>LO-8*</b>	Use results of the District's macrophyte harvesting study to inform implementation of macrophyte management in Owasso Lake.	<b>2018</b>	<b>\$100,000</b>	<b>WQ2, EC3, EC5</b>	<b>Tier 2</b>
	<b>Lake Emily Subwatershed:</b>				
<b>LE-1*</b>	Implement a shoreline management study and assist with lakeshore restoration to enhance lakeshore native habitat and stabilization	<b>2018</b>	<b>\$25,000</b>	<b>EC3, EC9</b>	<b>Tier 2</b>
<b>LE-2*</b>	Perform a feasibility study of retrofit opportunities throughout the Lake Emily Subwatershed to improve water quality, including outflows from Lake Judy	<b>2016-2017</b>	<b>\$30,000</b>	<b>WQ17, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>
<b>LE-3*</b>	Implement projects that are deemed feasible in the Lake Emily Subwatershed Feasibility Study	<b>2019-2026</b>	<b>\$300,000</b>	<b>WQ2, WQ17, WQ18, WQ19, IE7, IE17, MO6, MO21</b>	<b>Tier 1</b>

\*WRAPS strategy

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**Table 4-1 RWMWD 2017-2027 Implementation Program**

Implementation Item ID	Activity Description	Estimated Implementation Year	Estimated Cost <sup>1</sup> (2017 Dollars)	Relevant Strategic Overview Action Items <sup>**</sup>	Priority Tier
<b>LE-4*</b>	Research options for control of Lake Emily's internal load of phosphorus and implement reduction measures if deemed necessary to maintain water quality.	<b>2020</b>	<b>\$50,000</b>	<b>WQ8, MO13</b>	<b>Tier 2</b>
	<b>Lake Wabasso Subwatershed:</b>				
<b>LW-1</b>	No subwatershed-specific projects/programs are identified for this subwatershed; District-wide projects and activities will be implemented in this subwatershed.	<b>Continuous</b>	--	--	--

\*WRAPS strategy

\*\*Relevant Strategic Overview Action Items with **"WQ"** pertain to the **"Achieve Quality Surface Water"** goal, with **"EC"** pertain to the **"Achieve Healthy Ecosystems"** goal, with **"FL"** pertain to the **"Manage Risk of Flooding"** goal, with **"GW"** pertain to the **"Support Sustainable Groundwater"** goal, and with **"IE"** pertaining to the **"Inform and Empower Communities"** goal and with **"MO"** pertain to the **"Manage Organization Effectively"** goal.