

## 8. Final plan overview and fund allocations



### 8.1 Introduction

The Co-Trustees (MPCA and DNR) finalized the Conceptual Drinking Water Supply Plan (Final Plan) after considering feedback on the draft plan and revising cost estimates for the recommended options (Appendix E). The Final Plan will provide safe and sustainable drinking water to the 14 affected East Metropolitan Area communities now and into the future.

The Final Plan:

- Includes **drinking water projects recommended by the affected communities**
- Uses **groundwater as the drinking water source**, to the extent possible
- **Prioritizes drinking water protection, drinking water treatment, and operation and maintenance (O&M)** for both public water systems and private wells
- Has the **flexibility and resiliency to respond to future uncertainties**

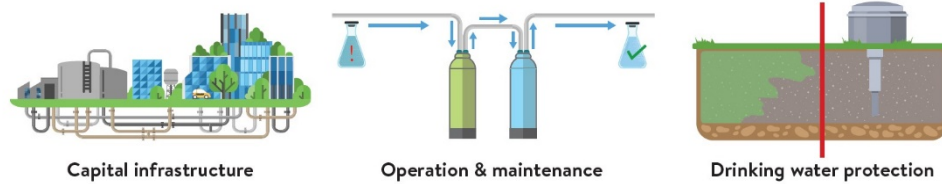


This chapter provides an overview of the elements of the Final Plan and fund allocation (Section 8.2), and discusses the reasoning and how it addresses the goals for Priority 1 of the Settlement (Section 8.3). A more detailed explanation of the funding elements in the Final Plan is provided in Chapter 9.

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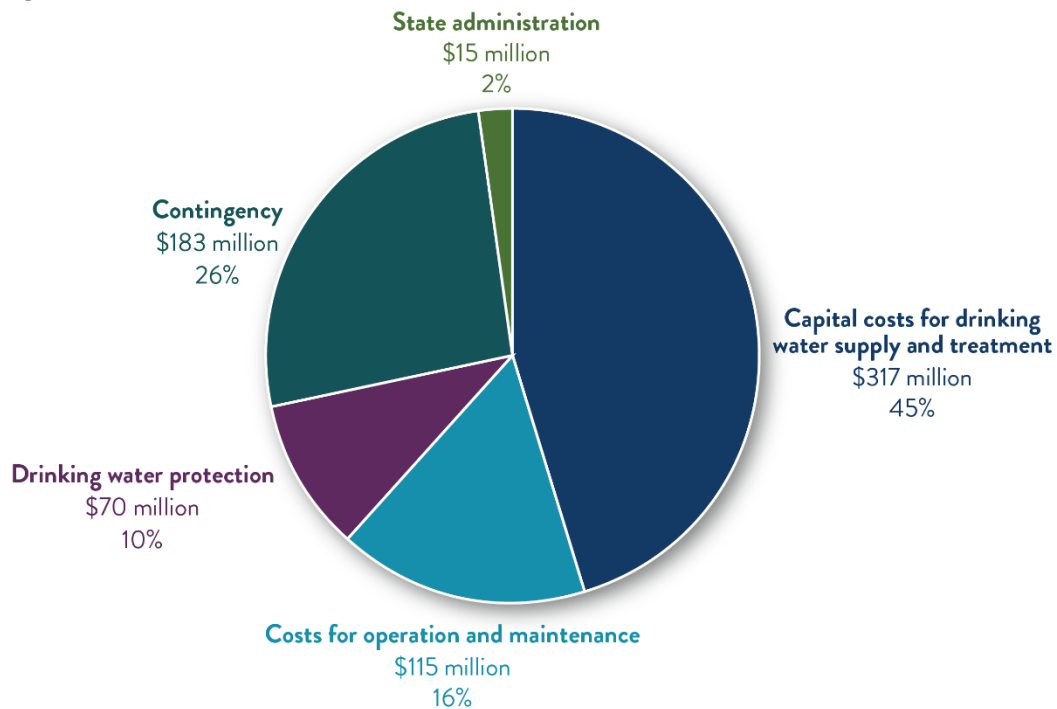
## 8.2 Elements of the Final Plan and fund allocations

The Co-Trustees allocated the majority of the \$700 million in available funding (Figure 8.1)<sup>4</sup> to three main funding priorities:



- **Capital funding (45%)** will be used to construct and install the drinking water supply infrastructure for public water systems and private wells.
- **Operation and maintenance (O&M) funding (16%)** will be used for the public water systems and private well treatment.
- **Drinking water protection funding (10%)** will be used to improve drinking water quality at the source.

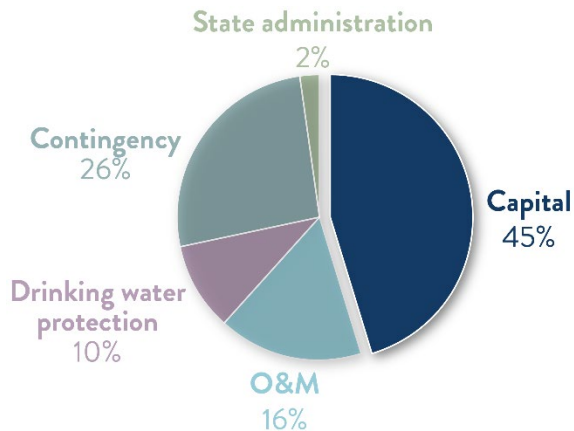
**Figure 8.1. Allocation of \$700 million in funding in the Final Plan.** Percentages do not sum to 100% due to rounding.



4. \$700 million is the amount of Settlement funding available after payment of legal fees and deducting the \$20 million set aside for Priority 2. The Final Plan is based on the updated costs to address PFAS contamination, presented in Appendix E.

In addition to the three main funding priorities, 26% is reserved as a contingency for potential future treatment needs (including capital infrastructure and O&M), and 2% is set aside for the Co-Trustees to administer the plan into the future. Chapter 9 provides additional detail on the cost categories, and describes the methods and assumptions for the allocation of the \$700 million.

### 8.2.1 Capital costs for drinking water supply and treatment fund allocation



Capital costs are the costs to construct and install the drinking water supply and treatment infrastructure for public water systems and private wells that currently meet or exceed a Health Index (HI) of 0.5 ( $HI \geq 0.5$ ).

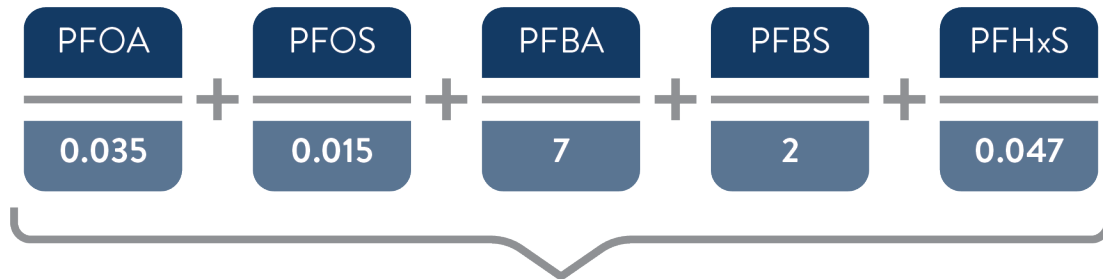
An HI is an indicator of risk due to exposure to multiple chemicals. It is determined by dividing the concentration of each chemical by its health-based water guidance value developed by the Minnesota Department of Health (MDH), which can be a health-based value (HBV) or a health risk limit (HRL), and then adding the resulting ratios for multiple

chemicals. In the case of PFAS, the HI value takes into account the concentrations of five PFAS constituents: PFBS, PFBA, PFHxS, PFOS, and PFOA. The concentration of each constituent is divided by its HRL or HBV to calculate a ratio. The sum of these five ratios is the HI (Figure 8.2). As discussed in Chapter 7, an HI of 1 or greater indicates that one or more PFAS chemicals are present in sufficient concentrations to potentially have a health effect (for more information, visit [health.state.mn.us/index.html](https://health.state.mn.us/index.html)). This would trigger a health advisory from MDH.

In Figure 8.2, the measured concentration of each PFAS constituent in parts per billion (shown in dark blue boxes) is divided by its HRL or HBV in parts per billion (shown in pale blue boxes), then the results are added together to calculate the HI. As shown in the HI Calculation Key below, if the HI is less than 0.5, the well will not be treated. If the HI is greater than or equal to 0.5, the well will be treated. The Final Plan uses a treatment threshold of  $HI \geq 0.5$  to provide resilience, which will help expedite addressing contamination and minimize costs of being reactive to changes in the future. Thus, the capital costs in the Final Plan include the costs to address wells that currently have a PFAS HI greater than or equal to ( $\geq$ ) 0.5.<sup>5</sup>

5. Some wells with HI values less than the treatment threshold may be treated if it is more efficient to do so, and if the well is likely to exceed the treatment threshold in the near future. For example, municipal water supply from all wells in a well field could receive treatment even though an individual well in the well field did not exceed the treatment threshold.

**Figure 8.2. Illustration of HI calculation and treatment at the time of the release of the Final Plan.** The measured concentration of each PFAS constituent in parts per billion (shown in dark blue boxes), is divided by its HRL or HBV in parts per billion (shown in green pale blue boxes), then added together to calculate the HI. As shown in the HI Calculation Key below, if the HI is less than 0.5, the well would not be treated or connected to a municipal system. If the HI is greater than or equal to 0.5, the well would be treated or connected to a public water supply system.



### HEALTH INDEX (HI) CALCULATION

#### HI Calculation Key

HI greater than or equal to 1  
**Treated:** Health Advisory

HI between 0.5 and 1  
**Treated:** Resilience

HI less than 0.5  
**Not Treated**

The capital costs allocation for drinking water supply and treatment projects includes costs to construct treatment facilities that use granulated active carbon (GAC) technology, based on the communities' projected 2040 demands. Communities may elect to use ion exchange (IX) instead of GAC if it is approved for use in Minnesota and if the cost is less than or similar to that of GAC. Capital costs also include the distribution system infrastructure to deliver treated water; new connections to municipal systems; required stormwater management infrastructure; groundwater pretreatment (if it is determined to be cost-effective);<sup>6</sup> city connection fees; and water treatment systems installed on the private well water line as it enters an individual home, for homes that are not connected to a municipal system (called point-of-entry treatment systems (POETS)).

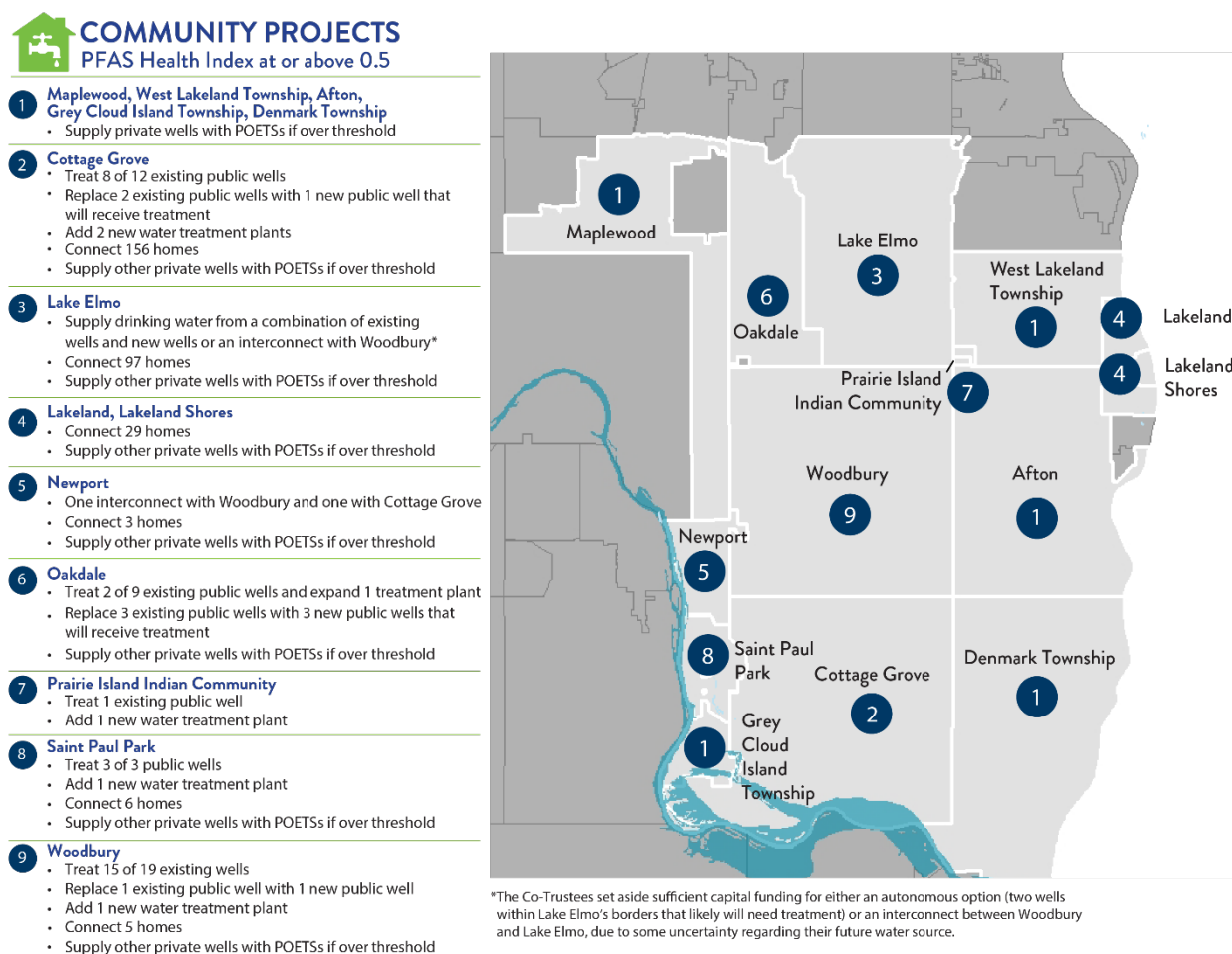
6. Elements such as iron and manganese in groundwater can interfere with PFAS treatment. Removing these elements before the PFAS treatment can extend the life of the PFAS treatment materials. Pretreatment would be implemented under this Plan only if it reduces long term O&M costs for the PFAS treatment systems. The Co-Trustees will evaluate and determine the cost-effectiveness of pretreatment on a case-by-case basis.

Specific drinking water infrastructure elements that are included in the Final Plan for each community are summarized in Figure 8.3, with additional detail on the elements for each community provided in Section 9.2. Improvements to and/or expansions of municipal treatment systems to address PFAS contamination (which include new or expanded treatment plants, connections of homes to public water supply, storage infrastructure, and interconnects between communities) will occur in Cottage Grove, Lake Elmo, Lakeland, Lakeland Shores, Newport, Oakdale, Prairie Island Indian Community, St. Paul Park, and Woodbury. Private wells throughout the affected communities that are not to be connected to municipal systems will be supplied with POETSS if they are over the treatment threshold. For detailed information on private well recommendations, please visit <https://arcg.is/0fmHXS>, where you can search by address.

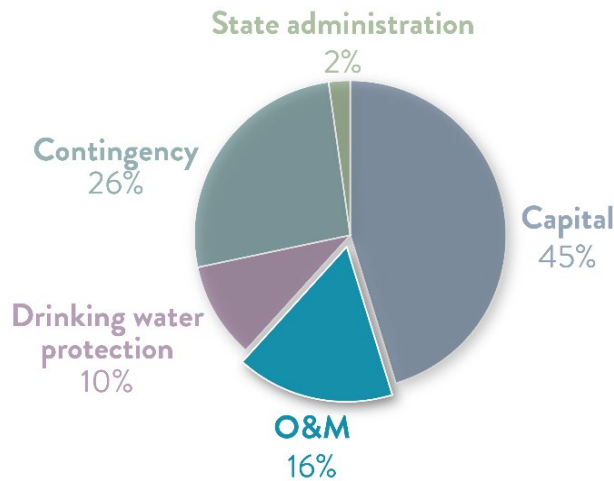
The costs for these infrastructure elements are based on the updated recommended options detailed in Appendix E that the Co-Trustees have determined are eligible for funding under the Settlement (see Section 9.2). Due to court decisions about White Bear Lake water levels and ongoing work to implement the court order, there is some uncertainty about Lake Elmo's future water source. The Co-Trustees will work with Lake Elmo to determine a reasonable solution within the constraints of the White Bear Lake decision. Thus, the Co-Trustees set aside sufficient capital funding for either an autonomous option (two wells within Lake Elmo's borders that likely will need treatment) or an interconnect between Woodbury and Lake Elmo. In West Lakeland, the Co-Trustees carefully considered two alternatives: a new municipal water system and the installation of in-home POETSS for wells that meet the treatment threshold. While both alternatives would ensure that all residents receive safe water into the future, POETSS are significantly more cost-effective. The Co-Trustees therefore selected the POETS alternative in the Final Plan. The Co-Trustees also considered the results of a survey conducted by West Lakeland, that suggested that a substantial number of residents do not want to connect to a municipal system.

The Final Plan is not designed to allocate the exact amount listed for each community (Section 9.2). Rather, it is intended to fund the actual expenses for the projects. As communities develop detailed designs and solicit bids for construction, Settlement-eligible costs may be higher or lower than the estimates. The Co-Trustees developed a funding reallocation strategy to outline how such differences in actual expenses will be addressed (Section 10.3). Additionally, communities are responsible for evaluating their plans and ensuring that they comply with federal, state, and local rules and regulations, and will only receive funding for plans that do so.

**Figure 8.3. Community capital elements of Final Plan.** Numbers of homes connected to municipal systems are estimates based on current information.



## 8.2.2 O&M fund allocation



The Co-Trustees allocated \$115 million in funds for O&M of public water systems and POETSSs for private wells. The breakdown of these costs included in the Final Plan is presented in Table 8.1. For additional information, refer to Section 9.3 and Appendix E.

The O&M fund allocation for treatment of drinking water is intended to fund Settlement-eligible treatment-related costs for public water systems and POETSSs at private wells. It includes treatment media change-out and the costs for facility O&M and city staff that are needed due to treatment. It will not be used to fund the non-

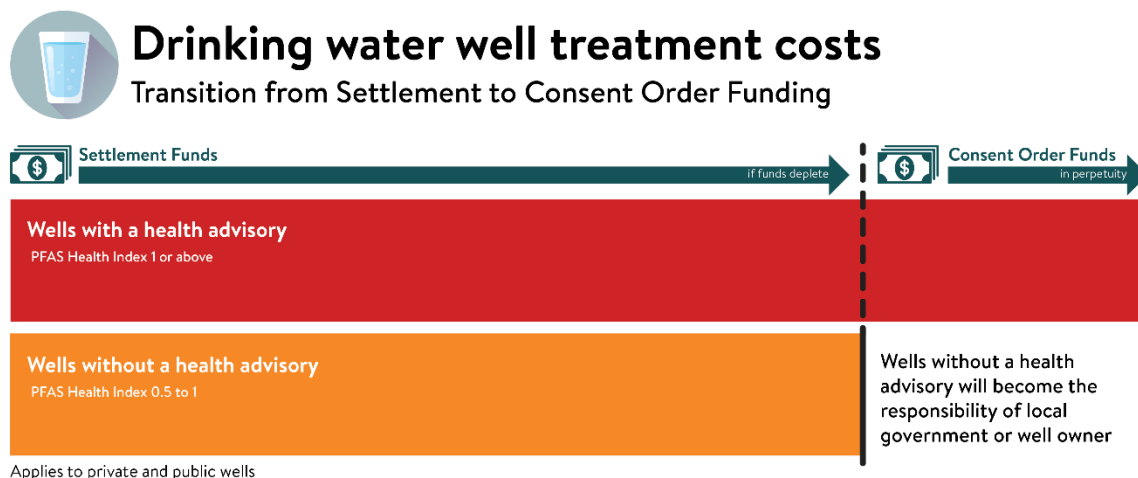
PFAS-related expenses that are needed for having a municipal system, such as the O&M of distribution infrastructure.

**Table 8.1. O&M cost breakdown.**

Item	\$ Million
O&M	\$115
Public water systems	\$87
POETSSs	\$28

When the Settlement is depleted, wells with a health advisory will continue to be treated by 3M under the 2007 Consent Order; but the Consent Order will not fund treatment of wells without a health advisory (Figure 8.4). It will be the responsibility of the local government or well owner to decide whether to continue to fund treatment of wells that do not have a health advisory.

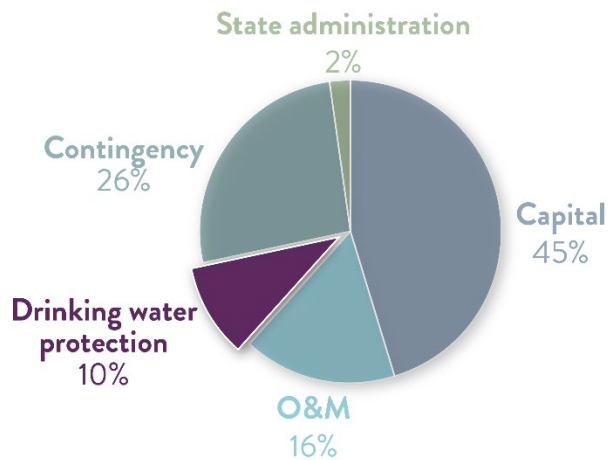
**Figure 8.4. Drinking water well treatment costs; transition from Settlement to Consent Order funding.**



The allocations of O&M funding are based on the estimated O&M costs for 20 years of public water supply and 30 years of private well POETSSs. The goal is to provide funding for a sufficient period of time for communities and individuals with wells that do not have a health advisory to plan for the longer

term, should they wish to continue to treat their water once the Settlement funds are depleted. The longer timeframe for private wells recognizes the greater annual cost burden of maintenance for private well owners, which may result in many private well owners choosing not to continue treatment of wells that do not have a health advisory. It is anticipated that municipalities would be more financially able than private well owners to continue treatment. Settlement-eligible O&M costs will be funded in each community as they arise until this allocation is depleted. Depending on actual future inflation and the level of investment returns on funds, the number of years funded could differ from these estimates.

### 8.2.3 Drinking water protection fund allocation



Drinking water protection is a component of Priority 1 of the Settlement and is also emphasized in the long-term goals for Priority 1 set out by the agencies and work groups at the beginning of this process. The Co-Trustees set aside \$70 million to improve drinking water quality at the source. As such, this funding will target contamination cleanup to benefit drinking water quality for those wells negatively impacted by PFAS, help reduce future treatment needs by protecting wells that are currently not impacted by PFAS, and sustain the drinking water source for future generations.

Drinking water protection projects will not replace

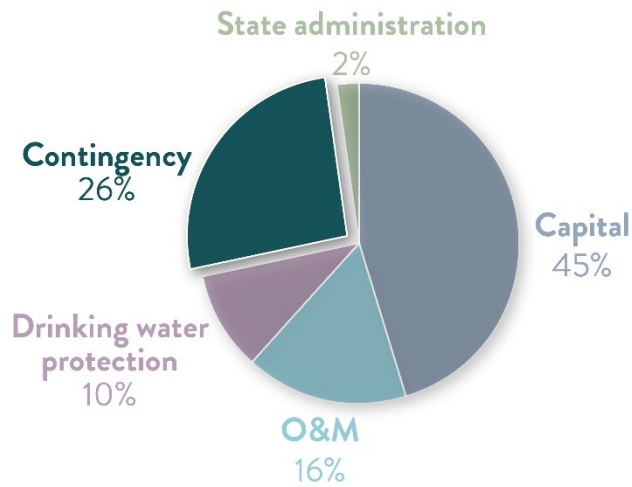
remediation of the 3M Cottage Grove Site, the 3M Woodbury Disposal Site, and the 3M Oakdale Disposal Site, which remain the responsibility of 3M under the Settlement and 2007 Consent Order, and the Washington County Landfill, which is managed by MPCA's Closed Landfill Program.

The Co-Trustees are evaluating actions that will protect drinking water by reducing PFAS concentrations in groundwater and/or protect areas from migration of PFAS in the groundwater. One type of drinking water protection action may involve reducing PFAS plume movement by installing multi-benefit wells in targeted locations to directly remove PFAS from the groundwater, and reduce its migration (See Section 4.2.11). A portion of this treated water could then be used as a drinking water supply to nearby areas, with the remainder reinjected into the ground to maintain groundwater levels.

Recognizing the interaction between surface water and groundwater, drinking water protection efforts may also address impacted surface water and sediment that act as secondary sources of PFAS contamination to the drinking water supply. The Co-Trustees are currently evaluating PFAS impacts in soil, groundwater, surface water, sediments, and foam on surface water along the Project 1007/Raleigh Creek corridor and their impacts on drinking water. Drinking water protection actions could include targeted removals of PFAS-contaminated sediments or the removal of PFAS from surface water outside of the disposal areas, particularly as steps toward larger regional groundwater improvement goals.

Using the results of the ongoing evaluations discussed above, the Co-Trustees will identify actions that are likely to yield the most benefit, and apply this funding to them.

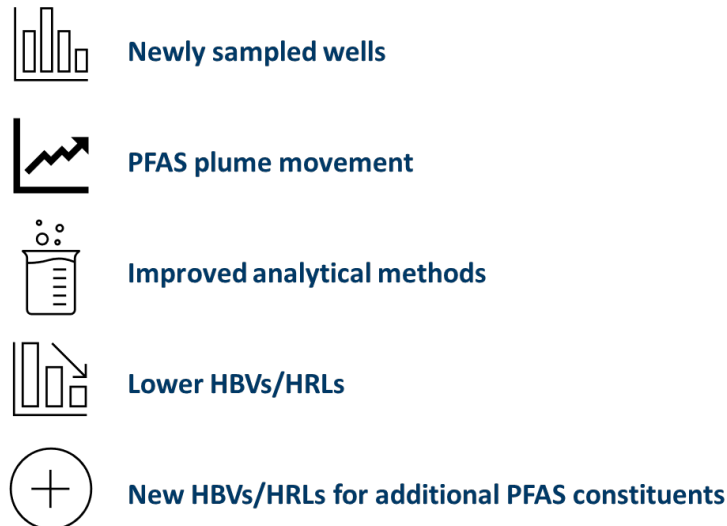
### 8.2.4 Contingency fund allocation



The Co-Trustees have set aside \$183 million in the Final Plan that may be used to fund several different areas of uncertainty. For instance, the contingency may be used to provide treatment for wells that are not included in the capital and O&M budgets of the Final Plan (Figure 8.5). Some wells in the East Metropolitan Area may not have been sampled to date. These wells may eventually be sampled and found to contain elevated PFAS. Additionally, as PFAS in groundwater migrate, concentrations may increase in some wells. In addition, as improvements are made in analytical methods, PFAS constituents could be measured at lower

levels and where not detected before, which could increase the HI value for wells. Even in wells where the concentration does not increase over time, the HI could change as a result of new scientific information on toxicity of certain PFAS. The HBVs or HRLs for the current five PFAS compounds used to calculate the HI could be reduced, or HBVs or HRLs could be developed for additional PFAS compounds.

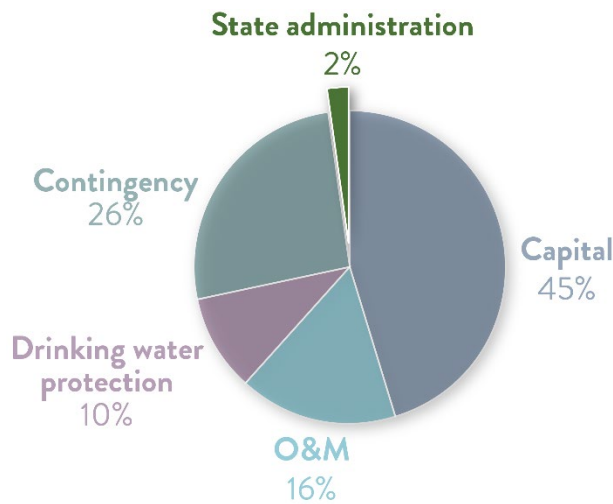
**Figure 8.5. Situations that may cause additional wells to require treatment or municipal connection.**



The contingency fund allocation may also be used to help PFAS-affected East Metropolitan Area communities fund the cost of providing an alternative source of water due to potential restrictions on use of aquifers that affect White Bear Lake levels. If an alternative water source is needed, this contingency fund could be used to help connect to St. Paul Regional Water Services (SPRWS) (See Section 9.4 for further discussion).

The Co-Trustees will determine what costs are eligible for funding by the contingency fund allocation based on the Settlement-eligible costs in the Final Plan and consistency with the framework of the Settlement and the Final Plan.

### 8.2.5 State administration fund allocation



The Co-Trustees have allocated \$15 million for expenses to administer the Final Plan, including the state's work on reviewing funding requests and developing grant agreements, tracking project implementation progress, annual review and reallocation, reporting, preparing for and running public meetings; and the evaluation of Project 1007. The state administration fund allocation includes both state expenses and contractor support, and was based in part on past expenses.

## 8.3 Discussion

The Co-Trustees carefully considered the long-term program goals (see Box) in deciding how to finalize this plan. These goals were developed in collaboration with the work groups and reflect the collective priorities of the participants in this planning process. This section summarizes how the Final Plan addresses them.

### 8.3.1 Provide clean drinking water to residents and businesses to meet current and future needs under changing conditions, population, and HBVs

#### Long-term program goals for Priority 1 – Drinking water quality, quantity, and sustainability

- Provide clean drinking water to residents and businesses to meet current and future needs under changing conditions, population, and HBVs.
- Protect and improve groundwater quality.
- Protect and maintain groundwater quantity.
- Minimize long-term cost burdens for communities.

The Final Plan has allocated 88% of the available funding toward capital infrastructure, O&M, and contingency for potential future drinking water treatment. The cost estimates account for projected population growth to the year 2040 in the affected East Metropolitan Area communities.

The Settlement also states, "In selecting and performing activities pursuant to this paragraph, the State shall prioritize water supplies where health-based values, health risk limits, and/or health risk indices for PFCs are exceeded." The Final Plan achieves this requirement. An HI of 1 or greater indicates that one or more PFAS chemicals are present in sufficient concentrations to potentially have a health effect. The Final Plan will treat wells that currently meet a threshold of  $HI \geq 0.5$ . The understanding of PFAS and the ability to detect it are continually evolving. As a result, PFAS HBVs or HRLs may change, or the extent of detectable PFAS contamination may change over time. Instead of being reactive to changes, the Final Plan builds a degree of resiliency to be able to proactively account for future potential changes. Further, the substantial contingency in the Final Plan will fund the provision of safe drinking water to additional areas if necessary and address uncertainties into the future.

### **8.3.2 Protect and improve groundwater quality**

Protecting and improving groundwater quality helps ensure safe drinking water for generations to come. The Co-Trustees are committed to a long-term comprehensive approach to address PFAS. The \$70 million allocated for these efforts will aim to both reduce PFAS impacts in the drinking water source itself (groundwater) and reduce additional groundwater contamination from surface water and sediment that are known to be contaminated with PFAS. These efforts will reduce the need for drinking water treatment in the long term and help prevent additional wells from needing treatment. In turn, this could extend the life of the Settlement funds for treatment where it is needed.

### **8.3.3 Protect and maintain groundwater quantity**

The Final Plan maintains a sustainable long-term groundwater supply. The steady-state groundwater modeling analysis evaluated projected groundwater elevations and aquifer yield using 2040 projected demand and simulated drought conditions. Based on the locations and volumes of projected water demand, the analysis indicates that the aquifers are capable of sustaining this level of pumping over the long term without adversely affecting the aquifer.

Although the Final Plan, overall, is not expected to adversely affect groundwater levels, portions of the North and East Metro area are subject to court-ordered restrictions to maintain lake levels in White Bear Lake. The Final Plan includes contingency funding that could be used to help move certain PFAS-affected East Metropolitan communities in this area to a surface water source (i.e., SPRWS) should it be necessary to ensure compliance with the court order.

### **8.3.4 Minimize long-term cost burdens for communities**

The Final Plan prioritizes Settlement funding to provide safe drinking water to the affected East Metropolitan Area communities. The Co-Trustees worked with the communities to identify their costs and concerns, and based funding for O&M on estimated costs for public water systems for 20 years and for POETs at private wells for 30 years, although the timeframe will depend on actual future inflation and the level of investment returns on funds. When the Settlement funds are depleted, O&M for treatment on municipal or private wells that have a health advisory associated with PFAS will be funded under the Consent Order. It will be the responsibility of the local government or well owner to decide whether to continue to fund treatment of wells that do not have a health advisory.

## 9. Details on the Final Plan and fund allocations



### 9.1 Introduction

The Final Plan allocates \$700 million from the Settlement to different categories presented in Chapter 8. Chapter 6 and Appendix E contain the cost estimates used as the starting point for the fund allocations in the draft recommended options and, ultimately, in the Final Plan. Based on input from the work groups, communities, and general public, the Co-Trustees made a series of decisions about the types of drinking water infrastructure costs that will be eligible for Settlement funding. Those decisions determined the amount of funding for capital and operations and maintenance (O&M) that is necessary from the Settlement.

In addition, the Co-Trustees evaluated options for allocating Settlement funds to other purposes, including contingency for future uncertainties, drinking water protection, and state administration. The Co-Trustees set allocations to these purposes while keeping the overall allocation equal to the total amount of funds available (i.e., \$700 million). This chapter describes the methods and assumptions used for fund allocations, including details about what is included under each allocation.

### 9.2 Capital fund allocation

Capital costs are broken into three categories: drinking water infrastructure, pretreatment infrastructure, and inflation.

#### 9.2.1 Drinking water infrastructure

Drinking water infrastructure includes treatment facilities using granular activated carbon (GAC), distribution system infrastructure to deliver treated water to newly connected homes and businesses, property acquisition for new treatment and other facilities, and lateral connections to homes and businesses that will be connected to municipal water systems. In addition, this category includes whole home treatment systems (referred to as POETs elsewhere in this plan) for homes with affected wells that will not be connected to a municipal water system. This category also includes stormwater management measures required for many of the drinking water construction projects. Finally, this category includes various city connection fees incurred when homes or businesses are first connected to their municipal water system (e.g., connection fees, tap fees, and water availability charges).

Co-Trustees determined the types of projects that would be eligible for Settlement funding by following the guidelines described in Section 6.1.2. Only projects that are necessary due to PFAS contamination are considered eligible. The full list of all eligible drinking water project types is shown below:

- Point of entry treatment systems (POETs)
- Water treatment plants
- Land acquisition for treatment plants
- Water treatment plant site preparation
- Sewer lines from water treatment plants
- Demolition of municipal wells to be replaced
- New wells and well modifications
- Raw water transmission mains
- Distribution mains
- Service laterals for home connections
- City connection fees
- Interconnects
- Booster pump stations
- Booster pump station upgrades
- Storage tanks
- Capacity for fire protection
- Pressure reducing valves
- Private well sealing
- Removal of existing POETs
- Demolition of temporary treatment facilities
- Stormwater compliance measures

Co-Trustees determined that some infrastructure items would not be funded by the Settlement because they are needed for reasons other than the PFAS contamination (e.g., projects that are needed solely due to growth). Items that are not considered eligible for Settlement funding are listed below.

- Additional treatment below the treatment threshold of  $HI \geq 0.5$
- Projects that are meant to serve growth, including expansion of water mains, adding storage tanks or other distribution system infrastructure, and new wells
- Treatment required for chemicals other than PFAS (e.g., trichloroethylene, or TCE)
- New developments, and water main extensions to those neighborhoods

If new items other than those listed above are identified during project implementation the Co-Trustees will apply eligibility guidelines to determine whether they will be funded by the Settlement.

Out of the total \$317 million for capital, the total amount allocated to drinking water infrastructure is about \$276 million. Tables 9.1 to 9.13 summarize the capital projects for each community that will be funded by the Settlement under the Final Plan. The Co-Trustees have determined that the projects and costs summarized in Tables 9.1 to 9.13 are eligible for funding under the Settlement. The plan does not guarantee that each community will be allocated the exact amount estimated for eligible projects. As part of implementation of the plan, communities will develop detailed designs for these projects and solicit bids for construction. If actual project costs are lower than the estimates in this plan, the Settlement will fund the actual costs. If communities find that costs are higher than the estimates in this plan, or if capital projects items need to be added or modified, the Co-Trustees will work with communities to evaluate those changes for Settlement eligibility and update fund allocations as necessary. Chapter 10 describes the Co-Trustees' strategy for fund reallocation. Information shown in the tables below is based on estimates, and could change slightly during the implementation process.

Some projects were approved and funded during the process of developing the Conceptual Plan. Co-Trustees established a procedure for communities to apply for expedited funding to take advantage of ongoing construction and achieve cost savings. For example, in connecting a neighborhood where wells are contaminated by PFAS, costs are saved by constructing the necessary water mains while roads are already under construction. Projects approved for expedited funding are consistent with the goals of the Settlement, and would likely have been implemented under the Final Plan. In addition, these projects were reviewed by the work groups prior to approval. Expedited projects have been mostly funded with interest earnings on the Settlement. If the total for completed and on-going expedited projects exceeds interest earnings, the contingency fund (see below) will be reduced to fund the cost. A total of

\$34.3 million was provided for 12 expedited projects in Cottage Grove, Lake Elmo, Oakdale, and Woodbury. Details are provided in Tables 9.2b, 9.5b, 9.9b and 9.13b.

**Table 9.1. Summary of the Final Plan for Afton.** Details can be found in Appendix E, Table E.8. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Afton	Total cost in the Final Plan
Capital and O&M for POETSS installed since the Settlement	39 existing POETSS	\$169,000
Estimated new GAC POETSS	13 estimated new POETSS	\$32,500
Contingency	25% added for contingency	\$8,125
Professional services	15% added for professional services	\$4,875
<b>Total capital</b>		<b>\$214,500</b>

**Table 9.2a. Summary of the Final Plan for Cottage Grove.** Details can be found in Appendix E, Table E.12. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Cottage Grove	Total cost in the Final Plan
Capital and O&M for POETSS installed since the Settlement	32 existing POETSS	\$156,000
Estimated new GAC POETSS	49 estimated new POETSS	\$122,500
Treatment on municipal wells	2 WTPs and 1 sewer line to convey backwash	\$21,265,750
New wells and well modifications	1 replacement well for wells 1 and 2; modifications and SCADA upgrades for 9 wells	\$3,978,000
Distribution system	3.7 miles of raw water mains, 67 neighborhood mains and home connections (i.e., service laterals); 16" distribution line to grange tank	\$11,408,918
Land acquisition	12.3 acres for treatment plants and easements for mains	\$4,429,510
Stormwater compliance	Stormwater costs 5% of linear and facility projects	\$1,691,733
Other	Municipal well sealing and demolition; private well sealing; existing GAC POETSS removal; City connection fees	\$2,161,800
Contingency	25% added for contingency	\$11,264,553
Professional services	15% added for professional services	\$6,758,732
<b>Total capital</b>		<b>\$63,237,496</b>

**Table 9.2b. Approved expedited projects for Cottage Grove.**

Details on expedited project	Approved cost
Extend the water main in the River Acres neighborhood to connect 123 homes to the city's municipal drinking water supply system	\$8,800,000
Connect 36 homes in the Granada Avenue neighborhood to the city's municipal drinking water supply system	\$2,250,000
<b>Total for expedited projects</b>	<b>\$11,050,000</b>

**Table 9.3. Summary of the Final Plan for Denmark.** Details can be found in Appendix E, Table E.15. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Denmark	Total cost in the Final Plan
Estimated new GAC POETSS	4 estimated new POETSS	\$10,000
Contingency	25% added for contingency	\$2,500
Professional services	15% added for professional services	\$1,500
<b>Total capital</b>		<b>\$14,000</b>

**Table 9.4. Summary of the Final Plan for Grey Cloud Island.** Details can be found in Appendix E, Table E.16. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Grey Cloud Island	Total cost in the Final Plan
Capital and O&M for POETSS installed since the Settlement	8 existing POETSS	\$38,000
Estimated new GAC POETSS	23 estimated new POETSS	\$57,500
Contingency	25% added for contingency	\$14,375
Professional services	15% added for professional services	\$8,625
<b>Total capital</b>		<b>\$118,500</b>

Due to court decisions about White Bear Lake water levels and ongoing work to implement the court order, there is some uncertainty about Lake Elmo's future water source. As a result, the Co-Trustees considered two alternatives for Lake Elmo. One alternative involves Lake Elmo having an autonomous water supply by installing two additional groundwater supply wells within Lake Elmo, and adding treatment for those wells if necessary. The other alternative involves an interconnect between Woodbury and Lake Elmo and three new wells in Woodbury to provide water for Lake Elmo. At this time, a final selection has not been made between the two alternatives. To be conservative in the fund allocations, Co-Trustees budgeted for the alternative with the greater capital costs, which is the Woodbury- Lake Elmo Interconnect. In addition, the funding for contingency (see section 9.5) could also be used for alternative water sources for Lake Elmo.

**Table 9.5a. Summary of the Final Plan for Lake Elmo.** Details can be found in Appendix E, Table E.20. Details and costs are based on best estimates at the time the plan was developed. (Line items may not sum to the total shown due to rounding.)

Capital project category	Details for Lake Elmo	Total cost in the Final Plan
Capital and O&M for POETSS installed since the Settlement	7 existing POETSS	\$27,500
Estimated new GAC POETSS	18 estimated new POETSS	\$45,000
Interconnect and booster pump station	1 interconnect station and 1 booster pump station for Woodbury to Lake Elmo	\$2,075,500
Distribution system	2.37 miles of neighborhood distribution mains in Lake Elmo for 257 homes; 3.59 miles of transmission or connecting mains; 0.48 miles of raw water distribution mains; 800 linear feet of mains from distribution system to booster pump station; connections for 97 homes in Lake Elmo (i.e., service laterals)	\$12,810,369

Capital project category	Details for Lake Elmo	Total cost in the Final Plan
Land acquisition	12.4 acres in Lake Elmo and 1.8 acres in Woodbury	\$2,820,289
Stormwater compliance	Stormwater costs 30% of linear and facility projects in Lake Elmo and 25% of projects in Woodbury	\$4,166,639
Other	97 private well sealings; removal of 25 existing POETs; City fees for new connections	\$809,280
Contingency	25% added for contingency	\$5,681,769
Professional services	15% added for professional services	\$3,409,062
<b>Total capital</b>		<b>\$31,845,409</b>

**Table 9.5b. Approved expedited projects for Lake Elmo.**

Details on expedited project	Approved cost
Extend a municipal water supply system to 61 homes located in the Lake Elmo Parkview	\$5,200,000
Extend a municipal water supply system to 65 homes located in the Stonegate 1 <sup>st</sup> and 2 <sup>nd</sup> addition neighborhoods	\$4,384,300
Extend a municipal water supply system to 48 homes located in 38 <sup>th</sup> and 39 <sup>th</sup> Street neighborhood	\$3,984,000
Extend a municipal water supply system to six homes located just east of 31 <sup>st</sup> Street and south of Stillwater Boulevard	\$549,100
Extend a municipal water supply system to 44 homes located in the Whistling Valley neighborhood	\$3,660,000
Extend a municipal water supply system to 41 homes located in the Hamlet on Sunfish Lake neighborhood	\$2,712,200
Extend a municipal water supply system to 23 homes located in the Torres Pines neighborhood	\$2,219,000
Extend municipal line east from the Tapestry neighborhood to connect 1 home	\$52,000
<b>Total for expedited projects</b>	<b>\$22,760,600</b>

**Table 9.6. Summary of the Final Plan for Lakeland and Lakeland Shores.** Details can be found in Appendix E, Table E.30. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Lakeland, Lakeland Shores	Total cost in the Final Plan
Capital and O&M for POETs installed since the Settlement	1 existing POETs	\$4,500
Distribution system	Connecting 29 homes to existing mains (i.e., service laterals)	\$144,275
Other	Removal of 4 existing POETs; sealing 309 private wells; City fees for new connections	\$859,825
Contingency	25% added for contingency	\$251,025
Professional services	15% added for professional services	\$150,615
<b>Total capital</b>		<b>\$1,410,240</b>

**Table 9.7. Summary of the Final Plan for Maplewood.** Details can be found in Appendix E, Table E.32. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Maplewood	Total cost in the Final Plan
GAC POETSS	5 estimated new POETSS	\$12,500
Contingency	25% added for contingency	\$3,125
Professional services	15% added for professional services	\$1,875
<b>Total capital</b>		<b>\$17,500</b>

Previous recommended options included costs for one interconnect for Newport in order to support their public water supply system in the future should it become necessary due to PFAS impacts. Discussions between the city and the Co-Trustees led to the decision to include costs for a second interconnect in order to provide resiliency and an alternative water supply for the city. If Newport's wells become contaminated with PFAS in the future, the city would prefer to receive water via one or both of these interconnects rather than implement treatment on their wells. If Newport eventually receives its water from interconnects, the state will require the city to seal its two municipal wells.

**Table 9.8. Summary of the Final Plan for Newport.** Details can be found in Appendix E, Table E.34. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Newport	Total cost in the Final Plan
Estimated new GAC POETSS	6 estimated new POETSS	\$15,000
Interconnect stations	1 interconnect station with Woodbury and 1 interconnect station with Cottage Grove	\$400,000
Distribution system	0.51 miles of interconnect mains with Woodbury; 0.76 miles of interconnect mains with Cottage Grove; connecting 3 homes to existing mains (i.e., service laterals)	\$1,134,700
Land acquisition	1.5 acres for water main easements	\$208,370
Stormwater compliance	Stormwater costs 5% of linear and facility projects	\$75,610
Other	Demolition of 2 municipal wells; sealing 3 wells; removal of 1 existing POETSS; City fees for new connections	\$274,200
Contingency	25% added for contingency	\$526,970
Professional services	15% added for professional services	\$316,182
<b>Total capital</b>		<b>\$2,951,032</b>

**Table 9.9a. Summary of the Final Plan for Oakdale.** Details can be found in Appendix E, Table E.39. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Oakdale	Total cost in the Final Plan
Treatment on municipal wells	1 WTP	\$5,890,000
New wells and well modifications	3 new wells to replace wells 1, 2, and 7; well and SCADA upgrades to 2 wells	\$6,934,000
Distribution system	0.53 miles of raw water transmission mains, 4 home connections (i.e., service laterals)	\$1,135,942
Land acquisition	3.1 acres for treatment plants and easements for mains	\$561,875
Stormwater compliance	Stormwater costs 5% of linear and facility projects	\$2,483,983

Capital project category	Details for Oakdale	Total cost in the Final Plan
Other	Demolition and sealing of 4 municipal wells; demolition of temporary treatment facility at well 7; WTP site prep; City fees for new connections	\$1,284,920
Contingency	25% added for contingency	\$4,572,680
Professional services	15% added for professional services	\$2,743,608
<b>Total capital</b>		<b>\$25,607,008</b>

**Table 9.9b. Approved expedited projects for Oakdale.**

Details on expedited project	Approved cost
Conducted a feasibility study to evaluate treatment locations for its four city wells that received well advisories. The study will determine whether there is sufficient space for a temporary or permanent treatment facility at the well location or at a centralized location.	\$20,000
<b>Total for expedited projects</b>	<b>\$20,000</b>

**Table 9.10. Summary of the Final Plan for Prairie Island Indian Community.** Details can be found in Appendix E, Table E.44. Details and costs are based on best estimates at the time the plan was developed. (Line items may not sum to the total shown due to rounding.)

Capital project category	Details for Prairie Island Indian Community	Total cost in the Final Plan
Treatment on municipal wells	1 WTP	\$1,734,956
New wells and well modifications	Well upgrades to 1 well	\$113,250
Distribution system	1.66 miles of mains; 80 home connections (i.e., service laterals); 1 60k gallon storage tank	\$2,022,610
Land acquisition	1.5 acres for WTP site and easements for distribution mains	\$211,702
Stormwater compliance	Stormwater costs 30% of linear and facility projects	\$1,043,270
Contingency	25% added for contingency	\$1,281,447
Professional services	15% added for professional services	\$768,868
<b>Total capital</b>		<b>\$7,176,102</b>

**Table 9.11. Summary of the Final Plan for St. Paul Park.** Details can be found in Appendix E, Table E.47. Details and costs are based on best estimates at the time the plan was developed. (Line items may not sum to the total shown due to rounding.)

Capital project category	Details for St. Paul Park	Total cost in the Final Plan
Capital and O&M for POETSS installed since the Settlement	4 existing POETSS	\$21,000
Treatment on municipal wells	1 WTP	\$5,706,804
New wells and well modifications	Well & SCADA upgrades to 3 wells	\$600,000

Capital project category	Details for St. Paul Park	Total cost in the Final Plan
Distribution system	0.61 miles of raw water transmission mains; 1.05 miles of water distribution mains; 6 home connections (i.e., service laterals)	\$4,098,617
Land acquisition	3 acres for WTP site and water main easements	\$408,592
Stormwater compliance	Stormwater costs 5% of linear and facility projects	\$488,021
Other	Sealing 6 wells; removing 1 existing POETs; City fees for new connections	\$26,110
Contingency	25% added for contingency	\$2,832,036
Professional services	15% added for professional services	\$1,699,222
<b>Total capital</b>		<b>\$15,880,401</b>

The Co-Trustees considered two alternatives for West Lakeland: a new municipal water system and the installation of whole home treatment systems for wells that meet the treatment threshold. Both alternatives ensure that all residents receive safe water now and into the future; however, a new municipal system would be substantially more expensive than POETs, adding roughly \$179 million in additional capital costs. Settlement-eligible annual O&M costs for a new municipal system would be slightly lower than the cost to maintain a POETS for every home with HI above the treatment threshold. The Co-Trustees analyzed how long it would take for the cost of installing and maintaining POETs to exceed the total capital and O&M costs of the municipal system. Assuming 3% inflation on O&M costs and 3.5% interest earnings on funds set aside for O&M, the analysis found that it would take at least 300 years for the cost of POETs to exceed the cost of the municipal water system.

West Lakeland surveyed their residents and the results suggest that a substantial number of residents would not want to connect to the municipal system. Co-Trustees received feedback from a significant number of residents of West Lakeland expressing a preference to keep their private well and receive a POETS. The Co-Trustees concluded that, despite some benefits of a municipal water system, implementing POETs for affected homes would continue to be an effective strategy to ensure safe drinking water and POETs would be more cost-effective than a new municipal system. The costs shown in Table 9.12 reflect the implementation of POETs and do not include the option to implement a new municipal water system.

**Table 9.12. Summary of the Final Plan for West Lakeland.** Details can be found in Appendix E, Table E.50. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for West Lakeland	Total cost in the Final Plan
Capital and O&M for POETs installed since the Settlement	412 existing POETs	\$1,958,000
Estimated new GAC POETs	103 estimated new POETs	\$257,500
Contingency	25% added for contingency	\$64,375
Professional services	15% added for professional services	\$38,625
<b>Total Capital</b>		<b>\$2,318,500</b>

**Table 9.13a. Summary of the Final Plan for Woodbury.** Details can be found in Appendix E, Table E.60. Details and costs are based on best estimates at the time the plan was developed.

Capital project category	Details for Woodbury	Total cost in the Final Plan
Capital and O&M for POETSS installed since the Settlement	1 existing POETs	\$3,500
Estimated new GAC POETSS	18 estimated new POETSS	\$45,000
Treatment on municipal wells	1 WTP and sewer line to convey backwash	\$20,502,800
New wells and well modifications	Replacement for Well 1 in South Well Field and well & SCADA upgrades for 15 wells	\$5,178,000
Distribution system	12.81 miles of mains, 5 home connections (i.e., service laterals); 2 pressure reducing valves	\$41,345,394
Land acquisition	16 acres for treatment plants and easements for mains	\$6,709,000
Stormwater compliance	Stormwater costs 25% of linear and facility projects	\$15,458,299
Other	Municipal well sealing and demolition; private well sealing; City connection fees	\$151,115
Contingency	25% added for contingency	\$22,347,402
Professional services	15% added for professional services	\$13,408,441
<b>Total capital</b>		<b>\$125,148,951</b>

**Table 9.13b. Approved expedited projects for Woodbury.**

Details on expedited project	Approved cost
Conduct a feasibility study to better understand the city's existing water supply distribution as it relates to PFAS contamination	\$96,069
<b>Total for expedited projects</b>	<b>\$96,069</b>

### 9.2.2 Pretreatment infrastructure

Pretreatment is a separate category of capital costs that will be used only if it can be shown to be a cost-effective way to reduce the treatment O&M costs funded by the Settlement. Co-Trustees will work with communities to evaluate the costs and benefits of pretreatment as part of the implementation process and to determine whether and where it would be most cost-beneficial to implement.

In systems with elevated levels of metals in their groundwater, such as iron and manganese, removing these elements prior to treatment with GAC or ion exchange (IX) can extend the life of the treatment media and reduce O&M costs. Further discussion of these costs is provided in Appendix F, Section F.7. Available data suggests that the need for pretreatment may be limited; only Woodbury, Cottage Grove, and Saint Paul Park have concentrations of metals in their source water that approach levels where pretreatment might be cost-effective.

The Co-Trustees set aside \$25 million for pretreatment capital costs. O&M costs for pretreatment are not included in the Final Plan because pretreatment will be implemented only if it reduces O&M costs. If pretreatment is not shown to be cost-effective for any community, these funds will be reallocated following the strategy laid out in Chapter 10. Similarly, if additional pretreatment funds are needed, it will be evaluated based on the reallocation strategy in Chapter 10.

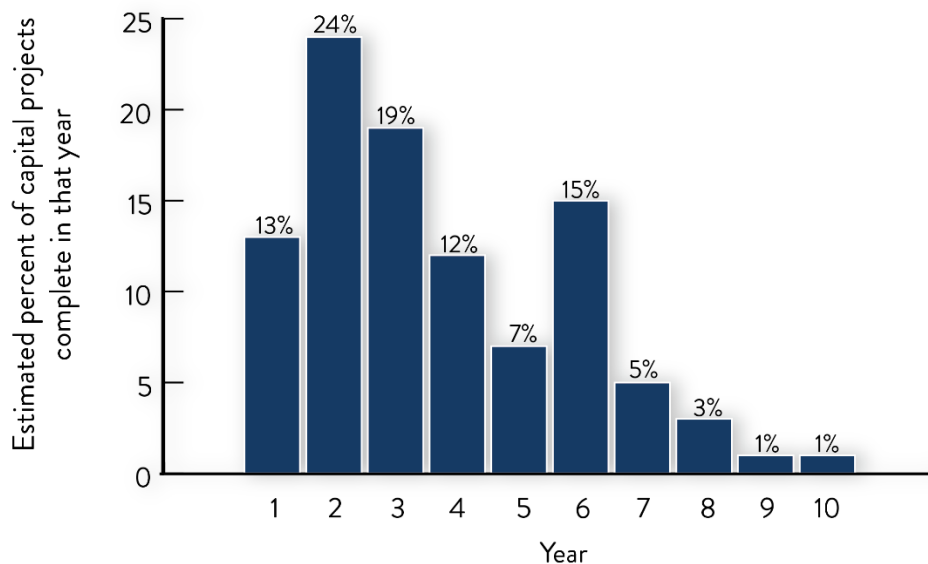
### 9.2.3 Inflation

Construction of capital projects under the Conceptual Plan may require 10 or more years to complete. Costs for materials and labor are very likely to increase over this time due to anticipated construction sector inflation. Currently, Settlement funds are in an interest-bearing account, but the earnings are not expected to keep pace with inflation. Co-Trustees set aside additional funds to cover potential future inflation of costs, separate from the 25% contingency built into capital cost estimates. The allocation for inflation assumes 3% annual inflation and 1% annual earnings for funds allocated to capital projects. Any interest earned on funds set aside for capital will be used for capital expenses.

The assumed inflation rate is based on information from past inflation trends, and professional judgment among the technical team that developed the Conceptual Plan. The assumed interest rate is based on recent earnings on the Settlement fund. Both assumptions were reviewed by the State Board of Investment and are consistent with their recommendations.

Based on information from communities, Co-Trustees developed an estimate of annual capital spending over the next 10 years (see Figure 9.1). This schedule, together with inflation and interest estimates, determines how much additional funding should be set aside to fund future costs with anticipated inflation. For the calculation, it is assumed that each annual increment of capital costs is withdrawn at the start of each year, and interest is then applied to the remaining balance in the fund. In addition, it is assumed that there is no inflation for costs incurred at the beginning of the first year. The Co-Trustees set aside \$16 million to cover inflation.

**Figure 9.1. Estimated capital spending by year under the Conceptual Plan.** Some projects may require additional planning and evaluation and may not start construction until year 6.



### 9.2.4 Uncertainty in capital costs and fund allocations

There is some uncertainty in estimated capital costs. Appendix E describes the cost estimates as having a -30% to +50% range of accuracy. To guard against the risk of actual costs being higher than the estimates, a 25% contingency is added. In addition to uncertainty about the cost estimates, unforeseen requirements may arise as communities implement drinking water infrastructure projects that may introduce additional costs.

The Co-Trustees will evaluate updated estimates and previously unidentified costs, such as reimbursement for park land, as they arise during implementation. If new costs are funded by the Settlement, Co-Trustees will consider whether additional funds will be reallocated from other purposes following the strategy described in Chapter 10.

### 9.3 Operation and maintenance fund allocation

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For purposes of the fund allocation, O&M costs are broken into two categories: municipal water systems and POETSS.

#### 9.3.1 Municipal water system O&M

Municipal water system O&M costs that are eligible for Settlement funding include media change-outs for GAC or IX, costs for personnel to operate the system, and maintenance on buildings that contain treatment systems. O&M for new distribution systems (e.g., water mains) are not eligible for Settlement funding. Finally, replacement costs for treatment, or distribution systems, are not eligible for Settlement funding.

Allocations were set using 3% annual inflation and 3.5% annual interest to estimate the duration of annual O&M that would be funded by a given dollar allocation. It is assumed that the full amount of annual O&M will begin immediately. In reality, O&M costs will likely ramp up over a period of years,<sup>7</sup> but at this stage Co-Trustees lack sufficient information to project the ramp-up. Inflation is not applied to O&M costs in year 1. Each year's increment of O&M cost is assumed to be paid out at the beginning of the year, and interest is then applied to the remaining balance in the fund. Table 9.14 provides a sample of annual O&M costs, interest earnings, and fund balance. Co-Trustees allocated \$87 million to fund O&M for municipal water systems.

The \$87 million allocation is based on funding 20 years of annual treatment O&M costs together with 3% inflation and 3.5% interest; however, the actual duration could differ if inflation and interest earnings are higher or lower, or if costs differ from current estimates. Settlement-eligible O&M costs will be funded in each community as they arise until this allocation of \$87 million is depleted. Once this allocation is depleted, it is expected that under the Consent Order 3M will fund O&M costs for treatment on wells with a health advisory from MDH (i.e., wells with HI≥1), while communities will be responsible for O&M costs for treatment on wells that do not have an MDH health advisory, should they choose to continue to treat them.

The \$87 million allocation was determined by the Co-Trustees in order to balance capital and long-term costs that would be funded by communities, contingency funds for uncertainties, and drinking water protection. The Co-Trustees aimed to provide as much funding for annual O&M costs as possible given the capital cost estimates and the priority to allocate funds for future uncertainties and for drinking water protection.

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7. Under the Settlement agreement, 3M funds costs for temporary treatment systems for up to 5 years from the Settlement date, or \$40 million of total cost, whichever comes first. After the 5 years or \$40 million, the Settlement will fund the cost of temporary systems if permanent solutions are not yet in place.

**Table 9.14. Sample of annual O&M costs for municipal water systems, interest earnings, and fund balance.**

Year	Fund balance, beginning of year	Annual O&M cost, with inflation	Annual interest on funds remaining after O&M expenses	Fund balance at end of year, after O&M cost and interest earnings
1	\$87.00	\$4.52	\$2.89	\$85.37
2	\$85.37	\$4.65	\$2.82	\$83.54
3	\$83.54	\$4.79	\$2.76	\$81.50
4	\$81.50	\$4.94	\$2.68	\$79.24
5	\$79.24	\$5.09	\$2.60	\$76.75
6	\$76.75	\$5.24	\$2.50	\$74.01
7	\$74.01	\$5.40	\$2.40	\$71.02
8	\$71.02	\$5.56	\$2.29	\$67.75
9	\$67.75	\$5.72	\$2.17	\$64.20
10	\$64.20	\$5.90	\$2.04	\$60.34

### 9.3.2 O&M for POETSS

Annual O&M funding for POETSS funds changing out filtration media once a year. The allocation for POETSS O&M assumes 3% annual inflation and 3.5% annual interest to estimate the duration of annual O&M that would be funded by a given dollar allocation. It is assumed that the full amount of annual O&M will begin immediately. In reality, O&M costs will likely ramp up over a period of years as new POETSS are installed, but at this stage Co-Trustees lack sufficient information to project exactly how O&M costs will ramp up. Inflation is not applied to O&M costs in year 1. Each year's increment of O&M cost is assumed to be paid out at the beginning of the year, and interest is then applied to the remaining balance in the fund.

Co-Trustees allocated \$28 million to fund POETS O&M. The allocation is based on funding 30 years of annual O&M costs for POETSS together with 3% inflation and 3.5% interest; however, the actual duration could differ if inflation and interest earnings are higher or lower, or if costs differ from current estimates. O&M costs for POETSS will be funded as they arise until this allocation of \$28 million is depleted. Table 9.15 provides a sample of annual O&M costs, interest earnings, and fund balance.

This allocation was determined by the Co-Trustees in order to minimize costs for individual homeowners, while balancing capital and long-term costs that would be funded by communities, contingency funds for uncertainties, and drinking water protection. The Co-Trustees aimed to provide as much funding for annual POETS O&M costs as possible given the capital cost estimates and the priority to allocate funds for future uncertainties and for drinking water protection.

The Co-Trustees prioritized a longer duration of O&M coverage for POETSS than for municipal water systems given the higher per-home annual cost of maintaining a POETS. After depletion of the Settlement, the costs for POETS O&M at homes with HI<1 (i.e., those without a health advisory from MDH), currently estimated at \$1,000 per year, will be the responsibility of individual homeowners. The O&M costs for municipal water systems are spread across many homeowners and businesses. Any increase due to new treatment for PFAS will be far less than the annual cost for a POETS. In many cases, once the Settlement is depleted, homeowners with wells that do not have an MDH health advisory may not be able to afford the annual \$1,000 cost for maintaining their POETS and, as a result, may stop using the POETS to treat their water. Providing a longer period of funding for POETSS O&M helps ensure treatment equity between private and municipal well users.

**Table 9.15. Sample of annual O&M costs for POETs, interest earnings, and fund balance.**

Year	Fund balance, beginning of year	Annual O&M cost, with inflation	Annual interest on funds remaining after O&M expenses	Fund balance at end of year, after O&M cost and interest earnings
1	\$28.00	\$0.98	\$0.95	\$27.97
2	\$27.97	\$1.00	\$0.94	\$27.91
3	\$27.91	\$1.03	\$0.94	\$27.82
4	\$27.82	\$1.07	\$0.94	\$27.69
5	\$27.69	\$1.10	\$0.93	\$27.52
6	\$27.52	\$1.13	\$0.92	\$27.31
7	\$27.31	\$1.16	\$0.92	\$27.07
8	\$27.07	\$1.20	\$0.91	\$26.77
9	\$26.77	\$1.24	\$0.89	\$26.43
10	\$26.43	\$1.27	\$0.88	\$26.04

## 9.4 Summary of drinking water project costs

The \$276 million for drinking water infrastructure capital and the \$115 million for annual O&M are based on community-specific cost estimates. Details are provided earlier in this chapter, as well as in Appendix E, Section E.2. Table 9.16 provides a summary of estimated capital costs, annual O&M, and total Settlement costs for each community. Total Settlement costs consist of the estimated capital costs plus 20 years of estimated O&M for treatment on municipal water systems (where applicable), plus 30 years of estimated annual O&M for all POETs within each community (where applicable). The estimated costs in Table 9.16 were used in the development of the Final Plan, but do not represent specific allocations for any one community. Instead, the Settlement will fund actual Settlement-eligible capital and O&M costs, as funds remain available. Figure 9.2 summarizes the locations of proposed projects for communities with municipal drinking water systems. Figure 9.2 does not show the locations of POETs, but an interactive map on the 3M Settlement webpage includes the locations of all POETs.

**Table 9.16. Estimated capital, O&M and total Settlement costs by community.**

Community	Major components	Capital costs for drinking water infrastructure (\$ millions)*	Annual O&M for drinking water infrastructure (\$ millions)**	Total Settlement costs (\$ millions)+
Afton	POETs only	\$0.21	\$0.05	\$1.67
Cottage Grove	<ul style="list-style-type: none"> <li>• Treat 8 of 12 existing public wells</li> <li>• Replace 2 existing public wells with 1 new public well that will receive treatment</li> <li>• Add 2 new water treatment plants</li> <li>• Connect 156 homes</li> <li>• Supply other private wells with POETs if over threshold</li> </ul>	\$63.24	\$1.45	\$91.88
Denmark	POETs only	\$0.01	\$0.004	\$0.13
Grey Cloud Island	POETs only	\$0.12	\$0.08	\$2.24

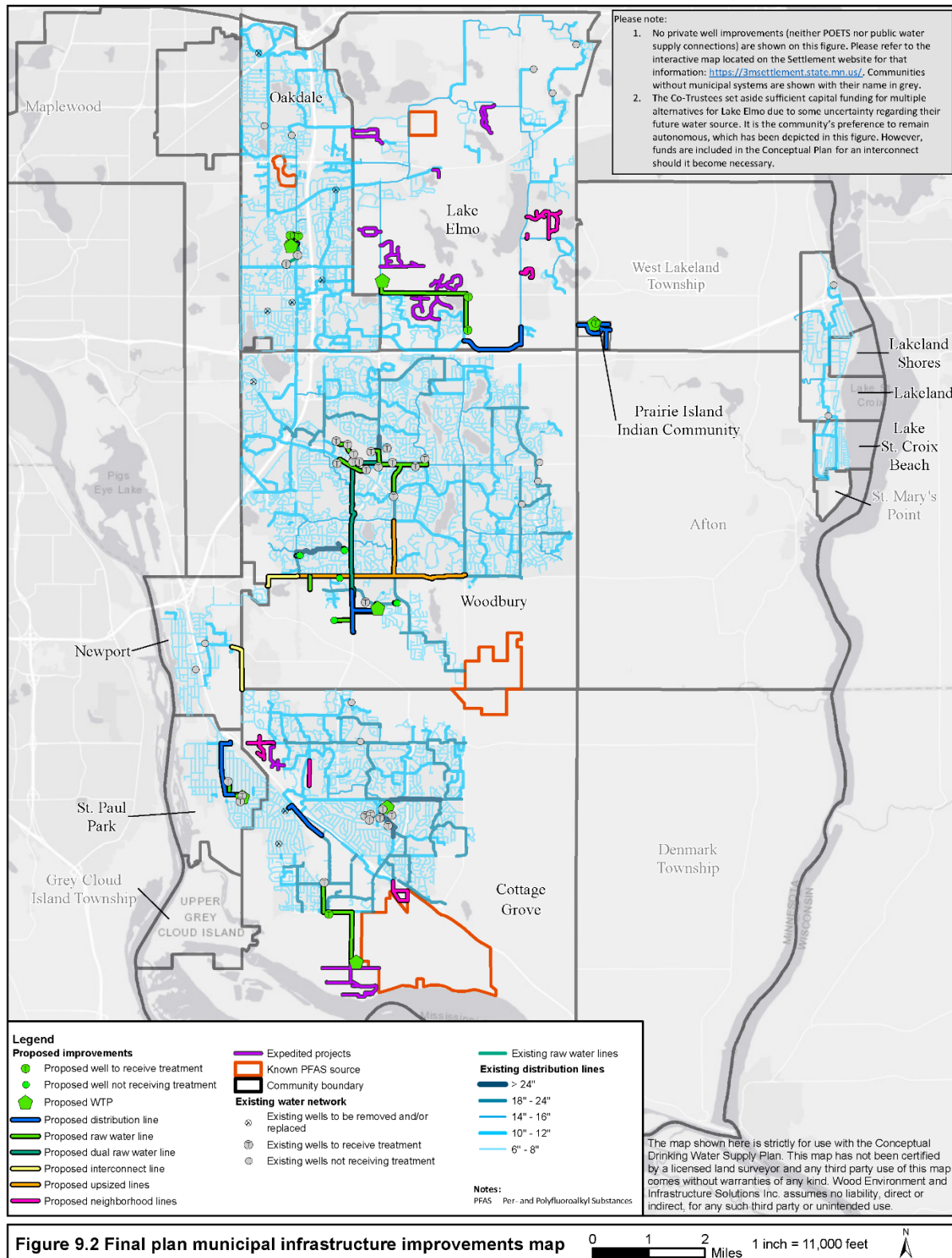
Community	Major components	Capital costs for drinking water infrastructure (\$ millions)*	Annual O&M for drinking water infrastructure (\$ millions)**	Total Settlement costs (\$ millions)+
Lake Elmo	<ul style="list-style-type: none"> <li>Supply drinking water from a combination of existing wells and new wells or an interconnect with Woodbury</li> <li>Connect 97 homes</li> <li>Supply other private wells with POETSS if over threshold</li> </ul>	\$31.85	\$0.43	\$40.23
Lakeland, Lakeland Shores	<ul style="list-style-type: none"> <li>Connect 29 homes</li> <li>Supply other private wells with POETSS if over threshold</li> </ul>	\$1.41	\$0.001	\$1.44
Maplewood	POETSS only	\$0.02	\$0.01	\$0.30
Newport	<ul style="list-style-type: none"> <li>One interconnect with Woodbury and one with Cottage Grove</li> <li>Connect 3 homes</li> <li>Supply other private wells with POETSS if over threshold</li> </ul>	\$2.95	\$0.01	\$3.12
Oakdale	<ul style="list-style-type: none"> <li>Treat 2 of 9 existing public wells and expand 1 treatment plant</li> <li>Replace 3 existing public wells with 3 new public wells that will receive treatment</li> <li>Supply other private wells with POETSS if over threshold</li> </ul>	\$25.61	\$0.79	\$40.63
Prairie Island Indian Community	<ul style="list-style-type: none"> <li>Treat 1 existing public well</li> <li>Add 1 new water treatment plant</li> </ul>	\$7.18	\$0.14	\$9.87
St. Paul Park	<ul style="list-style-type: none"> <li>Treat 3 of 3 public wells</li> <li>Add 1 new water treatment plant</li> <li>Connect 6 homes</li> <li>Supply other private wells with POETSS if over threshold</li> </ul>	\$15.88	\$0.42	\$23.96
West Lakeland	POETSS only	\$2.32	\$0.66	\$20.62
Woodbury	<ul style="list-style-type: none"> <li>Treat 15 of 19 existing wells</li> <li>Replace 1 existing public well with 1 new public well</li> <li>Add 1 new water treatment plant</li> <li>Connect 5 homes</li> <li>Supply other private wells with POETSS if over threshold</li> </ul>	\$125.15	\$1.47	\$153.31
<b>Total</b>		<b>\$275.94</b>	<b>\$5.49</b>	<b>\$389.38</b>

\*Does not include pretreatment or inflation; see Section 9.1 for details.

\*\*Includes annual O&M on treatment for municipal water systems and annual O&M for POETSS.

+ The total for capital (\$275.94 million) plus 20 years of O&M on treatment for municipal water systems and 30 years of O&M for POETSS; the allocations for O&M are rounded up and total \$115 million.

**Figure 9.2. Summary map of the location and layout of proposed drinking water projects included in the Final Plan.**



## 9.5 Contingency funds

The Co-Trustees have set aside \$183 million in the Final Plan to fund several different areas of future uncertainty, if needed. Additional wells may need treatment in the future, either because of changes in contamination or because of changes in health guidance values. It is difficult to predict exactly how much future treatment may be required. In addition, two communities affected by PFAS may need alternative sources of water due to potential restrictions on use of aquifers that affect White Bear Lake. DNR is working with communities to resolve the White Bear Lake issue, but specific solutions will take time to identify, design and fully implement.

Despite these significant uncertainties, Co-Trustees had to determine a specific amount to set aside to fund potential future needs. Three potential sources of uncertainty were examined to help set the amount. In balancing among initial capital costs, long-term O&M costs, and other priorities, Co-Trustees concluded that \$183 million is reasonable to fund future uncertainties.

The sections below provide details on the three potential sources of uncertainty that were analyzed to help determine the \$183 million contingency amount. The total capital and O&M costs presented below exceed \$183 million. It is unlikely that all of the needs described below will actually arise in the future.

If future needs turn out to be less than the estimates used for the contingency allocation, funds will be reallocated to other purposes (see Chapter 10). In the unlikely event that future needs exceed the contingency funding, the Settlement Agreement and Consent Order require 3M to fund the costs of treatment for any well with a health advisory (i.e., those wells with  $HI \geq 1$ ).

### 9.5.1 Cost estimates for potential future treatment

The groundwater model was used to conduct a particle tracking analysis that provides an estimate of potential future plume movement. The particle tracking analysis identifies which wells might be affected by contamination in the future.

The particle tracking analysis does not estimate the future level of contamination or the future HI value for any wells. It identifies only wells that might be affected by PFAS in the future. In addition, new research on PFAS could result in decisions by MDH to reduce health guidance values (HBVs or HRLs), or to add new ones for additional types of PFAS chemicals. This may result in new wells requiring treatment because they meet the treatment threshold. (New research could also lead to MDH increasing HBVs or HRLs, which would result in less need for new treatment.) Costs were estimated for adding GAC treatment to every well that the particle tracking analysis suggests could become affected by PFAS in the future. The estimated capital cost to treat all these wells is \$32.9 million. (See Table E.64, Appendix E.)

Recent information suggests that new growth-related wells planned by Woodbury may require treatment when they are built. Woodbury is planning up to five new wells to meet future growth. These wells will be located in the south well field near Well 19, where recent test results show that the HI is now above 0.5, suggesting that the new wells may require treatment as well. Treatment on these wells would be Settlement-eligible. The estimated capital cost for GAC treatment on these new wells is \$25 million.

### O&M cost estimates for potential future treatment

Any treatment implemented due to future contamination or changes in health guidance values will lead to new O&M costs. The annual O&M cost estimate for treatment for all the wells that are identified in the particle tracking analysis is \$1.88 million. The annual treatment O&M for up to five new wells in

Woodbury's south wellfield is estimated at \$0.81 million per year. These O&M cost estimates are for GAC treatment but do not include pretreatment. Assuming 3.5% interest and 3% inflation, the total cost for 20 years of O&M on potential new municipal well treatment, plus 30 years of O&M on potential new POETS, would be about \$63 million.

### 9.5.2 Cost estimates for alternative drinking water sources

The contingency can be used to fund potential alternative water sources for PFAS-affected communities if it is determined that a change is needed to ensure compliance with the White Bear Lake court decision. In order to determine a funding amount for alternative water sources, the Co-Trustees estimated costs for Lake Elmo and Oakdale. Options for Oakdale include retaining their own groundwater wells or switching to SPRWS for their drinking water, either of which would fund their water needs through 2040. Lake Elmo is anticipated to need additional water supply in the future due to growth. Their options include: 1) installing two new wells within the City of Lake Elmo and adding treatment if necessary; 2) an interconnect with Woodbury supplied by three new wells that may require treatment for PFAS; 3) switching to SPRWS for all of its drinking water needs, or 4) using water from multi-benefit wells that may be implemented as part of groundwater remediation efforts (see Section 4.2.11; note that cost estimates for multi-benefit wells have not yet been developed).

If it becomes necessary for Oakdale and Lake Elmo to change their drinking water source from groundwater to SPRWS, there will be additional capital costs over and above the estimates shown in Table 9.5 and 9.9 above, as well as additional O&M costs. The additional capital costs for switching Lake Elmo and Oakdale to SPRWS amount to \$4 million.

O&M cost estimates for the SPRWS option for Oakdale and Lake Elmo would be entirely from bulk water charges from SPRWS. As a result, the annual cost will grow over time as Oakdale and Lake Elmo grow and purchase more water from SPRWS (see Appendix E, Section E.4.5). Assuming 3.5% interest and 3% inflation, the total cost to fund O&M for 20 years is \$72 million. The Settlement could fund some portion of annual bulk water charges from SPRWS, but the Co-Trustees have not yet determined exactly how much of the charges could be Settlement-eligible.

Co-Trustees recognize that Lake Elmo and Oakdale may consider other options within this cost estimate. This estimate is also sufficient to fund treatment if needed for the three new wells in Woodbury that would be necessary if Lake Elmo chooses to implement the interconnect option. Treatment would be implemented if the HI equals or exceeds the treatment threshold of 0.5.

## 9.6 Additional fund allocations

Two additional allocations are included in the Final Plan – drinking water protection and state administration.

The Co-Trustees set aside \$70 million for drinking water protection (see Chapter 8 for a description of how these funds will be used). The amount comes from a preliminary estimate to improve groundwater quality in areas affected by PFAS. This allocation is intended to protect and improve the groundwater quality for future drinking water use for the entire region by reducing PFAS in the environment; actions may include reducing PFAS in groundwater using multi-benefit wells, targeted removal of PFAS-contaminated sediments, and/or the removal of PFAS from surface water.

The Co-Trustees set aside \$15 million to fund state administration costs for implementing the plan. The state administration allocation will be used until the funds are depleted and that is estimated to extend

over the next 20 years. The amount is based on current state administration costs for staff and consultants, with the expectation that annual costs will decline in future years as projects are completed. This amount will also fund the investigation and feasibility study for Project 1007.

There were two fund allocations in the draft Recommended Options (see chapter 7) that are not included in the Final Plan. Based on feedback from communities and the work groups, the Co-Trustees concluded that while sustainability and conservation projects are an important part of Priority 1, they are of lower priority than other fund allocations. Feedback from communities resulting in substantial increases in capital costs, and the determination that additional contingency funds were needed to fund future uncertainties, contributed to removing funding for sustainability and conservation projects in the Final Plan.

The draft recommended options also included an allocation for costs for potential future neighborhood connections to municipal water systems. This allocation was intended to fund additional future entire neighborhood connections if new sampling data eventually showed a significant number of private wells impacted and that these connections would be cost-effective. Ultimately, this contingency was removed from the Final Plan in support of other funding priorities. However, the contingency for future treatment described above will be used to fund the costs to connect homes (if a water main is already available at the home), or provide POETs, if the need arises in the future to ensure access to safe drinking water.

The Final Plan allocates \$700 million from the Settlement to different categories presented in Chapter 8. Chapter 6 and Appendix E contain the cost estimates used as the starting point for the fund allocations in the draft recommended options and, ultimately, in the Final Plan. Based on input from the work groups, communities, and general public, the Co-Trustees made a series of decisions about the types of drinking water infrastructure costs that will be eligible for Settlement funding. Those decisions determined the amount of funding for capital and operations and maintenance (O&M) that is necessary from the Settlement.

## 10. Final Plan Implementation



This Final Plan will serve as a guide for using the Settlement to provide safe, sustainable drinking water to the affected communities in the East Metropolitan Area. This chapter describes the Co-Trustees' vision of how project design and implementation will proceed from initial steps to full implementation.

Section 10.1 discusses how funding will be administered for capital and operation and maintenance (O&M) expenses; Section 10.2 describes the Co-Trustees' process for funding drinking water protection projects; Section 10.3 describes how the Co-Trustees will use contingency funding; and Section 10.4 presents the Co-Trustees' annual review process and strategy for fund reallocation, should it be necessary.

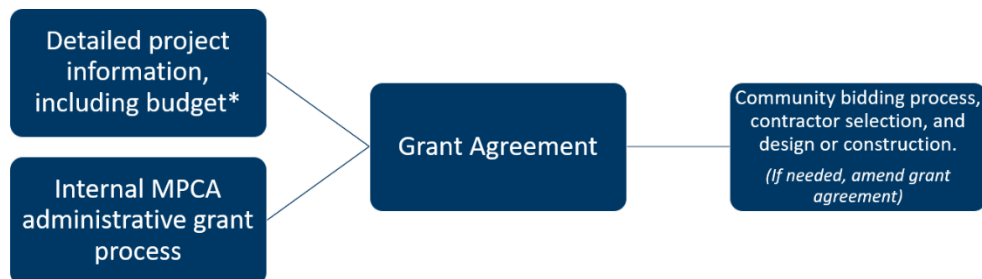
### 10.1 Capital and O&M

The implementation of the Final Plan focuses on capital infrastructure for public water systems and private wells that currently meet or exceed an HI of 0.5. There are separate processes for implementing municipal infrastructure projects (described in Section 10.1.1) and POETSs for private wells (described in Section 10.1.2).

#### 10.1.1 Municipal projects

Municipal capital and O&M projects will be driven by the communities. The Co-Trustees will follow a simple process that facilitates providing funding for capital costs to the communities for public water system planning, design, permitting, construction, and O&M (Figure 10.1). Communities will need to provide documentation to the Co-Trustees as a part of the grant process to ensure that projects and spending are consistent with the Final Plan and that rules and regulations are followed. This process is expected to include the following steps.

**Figure 10.1. Grant process**



Notes:

\* Providing project information is each community's responsibility; other steps are largely the State's responsibility.

Internal MPCA administrative grant process and grant agreement are happening concurrently with grantee requesting bids from contractors (typically 30-day bidding process) for the construction phase.

First, communities will initiate the grant process with the state by providing detailed information to the Co-Trustees on specific projects. Requested information may include a detailed budget, the timing of the project, the technology (GAC or IX [if approved for use]), pretreatment and/or stormwater management needs, any conservation or sustainability aspects of the project, and/or other information. All communities must comply with federal, state, and local rules and regulations, and are responsible for evaluating all projects and ensuring that they do so. If a community is not confident that their plans will comply, the community will need to discuss appropriate grant funding with the Co-Trustees.

Next, the state will review the information provided by the communities in a timely manner, request clarification or additional information as needed, and resolve any questions about compliance with rules and regulations and cost eligibility with the community before entering into a grant agreement for the project. Grant agreements will require communities to provide progress and cost updates so the Co-Trustees can adaptively manage and track the Settlement funds, and report to the Legislature and the public on progress. Communities will likely have multiple grants over time for different phases of a given project (e.g., planning/design, construction, O&M).

After a grant agreement is in place, the community will then follow their own process to select a contractor. In addition, communities must follow state requirements for contracting and bidding (see Box). If appropriate, the state and community can amend the grant agreement to reflect cost differences in bids.

#### Contracting and Bidding Requirements

Per [Minn. Stat. §471.345](#), grantees that are municipalities as defined in Subd. 1 must follow the law.

- (a) For projects that include construction work of \$25,000 or more, prevailing wage rules apply per [Minn. Stat. §§177.41 through 177.44](#). These rules require that the wages of laborers and workers should be comparable to wages paid for similar work in the community as a whole.

The grantee must not contract with vendors who are suspended or debarred in MN: <http://www.mmd.admin.state.mn.us/debarredreport.asp>

Change-outs of media in municipal systems will be managed under grant agreements for O&M. Generally, change-outs will be based on monitoring of raw water quality, number of treatment vessels, post-filter testing, and performance of the filter media. Other factors that may be considered could include loading/pressure differences due to non-PFAS constituents (i.e. iron). Capacity will vary across the communities; as such the frequency of media change-outs may also vary. Some communities may need multiple change-outs per year, while others may only need a change-out after many years. MPCA, in consultation with MDH, will regularly review performance data to monitor when the treatment vessel media is approaching loading capacity and a change-out will be necessary (see Appendix F, Section F.6 for more information on media consumption). This process is consistent with monitoring activities currently in place for Oakdale, Cottage Grove, Saint Paul Park, and Woodbury. MPCA will coordinate with the communities to determine appropriate timing and plan for reimbursable change-outs.

#### 10.1.2 Private wells

For private well owners, the MPCA will continue to manage the installation and maintenance of POETSS using contractors. During implementation of the Settlement, private wells will continue to be tested by the State of Minnesota for PFAS at no cost to the homeowners (see:

<https://www.pca.state.mn.us/waste/well-sampling-east-metro-area> for more information).

Homeowners can request that their well be added to the sampling program by using the Well Sampling Request form (available at <https://survey.vovici.com/se/56206EE36F5EF3E5>).

The standard schedule of media change-out of in private wells is once per year. This schedule could be adjusted as necessary depending on actual use and performance of the POETSS.

## 10.2 Drinking water protection

The Co-Trustees will also begin work on the drinking water protection portion of the Final Plan. The Co-Trustees are evaluating actions that would protect drinking water by reducing PFAS concentrations in groundwater or protecting areas from migration of PFAS in the groundwater. For example, the MPCA is currently evaluating PFAS impacts in soil, groundwater, surface water, sediments, and foam on surface water along the Project 1007/Raleigh Creek corridor and their impacts on drinking water (more information about Project 1007 can be found here: <https://3msettlement.state.mn.us/project-1007>). This information will inform potential projects to protect drinking water quality. The Co-Trustees will also continue to explore other types of drinking water protection projects such as targeted removals of PFAS-contaminated sediments or the removal of PFAS from surface water outside of the disposal areas. Using the results of the ongoing evaluations discussed above, the Co-Trustees will identify potential drinking water protection projects and apply this funding to actions that are likely to yield the most benefit.

## 10.3 Contingency

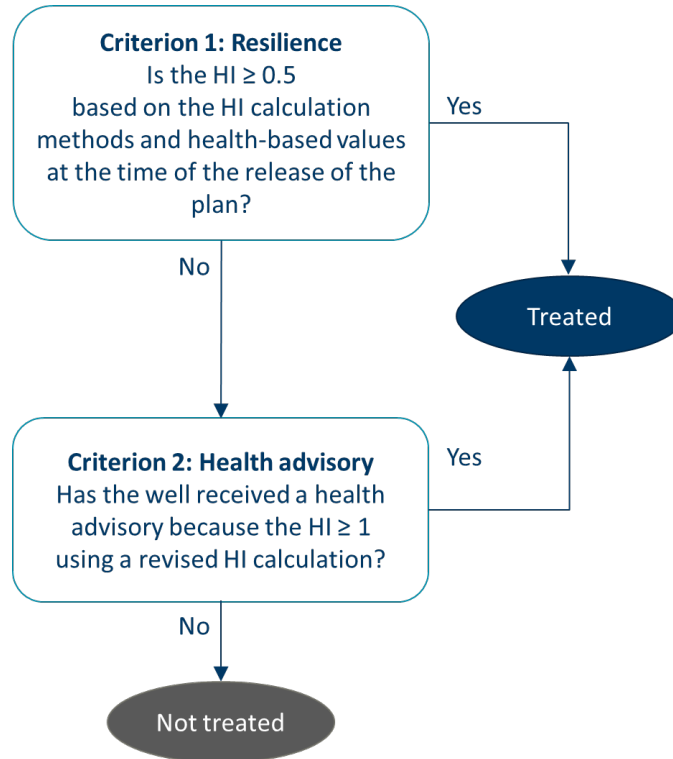
The \$183 million contingency fund allocation may be used to fund several different areas of future uncertainty. These could include new wells that need treatment, or alternative sources of water for certain PFAS-affected East Metropolitan Area communities should it become necessary due to court-ordered restrictions on use of aquifers that affect White Bear Lake water levels. The Co-Trustees will determine what costs are eligible for funding by the contingency based on the eligible costs in the Final Plan and consistency with the framework of the Settlement and the Final Plan.

As discussed in Chapter 8, the Final Plan uses a treatment threshold of  $HI \geq 0.5$  to provide resiliency, helping to expedite addressing contamination and minimize costs of being reactive to changes in the future. Wells that currently have a HI between 0.5 and 1 (i.e., treated for resiliency) or an  $HI \geq 1$  (i.e., have a health advisory) are both accounted for in the capital and O&M fund allocations. The HI calculation, methods, and MDH health-based guidance values used in the Final Plan are presented in Figure 8.2.

During the implementation of the plan, the contingency will be used to treat additional wells that exceed the treatment threshold of  $HI \geq 0.5$  using the HI calculation at the time of the release of the Final Plan (Figure 8.2), and wells that receive a new health advisory should the HI calculation change. These two criteria are explained in more detail below and illustrated in Figure 10.2:

1. **Criterion 1: Resilience.** Treatment will be provided for additional wells that exceed the treatment threshold using the HI calculation in Figure 8.2 because they are newly sampled, or measured concentrations have increased. This will maintain resilience against future change and uncertainty and provide equity; wells that have future PFAS concentrations that would have qualified them for treatment today would also qualify for contingency funding.
2. **Criterion 2: Health advisory.** Should the health-based guidance for PFAS change, the resulting recalculation of the HI could mean that additional wells receive a health advisory because they have an  $HI \geq 1$  using an updated HI calculation method and values. Treatment would be provided for any well that receives a health advisory.

**Figure 10.2. Evaluating additional wells for treatment using the contingency fund allocation.** For a new well to be treated using contingency funds, the measured concentrations in the well would need to result in an  $HI \geq 0.5$  using the HI calculation, methods, and MDH health-based guidance values used in the Final Plan (Criterion 1), or the well would need to have received a health advisory because the  $HI \geq 1$  using a revised HI calculation (Criterion 2).



## 10.4 Annual review and strategy for fund reallocation

As the Final Plan implementation progresses over the next two to three decades, the Co-Trustees anticipate that actual costs may differ from the initial amounts for each fund allocation (see Chapters 8 and 9).

The Co-Trustees will periodically reevaluate progress, review how actual costs compare to estimates, and monitor where and when funds may warrant reallocation. The Co-Trustees will at a minimum conduct an annual review of the Final Plan implementation efforts and obtain feedback from the work groups. This review will include consideration of new information that has evolved over the previous year, a review of actual costs of projects, reallocation discussions as needed, and discussion of any other adjustments that may be necessary to ensure the effectiveness of the plan. If significant topics arise for discussion between annual reviews, the Co-Trustees will also convene the work groups to seek input. All work group meetings will continue to be open to the public and the Co-trustees will continue to use the Minnesota 3M PFAS website (<https://3msettlement.state.mn.us/>) to update the public on project implementation.

The Final Plan provides a framework with flexibility to reallocate funding should it be necessary. The following sections explain the Co-Trustees' process for reallocation from each of the five funding priorities.

### **10.4.1 Capital costs for drinking water supply and treatment**

The \$317 million in the capital costs fund allocation is based on the estimated infrastructure and construction costs for each community as described in Section 9.2. However, as communities develop detailed designs and solicit bids for construction, costs may be higher or lower than expected. Any savings resulting from a capital project's actual expenses being less than estimated will first be used to fund other capital projects' Settlement-eligible expenses that are greater than the estimated cost. This reallocation could be used across different communities if needed. The majority of these projects will be planned and constructed in the next three to five years, at which point the Co-Trustees will be able to determine whether some funds can be used for other purposes with input from the work groups. Funding will not be reallocated to other uses until the majority of projects are completed, at which time the Co-Trustees will determine how to spend any excess funds with input from the work groups and public. Some funds will need to be held longer until projects that begin later are finalized.

### **10.4.2 Costs for O&M**

The \$115 million in the O&M fund allocation will be used for the operation and maintenance of drinking water supply treatment as long as funds are available. Any annual savings because the actual O&M for a system is less than estimated will be used to fund any other system's actual annual expenses that are greater than estimated. If all systems see a savings from the annual estimate, remaining funding would be used to pay for any future exceedances of estimates or to extend the number of years O&M is provided. Annual savings for all systems would be allocated between municipal and private wells in proportion to the initial funding allocation. Funding for O&M will not be reallocated to other uses.

### **10.4.3 Drinking water protection**

The \$70 million in the drinking water protection fund allocation will be used for projects to improve the quality of the groundwater as a drinking water source. Specific projects are to be determined in the near future. The Co-Trustees will know how much funding is needed for drinking water protection projects after the investigations and feasibility studies are complete, and projects are constructed. Until that time, funding will not be reallocated to other uses. If there are any funds that are not needed, the Co-Trustees will determine how to spend any remaining funds with input from the work groups and public.

### **10.4.4 Contingency**

The \$183 million contingency fund allocation may be used to fund several different areas of future uncertainty discussed in Section 8.2.4. Contingency funding will not be reallocated to other uses unless there is appropriate justification, such as a determination that an alternative source of water for Lake Elmo and Oakdale is not needed. If contingency funding becomes available for reallocation, the Co-Trustees will determine how to spend it with input from the working groups and public.

### **10.4.5 State administration**

The \$15 million state administration fund allocation will be used to fund administrative expenses including the Project 1007 assessment in Priority 1, contractor support, and staff and consultant expenses. Funding will remain in this allocation until it is depleted. If any funding is not needed, the Co-Trustees will determine how to spend it with input from the work groups and public.

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