


Technical Memorandum  
Supplementing the 2015 City of Des Moines  
Surface Water Comprehensive Plan

Scenario 1 – Staff-Recommended Option  
Approved by City Council November 4, 2021

Prepared for  
City of Des Moines



November 4, 2021

Prepared by  
**Parametrix**

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## TECHNICAL MEMORANDUM

**DATE:** November 4, 2021  
**TO:** Loren Reinhold, P.E., City of Des Moines  
**FROM:** Julie Brandt, P.E. and Austin Fisher, P.E., Parametrix  
**SUBJECT:** SWCP Status and Recommendations  
**PROJECT NUMBER:** 213-1792-026  
**PROJECT NAME:** City of Des Moines SWCP Update

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### EXECUTIVE SUMMARY

The City of Des Moines (City) is conducting a mid-plan update to the City's 2015 Surface Water Comprehensive Plan (2015 SWCP). The 2015 SWCP is built on the City's existing stormwater management program and known stormwater problems to ensure that the stormwater infrastructure, policies, and funding mechanisms would meet the City's stormwater management needs for the period from 2015 through 2024. The mid-plan update is assessing how actual spending has occurred, evaluating future needs, and updating the financial model to understand how much work will be completed at the end of the plan in 2024. The update focuses on the evaluation and recommendations regarding the following elements:

1. 2019-2024 National Pollutant Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit (Permit) requirements
2. Capital Improvement Plan (CIP) Update
3. Fiscal Analysis
4. Potential conversion of the City's Pipe Replacement Fund to a broader stormwater management opportunity fund

The Permit review against the City's existing program highlights key action items, including the updates, clarifications, simplifications, and modernizations to the existing requirements, as well as the new requirements for watershed development planning and a business source control program. Additional elements of the review include opportunities to upgrade or incorporate best management practices (BMPs) that address development impacts such as stormwater facility retrofits and tree retention and planting credits. The most significant change recommended moving forward to the City's existing program is cross-department coordination on land use planning and development requirements to address receiving water needs. It is also recommended that the City approach policy regarding tree retention and planting by continuing to look for opportunities to include these offsets in a high-level Citywide policy approach on projects it is collaborating on with other departments. Similarly, it is recommended that the City continue to complete the projects identified by the CIP, taking advantage of opportunities where retrofit needs overlap with other City projects, while continuing to monitor and reprioritize as necessary to protect health and safety.

The CIP updates calibrated the cost estimates for the high-priority projects included in the 2015 plan based on recent bids and project estimates. The estimates were updated to better reflect real-world conditions, increasing the contingency to better reflect actual uncertainty in planning estimates. The CIP was revised to match the most recent CIP presented to the City Council in early 2020, including several unexpected projects that came about in

2015. The updated/revised CIP informs updated estimates of when the City can expect to complete these projects under various capital funding scenarios. The first of two scenarios evaluated by Financial Consulting Services Group, Inc. (FCS Group) included a Staff Recommended Option in which the original capital plan timeline is extended 3 additional years to 2029. The second scenario evaluated was the Alternative Option, in which the City funds the capital plan following the original timeline (2021-2026). Both scenarios also include the \$100,000 annual transfer to the Opportunity Fund to provide additional funding for unexpected projects. In evaluating the financial plan update, FCS Group determined projects that would need to be moved out to the years of 2027-2029 in order to maintain rates and evaluated the financial impacts of adding an annual \$100,000 transfer of capital to the Opportunity Fund. The current rate structure, which was approved in the previous plan and includes an inflationary step increase ranging from approximately 3 percent to 6.04 percent annually, is projected to fund forecasted operating expenses and the Staff Recommended Option (2021-2029) as well as fund an annual transfer to the Opportunity Fund. The Alternate Option, or original CIP (2021-2026), which is not recommended by City staff, would require a 6.75 percent annual rate increase beginning in 2023, in addition to the inflationary increase, to fund forecasted operating expenses.

In conclusion, informed by the full review, the recommended approach includes Permit updates and BMP opportunity updates as a separate amendment to the existing 2015 plan. This includes the Capital Funding Scenario of the Staff Recommended Option and Capital Reserve (2021-2029), contributing \$100,000 annually to the Opportunity Fund. Continuing to monitor and annually re-evaluate risks, as well as establishing the Opportunity Fund, would provide the leeway to reprioritize and address projects should the risk to public health and safety change suddenly.

## NPDES PERMIT UPDATE AND BMP REVIEW

### Background

In support of the mid-plan update, this review provides a summary of new requirements and action recommendations regarding the 2019 Permit requirements enacted under the 2019-2024 Permit term, which became effective August 1, 2019. The full Permit review is included in Attachment A. To achieve and maintain the standards set by the Permit and the 2019 Stormwater Management Manual for Western Washington (2019 SWMMWW) to control and protect surface waters and runoff from pollutant introduction, municipalities may find it necessary to retrofit stormwater facilities for existing stormwater discharges. The use of any BMPs that substantially contribute to flow control or improved water quality is encouraged by the Washington State Department of Ecology (Ecology) (Ecology 2019a). The review includes elements such as opportunities to upgrade or incorporate BMPs that address development impacts, like stormwater facility retrofits, as well as the potential to take advantage of tree retention and planting credits. The review of these elements is summarized and served as the basis for the recommendations to the City to inform the implementation of the 2015 SWCP moving forward.

### Findings

#### NPDES Permit Update

The Permit updates include clarifications, simplifications, and modernizations to the existing requirements, which are summarized below in Table 1. The Permit also establishes new requirements for watershed development planning and a business source control program, for which key elements are summarized in Table 2. The most significant change moving forward will be the cross-department coordination on land use planning and development requirements that address receiving water needs.

**Table 1. 2019 NPDES Permit Requirement Updates**

Updated Requirement	Highlights of Changes
<b>Public Education and Outreach</b> [S5.C.2]	<ol style="list-style-type: none"> <li>1. Clarified target audiences, subject areas, and level of compliance effort</li> <li>2. Include “overburdened communities” as a target audience; translate materials</li> </ol>
<b>MS4 Mapping</b> [S5.C.4]	<ol style="list-style-type: none"> <li>1. Map locations connecting to private stormwater systems</li> <li>2. Map more detail in areas with higher risk of dangerous discharges</li> </ol>
<b>Illicit Discharge Detection and Elimination (IDDE)</b> [S.5.C.5]	<ol style="list-style-type: none"> <li>1. New Ecology data submission format</li> <li>2. Clarifications and streamlining</li> </ol>
<b>Controlling Runoff from New Development, Redevelopment, and Construction Sites</b> [S.5.C.6]	<ol style="list-style-type: none"> <li>1. Language clarifications and simplifications</li> <li>2. Existing City program likely complies with requirements</li> </ol>
<b>Operation and Maintenance</b> [S5.C.7]	<ol style="list-style-type: none"> <li>1. Language clarifications and simplifications</li> <li>2. Existing City program likely complies with requirements</li> </ol>
<b>Monitoring and Assessment</b> [S8]	<ol style="list-style-type: none"> <li>1. Regional Stormwater Monitoring Program (RSMP) now called Stormwater Action Monitoring (SAM)</li> <li>2. Program is now managed by Ecology; participation is still optional</li> </ol>
<b>Reporting Requirements</b> [S9]	<ol style="list-style-type: none"> <li>1. Fewer Annual Report questions with numerical answers</li> <li>2. More Annual Report questions requesting summaries of activities</li> </ol>
<b>Notification of Discharge, Including Spills</b> [G3]	<ol style="list-style-type: none"> <li>1. Notify the proper entities when a discharge could constitute a threat to human health and welfare or to the environment</li> <li>2. Revision prepares additional future changes</li> </ol>

**Table 2. 2019 NPDES Permit New Requirements**

New Requirement	Key Considerations
<b>Comprehensive Stormwater Planning</b> [S5.C.1] <ul style="list-style-type: none"> <li>• Interdisciplinary Planning Team</li> <li>• Long-Range Plan Update Coordination</li> <li>• Low Impact Development (LID) Code-Related Requirements</li> <li>• Stormwater Management Action Planning (SMAP)</li> </ul>	<ol style="list-style-type: none"> <li>1. Proactively integrate stormwater management and water resource protection considerations into Growth Management Act land use planning</li> <li>2. Update and create planning and development policies and regulations based on receiving water needs</li> <li>3. Demonstrate compliance by developing SMAP in one selected high-priority basin by 2023</li> </ol>
<b>Source Control Program for Existing Development</b> [S5.C.8] <ul style="list-style-type: none"> <li>• Proactive program to inspect businesses and properties and require operational or structural source-control BMPs</li> <li>• Modeled after Phase I requirements</li> <li>• Performance Measures: <ol style="list-style-type: none"> <li>1. Adopt New Ordinance</li> <li>2. Establish Business Inventory</li> <li>3. Implement Inspections</li> <li>4. Progressive Enforcement</li> <li>5. Train Staff</li> </ol> </li> </ul>	<ol style="list-style-type: none"> <li>1. Ordinance requirements must be based on Ecology Manual or a Phase I program</li> <li>2. Business inventory will require multiple data-gathering approaches</li> <li>3. May implement inspections through regional partnerships (neighboring jurisdictions, local health districts, etc.)</li> </ol>

## Opportunities to Include or Upgrade BMPs

Elements of the review included stormwater facility retrofit opportunities, such as the retrofit of existing treatment and flow control facilities, as well as new flow control and treatment facilities or BMPs to address impacts of development. These elements have been considered by the CIP, which was updated as part of this review. This review informed the recommendation that the City continue to complete the projects identified by the CIP, coordinating with the transportation department to take advantage of opportunities where retrofit needs overlap in order to maximize the efficiency of available funding and resources. These projects will be re-evaluated annually and will continue to be monitored to prioritize and protect human health and safety and environmental protection, making any necessary adjustments to the prioritization status of these projects.

Another element in the review concerned tree retention and planting credits for the City's stormwater planning program. Ecology outlines specific tree-related flow control credits in the 2019 SWMMWW. To achieve these credits, there are certain risks, limitations, investment, maintenance, administration, tracking, and monitoring involved. These considerations may make the tree credits cost-prohibitive in some circumstances and worthwhile in others. More research is needed to better understand the benefits of urban trees to the rainfall/runoff process and inform tree management decisions (Kuehler 2016). Ecology has identified grants and ongoing research that are currently underway, with results expected in the coming years (Ecology 2020). Certain benefits of intact forested stream buffers are known, which include reduced water temperatures and improved infiltration. Therefore, it is recommended that the City continue to preserve and protect forested stream buffers and identify opportunities to include trees in development projects. Formal tree management policy adoption and implementation involves other City departments outside of Surface Water Management; therefore, it is recommended that tree management be reviewed more holistically by the City through interdepartmental collaboration. This could include policy and code updates.

## CAPITAL IMPROVEMENT PLAN UPDATES

### Background

Capital improvements are the physical and material work that form the backbone of the City's Surface Water Management utility. They are a significant component of the City's overall investment, typically comprising 30 percent of the dollars spent annually. Planned spending, therefore, is critical to executing a successful utility.

Updating capital project estimates is very important, as they are dynamic and are affected by the broader economy, labor markets, regulation, and material prices. The City has observed significant cost increases from 2015 through 2019. The increases in project costs have exceeded general inflation guidance as the economy rebounded from the Great Recession and labor markets improved with very low unemployment nationally and in the Puget Sound area.

Everyone is aware of how quickly conditions can change and perhaps no more than recently with the impacts from the COVID-19 pandemic. What was a booming economy was essentially stopped in March 2020, resulting in unprecedented unemployment and increased regulation affecting all industries, including public works construction, deemed necessary to mitigate the spread of the virus.

In evaluating the planning estimates used to establish the capital plan for the Surface Water Management utility, we compared a handful of projects that were completed and a couple that recently advanced to a 90 percent design level. Our understanding of the cost of a project increases as our understanding increases with completion of the design. Using this information, we can calibrate our planning-level estimates to better predict ultimate project costs.

## Components of Planning-Level Estimates

There are several components of the planning-level project estimates. The work typically includes traffic control, excavation, erosion and sediment control, installation of underground storm sewer pipe and catch basins, trench backfill, and restoration. We noted in comparing our previous planning-level estimates with recent design estimates that the planning estimates typically underestimated the following:

- Hot Mix Asphalt Quantity – Previous estimates included trench restoration, but typically at least one travel lane is replaced where underground storm sewer improvements and utilities are installed.
- Traffic Control – Rarely can our busy streets be closed for construction, and maintaining traffic during construction is a significant cost that needs to be accounted for.
- Temporary Erosion and Sediment Control – Current State regulations require contractors to install BMPs and control devices to manage the potential increase in erosion and sediment transport on construction sites.
- Construction Survey – It is now common practice that the contractor utilizes a surveyor to locate improvements based on the construction documents. If the contractor is not required to hire a surveyor, then the City will need to hire a surveyor to provide construction stakes that locate the improvements. Regardless of who takes on this responsibility, it is a known cost that needs to be accounted for in our planning estimates.

Including these additional items in the planning estimates better represents the anticipated true costs of these projects. The construction costs make up about two-thirds of the cost of a project. The remaining one-third is composed of “soft costs” that include permitting, environmental documentation, administrative, engineering, and construction management.

The City used the updated planning-level estimates to calculate the total project costs in the year of construction. This was done by applying the appropriate inflationary costs to the project, which were based on the project’s planned date for completion in the next 6 years. Table 3 is based on the City’s Capital Improvement Plan for the period from 2021 through 2026 and recommended planning through 2029 to maintain the current rate structure. Additional detail can be found in the complete CIP (2021-2029) Draft.

**Table 3. Surface Water Management Capital Annual Totals (2021-2029) (in thousands of dollars)**

Budgeted Project (* completed project)	Plan Year 2020	Plan Year 2021	Plan Year 2022	Plan Year 2023	Plan Year 2024	Plan Year 2025	Plan Year 2026	Plan Year 2027	Plan Year 2028	Plan Year 2029
<b>Surface Water Management Capital</b>										
Barnes Creek/Kent-Des Moines Road Culvert	244	325	2,057	-	-	-	-	-	-	-
S 251st Street Storm Outfall*	-	-	-	-	-	-	-	-	-	-
216th/11th Avenue Intersection Pipe Replacement*	1	-	-	-	-	-	-	-	-	-
Deepdene Plat Outfall Replacement	52	-	120	-	-	-	-	-	-	-
N. Fork McSorley Creek Diversion	2	139	910	-	-	-	-	-	-	-
6th Avenue/239th Pipe Replacement	60	441	-	-	-	-	-	-	-	-
S 251st Pipe Replacement Project*	-	-	-	-	-	-	-	-	-	-
Soundview Drive/Redondo Beach Drive Pipe Upgrade Project	41	292	-	-	-	-	-	-	-	-
8th Avenue (264th to 265th)	15	1,065	-	-	-	-	-	-	-	-
24th Avenue Pipeline Replacement/Upgrade	1	114	948	-	-	-	-	-	-	-
Des Moines Memorial Drive/200th Stormwater Extension*	109	-	-	-	-	-	-	-	-	-
10th Avenue Pipe Replacement	-	63	-	-	-	-	-	-	-	-
Woodmont Landslide Repairs*	251	-	-	-	-	-	-	-	-	-
Des Moines Memorial Drive 208th to 212th Pipe Project	-	-	296	860	-	-	-	-	-	-
Kent-Des Moines Road/16th Avenue A Pipe Replacement	-	-	119	347	-	-	-	-	-	-
216th Place/Marine View Drive Pipe Upgrade	-	-	-	150	434	-	-	-	-	-
S 200th Street Drainage Improvements	-	-	-	-	-	500	-	-	-	-
5th Avenue/212th Street Pipe Upgrade	-	-	-	-	-	-	457	1,331	-	-
Service Center Material Storage Improvements	-	-	-	-	-	-	-	100	-	-
Kent-Des Moines Road/16th Avenue B Pipe Replacement	-	-	-	-	-	-	-	-	445	1,296
232nd Street (10th to 14th) Pipe Project	-	-	-	-	-	-	-	-	332	965
Massey Creek Pocket Estuary and Fish Passage	-	-	50	450	2,500	-	-	-	-	-
Des Moines Creek Estuary Restoration	-	-	-	50	350	1,600	-	-	-	-
S 234th Place Pipe Project	-	-	69	-	-	-	-	-	-	-
258 <sup>th</sup> Street (13th Place to 16th) Pipe Project	-	-	-	-	-	-	-	-	-	466
6th Place/ 287th Street Pipe Replacement	-	-	-	-	-	-	-	-	724	-
<b>Total Surface Water Management Capital</b>	<b>776</b>	<b>2,439</b>	<b>4,569</b>	<b>1,857</b>	<b>3,284</b>	<b>2,100</b>	<b>457</b>	<b>1,431</b>	<b>1,501</b>	<b>2,727</b>

### COVID-19 Pandemic

The impacts of the COVID-19 pandemic on the construction industry have been severe. There were strict regulations on the use of personal protective equipment as well as requirements for social distancing and access to handwash stations for hygiene. There were also strict requirements for quarantining under various



circumstances, including the obvious cases where there is exposure or positive testing but also for travel between regions and states depending on ever-changing guidance from local and state health departments. Recently, broad availability of vaccines has reduced restrictions but COVID variants are resulting in ever changing regulations that may impact how contractors do business.

The increase in regulation also requires that contractors prepare plans and increases reporting requirements for all parties on a construction site (including the City and any other parties involved in the construction of the project).

This additional work increases the costs of a project and can delay productivity. However, the severe recession that resulted due to broad economic impacts from the pandemic has muted these additional costs. With less work overall, projects are getting more bidders. Increased competition has mitigated much of the additional costs we might expect to see. With time, contractors have adapted and improved their efficiencies in dealing with COVID-19.

Despite some supply constraints and anticipated short-term inflationary pressure, our recent observations are that the supply of available contractors has proven favorable, which has resulted in lower than anticipated bids. Therefore, we do not recommend adjusting the anticipated cost of planned capital at this time. We expect that as supply constraints are corrected and labor stabilizes, construction costs will also stabilize and that the inflationary adjustments included in the plan will prove adequate.

## FINANCIAL PLAN UPDATE

In support of the mid-plan update of the 2015 SWCP, Parametrix contracted with FCS Group to perform a surface water rate update for the City.

### Utility Rate Study Background

The current rate study builds on the 2014 surface water rate study. The current study evaluates annual rate revenue needs through 2029 while providing recommended adjustments to support the utility on a stand-alone basis. Financial analysis involves the determination of the City's financial capability for major expenditures by examining past, present, and future revenue; expenses; and municipal debt. The intent is to come up with a level of project expenses that the municipality can safely afford over the next several years while minimizing the impact of the property tax rate and other revenues. In 2015, the City Council approved Ordinance 1620, which established surface water rate increases through 2021 to offset inflationary increases in expenses.

### Rate Study Elements

The basis for the utility rate study is a revenue requirement evaluation to establish a long-range financial plan and multiyear rate management strategy. In simple terms, the revenue requirement forecast tells us the level of rate revenue needed to fund the utility's financial obligations and goals. This study assesses revenue needs for an 8-year rate-setting period (2022-2029).

In order to establish the utility rate projections, the study considered the following elements, which are detailed in Attachment B:

- Financial Standards and Policies – Define minimum financial reserve level and other financial management standards.
- Operating and Maintenance Forecast – Multiyear forecast of operating expenses (e.g., labor, materials).
- Capital Finance Strategy – Multiyear cash/debt strategy to support capital investments.
- Rate Revenue Analysis – Comparison of rate revenue at existing rates and projected financial obligations and policies.

- Multiyear Rate Strategy – If needed, determine annual rate adjustments.

### Opportunity Fund

The review evaluates the financial impacts of adding an element to the capital fund balance, known as the Opportunity Fund. The purpose of the fund would provide a reserve of capital for emergency repairs, unanticipated capital, and project overrun costs. The reserve would be established by converting a portion of the City's Pipe Replacement Fund to the Opportunity Fund, making the funds available to a broader range of stormwater management and improvement projects. The financial impacts were evaluated for the addition of an annual \$100,000 transfer of capital to the Opportunity Fund and no change to the current rate structure is necessary.

### Capital Funding Scenarios

The FCS Group performed a financial analysis that involved updating the City's financial model to include actual expenditures, updated CIP information, and updated staffing needs. Based on discussions with City staff, two funding scenarios were developed and are detailed in Attachment B. A summary of the two scenarios is provided below.

- Staff Recommended Option – The original capital plan timeline is extended 3 additional years to 2029. The scenario also includes the \$100,000 annual transfer to the opportunity fund to provide additional funding for unexpected projects. Surface water rates would increase each year at the cost of inflation (3 percent) from 2022 to 2029. The monthly surface water rate for the typical single-family residential customer would increase from \$24.66 in 2021 to \$26.15 in 2022 – a difference of \$1.43. The monthly surface water rate for the typical single-family residential customer would increase from \$26.15 in 2022 to \$26.94 in 2023 – a difference of 79 cents.
  - In the extended 2027-2029 period, there are six scheduled projects totaling \$5.7 million in estimated capital spending. City staff determined that delaying these projects is not anticipated to have adverse impacts on the surface water management program. Projects anticipated to be completed in the extended period are detailed in Attachment B.
- Alternate Option – The City funds the capital plan following the original timeline (2021-2026). This scenario also includes the \$100,000 annual transfer to the opportunity fund to provide additional funding for unexpected projects. Surface water rates would increase each year by 9.75 percent from 2024 to 2026, followed by 3 percent annual increases (inflation adjustment) from 2027 to 2029. The monthly surface water rate for the typical single-family residential customer would increase from \$24.66 in 2021 to \$26.15 in 2022 – a difference of \$1.43; this is the same increase as the Staff Recommended Option because in 2022 both options have no annual rate adjustments in addition to the 6.04 percent inflation adjustment. In the Alternate Option the monthly surface water rate for the typical single-family residential customer would increase from \$26.15 in 2022 to \$28.70 in 2023 – a difference of \$2.55.

Table 4 compares the projected revenue adjustments, single-family residential rate impacts, and capital funding plans for the two scenarios.

**Table 4. Comparison of Capital Funding Scenarios**

	2022	2023	2024	2025	2026	2027	2028	2029
<b>Staff Recommended Option</b>								
Annual Rate Increase	3.33%	6.04%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Single-Family (2,800 to 4,350 square feet) Monthly Bill	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
Capital Spending	4,569,000	1,857,000	3,284,000	2,100,000	457,000	1,431,000	1,501,000	2,727,000
<b>Alternate Option</b>								
Annual Rate Increase	3.33%	6.04%	9.75%	9.75%	9.75%	3.00%	3.00%	3.00%
Single-Family (2,800 to 4,350 square feet) Monthly Bill	\$26.15	\$28.70	\$31.50	\$34.58	\$37.96	\$39.10	\$40.28	\$41.49
Capital Spending	4,569,000	1,857,000	3,841,000	4,208,000	3,451,000	-	-	-

**Rate survey**

Figure 1 compares the City’s 2021 (existing) and 2022 (projected) monthly rates with the 2020 or 2021 rates of other jurisdictions (year based on data available on websites). Note that each jurisdiction has a unique set of geographic traits, customers, and system characteristics, each of which can have an impact on rates.

A few observations of the results are summarized for comparison:

- Existing 2021 rates of \$24.66 for single-family residential (2,800- to 4,350-square-foot) customers place the City of Des Moines in the upper-third of single-family residential surface water rates among comparative jurisdictions.
- With the 6.04 percent inflationary rate increases in 2022, City surface water rates are projected to be \$26.15. Comparatively, 2022 rates are below existing rates for the City of Mercer Island, the City of Seattle (3,000 to 4,000 square feet), and the City of Tacoma.

**Study Findings**

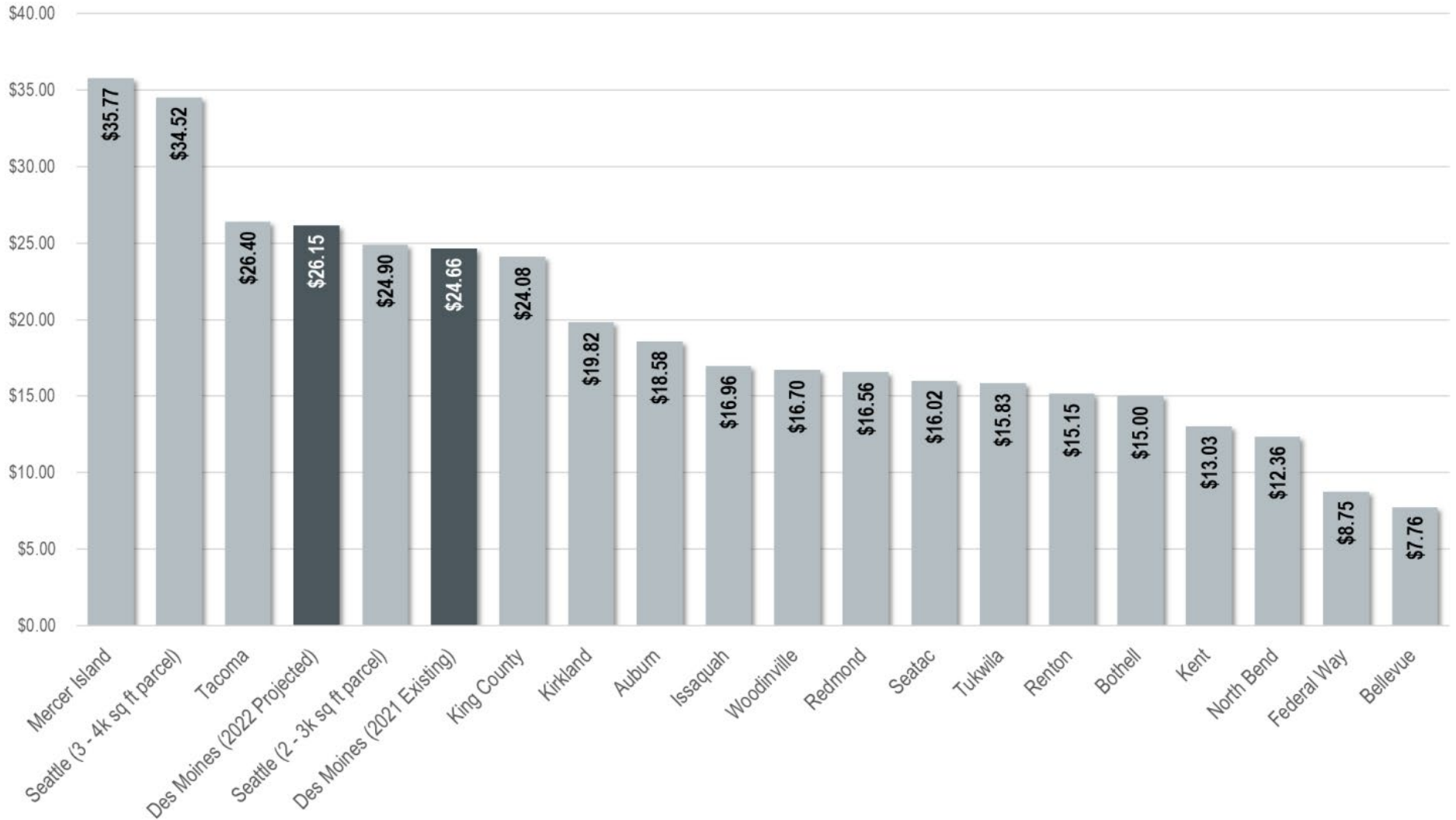
The fiscal analysis found that rate increases are projected to generate enough revenue to meet the utility’s annual operating and maintenance expenses, fund approximately \$17.9 million in new capital investment, and fund the utility’s operating and capital financial reserves. To cover the forecasted financial obligations of the surface water utility, annual inflationary rate increases ranging from 3 percent to 6.04 percent are needed through 2029. The rate increase strategy for the most common single-family residential customer (2,800 to 4,350 square feet of impervious surface area) is shown in Table 5. The full Surface Water Rate Study Draft Report, provided by FCS Group, is included in Attachment B.

**Table 5. Annual Rate Increase Needs**

Summary of Results	2022	2023	2024	2025	2026	2027	2028	2029
Systemwide Revenue Increases Needed	6.04%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Monthly Single-Family Residential Charge	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
<i>Increase from Prior Year</i>	\$1.49	\$0.79	\$0.81	\$0.84	\$0.86	\$0.89	\$0.92	\$0.94
Annual Single-Family Residential Charge	\$313.80	\$323.28	\$333.00	\$343.08	\$342.99	\$364.08	\$375.12	\$386.40
<i>Increase from Prior Year</i>	\$17.94	\$9.48	\$9.72	\$10.08	\$10.32	\$10.68	\$11.04	\$11.28

## CONCLUSION

The findings of this mid-plan update analysis will be presented to the City Council for review and prioritization based on the capital project criteria. The recommended approach includes incorporating Permit and BMP opportunity updates as a separate amendment to the existing 2015 SWCP. This includes the City Staff Recommended Scenario, which would extend the original capital plan timeline by 3 years and establish a capital reserve by contributing \$100,000 annually to the Opportunity Fund. Extension of the CIP timeline involves a certain amount of risk, but currently nothing indicates impending failure. Financial leeway to prioritize projects to protect human health, safety, and the environment in the event of unforeseen causes would be safeguarded by annual re-evaluation and monitoring of conditions and establishing the Opportunity Fund.



\* City of Des Moines rates shown represent the 2,800- to 4,350-square-foot customer class.

Figure 1. Single-Family Residential Monthly Surface Water Survey\*

## REFERENCES

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Attachment A  
Ecology NPDES Phase II Permit Requirement Update



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## TECHNICAL MEMORANDUM

**DATE:** November 6, 2020  
**TO:** Tyler Beekley, City of Des Moines  
**FROM:** Julie Brandt, Parametrix  
**SUBJECT:** NPDES Permit Update Summary  
**CC:** Loren Reinhold, City of Des Moines  
Austin Fisher, Parametrix  
**PROJECT NUMBER:** 213-1792-026  
**PROJECT NAME:** Surface Water Comprehensive Plan Update

### BACKGROUND AND PURPOSE

The City of Des Moines (City) is conducting mid-plan update to the City's 2015 Surface Water Comprehensive Plan (2015 SWCP). The 2015 SWCP built on the City's existing stormwater management program and known stormwater problems to ensure that the stormwater infrastructure, policies, and funding mechanisms would meet the City's stormwater management needs for the period from 2015 through 2024. The mid-plan update is assessing how actual spending has occurred, evaluating future needs, and updating the financial model to understand how much work will be completed at the end of the plan in 2024.

In support of the mid-plan update, this memorandum provides a summary of new requirements and action recommendations regarding the 2019 National Pollutant Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit (Permit) requirements enacted under the 2019-2024 permit term (Table 1). These recommendations will be used by the City to inform the implementation of the 2015 SWCP moving forward.

Table 1. 2019-2024 Permit Cycle Summary and Recommended Actions

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S1	<a href="#">PERMIT COVERAGE</a>	<a href="#">PERMIT COVERAGE</a>	<i>Changes not applicable to Des Moines.</i>
S2	<a href="#">AUTHORIZED DISCHARGES</a>	<a href="#">AUTHORIZED DISCHARGES</a>	<i>No major changes.</i>
S3	<a href="#">RESPONSIBILITIES OF PERMITTEES</a>	<a href="#">RESPONSIBILITIES OF PERMITTEES</a>	<i>No major changes.</i>
S4	<a href="#">COMPLIANCE WITH STANDARDS</a>	<a href="#">COMPLIANCE WITH STANDARDS</a>	<i>No major changes.</i>
S5.A	<a href="#">SWMP</a>	<a href="#">SWMP</a>	<i>No major changes.</i>
S5.B	<a href="#">AKART</a>	<a href="#">AKART</a>	<i>No major changes.</i>
S5.C	<a href="#">MINIMUM PERFORMANCE MEASURES</a>	<a href="#">MINIMUM PERFORMANCE MEASURES</a>	See below.
S5.C.1	<p><a href="#">WATERSHED-SCALE STORMWATER PLANNING</a> (S5.c.4.g.)</p> <ul style="list-style-type: none"> <li>Applied only to Redmond and Woodinville (in coordination with King County Phase I requirement)</li> <li>Watershed assessment, mapping, modeling, mitigation project concepts, and report</li> </ul>	<p><a href="#">COMPREHENSIVE STORMWATER PLANNING</a></p> <ul style="list-style-type: none"> <li>Update and create land use planning and development policies that address receiving water needs, including development of policy and regulations, and retrofit provisions.</li> <li>Must consider land use and how the landscape is developed at a scale broader than individual site and subdivision projects.</li> </ul>	<ol style="list-style-type: none"> <li>Currently, look for opportunities to integrate land use planning decisions in SW Comp Plan Update effort.</li> <li>Moving forward, proactively integrate stormwater management and water resource protection considerations into Growth Management land use planning.</li> </ol>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S5.C.1.a	N/A	<p><u>INTERDISCIPLINARY PLANNING TEAM</u>                      "... to inform and assist in the development, progress and influence of this program."</p> <p><b>Key Elements:</b></p> <ul style="list-style-type: none"> <li>• Convene by August 1, 2020.</li> <li>• Conduct and coordinate the comprehensive planning program effort.</li> <li>• Include representatives from the jurisdiction’s stormwater program, long-term planning, transportation, parks and recreation, and scientific and technical experts.</li> <li>• Phase II Permittees - this team may be used to develop and refine SMAP (see S5.C.1.d) and implement it over the long term.</li> </ul>	<ol style="list-style-type: none"> <li>1. Staff team kick-off on June 26, 2020.</li> <li>2. Expand Stormwater Planning Interdisciplinary Team to incorporate City staff from planning, transportation, and parks &amp; recreation, with each department designating a specific representative to consistently participate in ongoing coordination.</li> </ol> <p><i>* Consultant under contract to support above effort.</i></p>
S5.C.1.b.	N/A	<p><u>COORDINATION WITH LONG-RANGE PLAN UPDATES</u>                      "Each Permittee shall describe how stormwater management needs and protection/improvement to receiving water health are (or are not) informing the planning update processes..."</p> <p><b>Key Elements:</b></p> <ul style="list-style-type: none"> <li>• Reporting to describe how long-range land use planning and Growth Management Comprehensive Plan updates addresses receiving water health and stormwater management while also accommodating projected growth.</li> <li>• Ecology intends to learn how Permittees have addressed this need in the past and in existing plan updates.</li> </ul>	<ol style="list-style-type: none"> <li>1. By March 31, 2021, respond to Annual Report questions describing past long-range land use planning coordination efforts.</li> <li>2. By January 1, 2023, respond to Annual Report questions describing current long-range land use planning coordination efforts in this permit cycle.</li> </ol> <p><i>* Consultant under contract to support above effort.</i></p>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S5.C.1.c.	<p><u>LOW IMPACT DEVELOPMENT CODE-RELATED REQUIREMENTS (S5.C.4.f.)</u></p> <ul style="list-style-type: none"> <li>Review, revise, and promulgate development-related codes, rules, standards, or other enforceable documents to incorporate and require LID principles and BMPs.</li> <li>Submit report to Ecology regarding effort.</li> </ul>	<p><u>LOW IMPACT DEVELOPMENT CODE-RELATED REQUIREMENTS</u></p> <p>“Permittees shall continue to require LID Principles and LID BMPs when updating, revising, and developing new local development-related codes, rules, standards, or other enforceable documents, as needed.”</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>Annually, each Permittee shall assess and document any newly identified administrative or regulatory barriers to implementation of LID Principles or LID BMPs since local codes were updated in accordance with the 2013 Permit.</li> <li>Not intended as a repeat of 2007-2013 Permit requirements, but rather a continuation as new codes are being developed or revised.</li> <li>Report updates in Annual Report.</li> </ul>	<ol style="list-style-type: none"> <li>By December 31, 2023, check codes beyond use of LID <b>BMPs</b> (bioretention, permeable pavement, etc.) to also focus on LID <b>principles</b> (site assessment and project design for vegetation conservation, minimized soil disturbance, and minimized impervious surfaces).</li> <li>City conducted comprehensive LID code review in 2017 (Low Impact Development Integration into City Code and Design Guidelines, Parametrix, March 3, 2017).</li> <li>Conduct a high-level check of any codes new drafted or updated since 2017.</li> <li>Annually, each Permittee shall assess and document any newly identified administrative or regulatory barriers to implementation of LID Principles or LID BMPs since local codes were updated in accordance with the 2013 Permit</li> </ol>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S5.C.1.d	N/A	<p><u>STORMWATER MANAGEMENT ACTION PLANNING (SMAP)</u></p> <p>“Permittees shall conduct a similar process and consider the range of issues outlined in the Stormwater Management Action Planning Guidance (Ecology, 2019; Publication 19-10-010). Permittees may rely on another jurisdiction to meet all or part of SMAP requirements at a watershed- scale, provided a SMAP is completed for at least one priority catchment located within the Permittee’s jurisdiction.”</p> <p><b>Key Elements:</b></p> <ul style="list-style-type: none"> <li>• Receiving Water Assessment – Document and assess existing information, identify receiving waters that will benefit from stormwater management planning.</li> <li>• Receiving Water Prioritization – Conduct prioritization process, identify watershed areas that would benefit from retrofit projects or other tailored management strategies. Include adaptive management feedback loop.</li> <li>• SMAP – Develop a Stormwater Management Action Plan (SMAP) for at least one high priority area; identify tailored stormwater management actions (retrofits, implementation schedule, budget source, adaptive management); plan for a 20-year horizon.</li> </ul>	<ol style="list-style-type: none"> <li>1. By March 31, 2022, complete Receiving Water Assessment             <ol style="list-style-type: none"> <li>a. Begin organizing existing information for receiving water assessment, coordinating with other departments through the interdisciplinary team and identifying data gaps early on.</li> <li>b. Document and assess existing information, identify receiving waters that will benefit from stormwater management planning.</li> </ol> </li> <li>2. By June 30, 2022, complete Receiving Water Prioritization             <ol style="list-style-type: none"> <li>a. Begin formulating City-wide goals and criteria to be used in the prioritization process and confirm across interdisciplinary team.</li> <li>b. Prepare methodology for characterizing and selecting watershed</li> <li>c. Select methodology and watersheds or receiving waters that would benefit from retrofit projects</li> </ol> </li> <li>3. By March 31, 2023, Develop a Stormwater Management Action Plan (SMAP) for at least one high priority area             <ol style="list-style-type: none"> <li>a. Select preferred basin and tailored management strategies</li> <li>b. identify tailored stormwater management actions (retrofits, implementation schedule, budget source, adaptive management); plan for a 20-year horizon.</li> </ol> </li> </ol>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
<p><b>S5.C.2</b></p>	<p><b><u>PUBLIC EDUCATION AND OUTREACH</u></b> (S5.C.1)                      Education and outreach program to reduce or eliminate behaviors and practices impact stormwater and encourage public to participate in stewardship activities.</p>	<p><b><u>PUBLIC EDUCATION AND OUTREACH</u></b></p> <p>“An education and outreach program designed to:</p> <ul style="list-style-type: none"> <li>• Build general awareness about methods to address and reduce impacts from stormwater runoff.</li> <li>• Effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.</li> <li>• Create stewardship opportunities that encourages community engagement in addressing the impacts from stormwater runoff.”</li> </ul> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• Clarified target audiences, subject areas, and level of effort needed to comply.</li> <li>• Include “overburdened communities” as a target audience and prepare material in alternative languages as necessary.</li> <li>• Program refocused on known local, high-priority water quality problems.</li> <li>• Requirements better align Phase I and Phase II Permits so partnerships are more efficient and consistent.</li> <li>• General public is removed as a target audience as this category is too broad of an audience</li> </ul>	<ol style="list-style-type: none"> <li>1. No later than July 1, 2020, each Permittee shall conduct a new evaluation of the effectiveness of an ongoing behavior change campaign</li> <li>2. By February 1, 2021, each Permittee shall follow social marketing practices and methods, similar to community-based social marketing, and develop a campaign that is tailored to the community</li> <li>3. No later than April 1, 2021, begin to implement the strategy</li> <li>4. No later than March 31, 2024, evaluate effectiveness and include with 2024 Annual Report</li> </ol>
<p><b>S5.C.3</b></p>	<p><b><u>PUBLIC INVOLVEMENT AND PARTICIPATION</u></b> (S5.C.2)</p>	<p><b><u>PUBLIC INVOLVEMENT AND PARTICIPATION</u></b></p>	<p><i>No major changes.</i></p>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
<p><b>S5.C.4</b></p>	<p><b><u>MS4 MAPPING</u></b> (S5.C.3.a)                      Similar requirements, previously subsection of IDDE section.</p>	<p><b><u>MS4 MAPPING</u></b>                      “The SWMP shall include an ongoing program for mapping and documenting the MS4.8”</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• Mapping requirements moved from IDDE section.</li> <li>• Inventory size and material of all known outfalls.</li> <li>• Map all known connections from MS4 to private stormwater systems.</li> <li>• Ecology expects that when Permittees map tributary conveyances to map structures such as catch basins and inlets to support their IDDE activities.</li> <li>• Ecology expects Permittees to map more detail in areas with higher risk of dangerous discharges.</li> </ul>	<ol style="list-style-type: none"> <li>1. By January 1, 2020, begin to collect size and material for all known MS4 outfalls during normal course of business (e.g. during field screening, inspection, or maintenance) and update records.</li> <li>2. By August 1, 2023, complete mapping of all known connections from the MS4 to a privately owned stormwater system (begin organizing right-of-entry).</li> </ol>
<p><b>S5.C.5</b></p>	<p><b><u>ILLICIT DISCHARGE DETECTION AND ELIMINATION</u></b> (S5.C.3)                      An ongoing program to prevent, detect, characterize, trace and eliminate illicit connections and illicit discharges into the MS4.</p>	<p><b><u>ILLICIT DISCHARGE DETECTION AND ELIMINATION</u></b>                      The SWMP shall include an ongoing program designed to prevent, detect, characterize, trace, and eliminate illicit connections and illicit discharges into the MS4.11.”</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• Submit data in format specified in Appendix 12 and WQWebIDDE (application contained in Ecology’s testing platform for WQwebPortal).</li> <li>• Source control inspection program may be leveraged if IDDE needs are incorporated into the inspection.</li> <li>• IDDE education and outreach must be addressed as part of this section.</li> </ul>	<ol style="list-style-type: none"> <li>1. Familiarize reporting staff with WQWebIDDE schema in Appendix 12 and identify any documentation gaps.</li> <li>2. Identify potential opportunities and efficiencies across IDDE and source control inspection program.</li> </ol>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
<p><a href="#">S5.C.6</a></p>	<p><a href="#">CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES</a> (S5.C.4) A program to prevent and control runoff impacts from new development, redevelopment, and construction activities.</p>	<p><a href="#">CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES</a></p> <p>“Each Permittee shall implement and enforce a program to reduce pollutants in stormwater runoff to a regulated small MS4 from new development, redevelopment and construction site activities. The program shall apply to private and public development, including transportation projects”</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• In follow-up to 2016 Washington State Supreme Court decision that upheld Permit language, this section now lists when the requirements apply to different development projects depending on application submittal date.</li> <li>• Continue to implement established program while incorporating language clarifications that have been made to Minimum Technical Requirements in <a href="#">APPENDIX 1</a> (see below) by June 30, 2022; and the specific list of program changes required is presented in <a href="#">Appendix 10</a> (see below).</li> <li>• Updated definition of <i>stormwater treatment and flow control BMPs/facilities</i> to clarify that long-term maintenance and inspection does not apply to smaller project sites.</li> </ul>	<ol style="list-style-type: none"> <li>1. Existing City program likely complies with requirements, but a check of language clarifications is recommended.</li> <li>2. Compare changes to Appendix 1 (see list in Appendix 1 section of Permit Fact Sheet and list in Appendix 10 of Permit) against City codes, stormwater manual, design standards and other enforceable documents.</li> </ol>



2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S5.C.7	<p><u>MUNICIPAL OPERATIONS AND MAINTENANCE</u> (S5.C.5) Operations and maintenance (O&amp;M) and training program to preventing or reduce pollutant runoff from municipal operations.</p>	<p><u>OPERATIONS AND MAINTENANCE</u> “Each Permittee shall implement and document a program to regulate maintenance activities and to conduct maintenance activities by the Permittee to prevent or reduce stormwater impacts.”</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• Update maintenance standards for consistency with the SWMMWW by June 30, 2022.</li> <li>• SWPPP content clarified.</li> <li>• Catch basin inspection requirements clarified to include connections to public or private systems.</li> <li>• Moved O&amp;M requirements for facilities built under Condition S.5.C.6 to this section.</li> </ul>	Existing program likely complies with requirements, but a check of language clarifications is recommended.
S5.C.8	N/A	<p><u>SOURCE CONTROL PROGRAM FOR EXISTING DEVELOPMENT</u> The Permittee shall implement a program to prevent and reduce pollutants in runoff from areas that discharge to the MS4.</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• Proactive program to inspect businesses and properties.</li> <li>• Require operational or structural source-control BMPs for existing land uses and activities to prevent pollution from entering the MS4.</li> <li>• Modeled after Phase I requirements.</li> </ul>	See minimum performance measures below.
S5.C.8.b.i	N/A	<p><u>MINIMUM PERFORMANCE MEASURE 1: ADOPT ORDINANCE</u></p> <ul style="list-style-type: none"> <li>• Adopt ordinances requiring source control BMPs for pollutant generating sources associated with existing land uses and activities (based on the SWMMWW and listed in Permit Appendix 8) and develop the inventory of businesses by August 1, 2022.</li> </ul>	Select from source control BMPs in the SWMMWW or a Phase I Program approved by Ecology.

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S5.C.8.b.ii	N/A	<p><u>MINIMUM PERFORMANCE MEASURE 2: ESTABLISH BUSINESS INVENTORY</u></p> <ul style="list-style-type: none"> <li>No later than August 1, 2022, the Permittees shall establish an inventory that identifies publicly and privately owned institutional, commercial, and industrial sites which have the potential to generate pollutants to the MS4. The inventory shall include:               <ol style="list-style-type: none"> <li>Businesses and/or sites identified based on the presence of activities that are pollutant generating (refer to Appendix 8).</li> <li>Other pollutant generating sources, based on complaint response, such as: home-based businesses and multi-family sites.</li> </ol> </li> </ul>	<ol style="list-style-type: none"> <li>Generate a business inventory (which must be updated once every five years) through:               <ol style="list-style-type: none"> <li>Local business license records*</li> <li>Review of ownership names*</li> <li>Drive-by/in-field identifications</li> </ol> </li> <li>Begin prioritizing sites, categories of land use, or geographic areas for inspections.</li> </ol> <p><i>* Note inconsistencies are frequent based on tenant activities, outdated records, occupant turnover, etc.</i></p>
S5.C.8.b.iii	N/A	<p><u>MINIMUM PERFORMANCE MEASURE 3: IMPLEMENT INSPECTIONS</u></p> <ul style="list-style-type: none"> <li>No later than January 1, 2023, Permittees shall implement an inspection program for sites identified pursuant to S5.C.8.b.ii, above.               <ol style="list-style-type: none"> <li>All identified sites with a business address shall be provided information about activities that may generate pollutants and the source control requirements applicable to those activities.</li> <li>The Permittee shall annually complete the number of inspections equal to 20% of the businesses and/or sites listed in their source control inventory (follow-up compliance inspections count toward total inspection rate); and 100% of sites over a 5-year period is not required.</li> <li>Each Permittee shall inspect 100% of sites identified through credible complaints.</li> <li>Permittees may count inspections conducted based on complaints, or when the property owner denies entry, to the 20% inspection rate.</li> </ol> </li> </ul>	<ol style="list-style-type: none"> <li>Identify any regional partnerships (with neighboring jurisdictions, local health districts, etc.) the City may want to form to implement the inspection program locally.</li> <li>In Phase I jurisdictions, coordinated events where multiple, specialized inspectors visited a business at one time was more successful than trying to cross-train single inspectors in multiple disciplines.</li> </ol>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
S5.C.8.b.iv	N/A	<p><u>MINIMUM PERFORMANCE MEASURE 4: PROGRESSIVE ENFORCEMENT</u></p> <ul style="list-style-type: none"> <li>No later than January 1, 2023, each Permittee shall implement a progressive enforcement policy that requires sites to comply with stormwater requirements within a reasonable time period.</li> </ul>	Compliance strategy should begin with technical assistance, education, and outreach; followed by enforcement only when needed.
S5.C.8.b.v	N/A	<p><u>MINIMUM PERFORMANCE MEASURE 5: TRAIN STAFF</u></p> <p>Permittees shall train staff who are responsible for implementing the source control program to conduct these activities.</p>	<ol style="list-style-type: none"> <li>Cover the legal authority for source control, source control BMPs and their proper application, inspection protocols, lessons learned, typical cases, and enforcement procedures.</li> <li>Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staff.</li> <li>Document and maintain records of the training provided and the staff trained.</li> <li>As stated above, in Phase I jurisdictions, coordinated events where multiple inspectors – each trained to enforce a specific code - visited a business all at one time was more successful than trying to cross-train single inspectors in multiple disciplines.</li> </ol>
S6	<a href="#">SECONDARY PERMITTEES</a>	<a href="#">SECONDARY PERMITTEES</a>	N/A
S7	<a href="#">TMDLs</a>	<a href="#">TMDLs</a>	N/A

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
<p><b>S8</b></p>	<p><u><b>MONITORING AND ASSESSMENT</b></u> Adaptive management monitoring requirements, including an option to participate in the collaborative regional stormwater monitoring program (RSMP) approach.</p>	<p><u><b>MONITORING AND ASSESSMENT</b></u> Participation in “Regional Status and Trends Monitoring”</p> <p><i>Key Elements:</i></p> <ul style="list-style-type: none"> <li>• The RSMP is now called the Stormwater Action Monitoring (SAM) program, is managed by Ecology, and participation is still optional.</li> <li>• New sections S8.A.1 and S8.B.1 SAM contributions (if participating) in the first year of the 2019 Permit and spread contributions over five years.</li> <li>• Each Permittee’s new SAM cost shares for S8.A Regional status and trends monitoring and S8.B effectiveness studies and source identification are listed in new <a href="#">Appendix 11</a>.</li> <li>• Several permit conditions are removed/combined to eliminate redundancies.</li> </ul>	<ol style="list-style-type: none"> <li>1. Confirm City’s goal of participating in SAM or not.</li> <li>2. If participating, SAM Contribution Amount for Des Moines during this Permit cycle is: Based on population of: 30,860 Annual amount for S8.A: \$ 5,104 Annual amount for S8.B: \$ 9,329</li> </ol>
<p><b>S9</b></p>	<p><u><b>REPORTING REQUIREMENTS</b></u> Presents questions to be answered in an Annual Report each year of the Permit cycle.</p>	<p><u><b>REPORTING REQUIREMENTS</b></u> Annual reporting to Ecology</p> <p><i>Key Element:</i> Number of Annual Report questions with numerical answers is reduced, while number of questions requesting summaries of activities is increased.</p>	<ol style="list-style-type: none"> <li>1. No later than March 31 of each year beginning in 2020, each Permittee shall submit an annual report. The reporting period for the annual report will be the previous calendar year unless otherwise specified.</li> <li>2. Allow for more time preparing Annual Report this year to address new reporting requirements.</li> </ol>
<p><b>GENERAL CONDITIONS G3</b></p>	<p><u><b>NOTIFICATION OF DISCHARGE, INCLUDING SPILLS</b></u></p>	<p><u><b>NOTIFICATION OF DISCHARGE, INCLUDING SPILLS</b></u></p> <ul style="list-style-type: none"> <li>• Permittees required to notify the proper entities when there is knowledge of a discharge, including spills, into or from a MS4 which could constitute a threat to human health, welfare, or the environment.</li> <li>• Revision prepares for alternative reporting methods currently under development.</li> </ul>	<p>Be aware of new requirements in preparation for reporting discharges.</p>

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
<a href="#">DEFINITIONS AND ACRONYMS</a>	<a href="#">DEFINITIONS AND ACRONYMS</a>	<a href="#">DEFINITIONS AND ACRONYMS</a> <ul style="list-style-type: none"> <li>• New term:                             <ul style="list-style-type: none"> <li>Overburdened Communities</li> </ul> </li> <li>• Correction of previous definitions:                             <ul style="list-style-type: none"> <li>Stormwater treatment and flow control BMPs/ facilities</li> <li>Stormwater Action Monitoring (SAM)</li> </ul> </li> <li>• Consistency edits:                             <ul style="list-style-type: none"> <li><i>(none for Western Washington Phase II)</i></li> </ul> </li> </ul>	Impact of new definitions discussed in the relevant sections above.
APPENDIX 1	<a href="#">MINIMUM TECHNICAL REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT</a> Requirements, definitions, and thresholds for Permittees to adopt into local codes and apply to new and redevelopment projects.	<a href="#">MINIMUM TECHNICAL REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT</a> <ul style="list-style-type: none"> <li>• Proposed changes generally update language to clarify the intent and implementation of already existing requirements.</li> <li>• Definition of “New Impervious Surface” from Pavement Maintenance subheading added to Definitions Section.</li> <li>• Clarified that BMP T5.13 (Soil Quality and Depth) is required when choosing LID Performance Standard to meet MR 5 for MR 1-5 projects.</li> <li>• Clarifies that TDA discharging to a marine waterbody meets all exemption requirements before it can be determined to be Flow Control exempt.</li> </ul>	<ol style="list-style-type: none"> <li>1. Existing program likely complies with requirements, but a check of language clarifications is recommended.</li> <li>2. Compare changes against City codes, stormwater manual, design standards and other enforceable documents.</li> </ol>
APPENDIX 2	<a href="#">TMDLs</a>	<a href="#">TMDLs</a>	N/A
APPENDIX 3	<a href="#">ANNUAL REPORT QUESTIONS FOR COUNTY, TOWN, AND CITY PERMITTEES</a> (Appendix 12)	<a href="#">ANNUAL REPORT QUESTIONS FOR COUNTY, TOWN, AND CITY PERMITTEES</a> See discussion of Special Condition S9 Reporting Requirements.	Allow for more time preparing Annual Report this year to address new reporting requirements.
APPENDIX 4	<a href="#">ANNUAL REPORT QUESTIONS FOR SECONDARY PERMITTEES</a>	<a href="#">ANNUAL REPORT QUESTIONS FOR SECONDARY PERMITTEES</a>	N/A
APPENDIX 5	<a href="#">ANNUAL REPORT FORM FOR NEW PERMITTEES</a> (Appendix 8)	<a href="#">ANNUAL REPORT FORM FOR NEW PERMITTEES</a>	N/A

2019 -2024 Permit Section	2007-2013 Requirements (if applicable)	2019-2024 New or Updated Requirements	Recommended Actions
APPENDIX 6	<a href="#">STREET WASTE DISPOSAL</a>	<a href="#">STREET WASTE DISPOSAL</a>	No changes.
APPENDIX 7	<a href="#">DETERMINING CONSTRUCTION SITE SEDIMENT DAMAGE POTENTIAL</a>	<a href="#">DETERMINING CONSTRUCTION SITE SEDIMENT DAMAGE POTENTIAL</a>	No changes.
APPENDIX 8	N/A	<a href="#">BUSINESSES AND ACTIVITIES THAT ARE POTENTIAL SOURCES OF POLLUTANTS</a> Updated for reference NAICs industry supersector codes to use as a general description of the types of businesses that should be inspected	See recommendations for Condition S5.C.8
APPENDIX 9	<a href="#">STORMWATER DISCHARGE MONITORING</a>	<a href="#">STORMWATER DISCHARGE MONITORING</a> Defines the approach for meeting individual stormwater discharge monitoring requirements for Permittees who choose not to participate in SAM	See recommendations for Condition S8
APPENDIX 10	N/A	<a href="#">EQUIVALENT PROGRAMS FOR RUNOFF CONTROLS FOR NEW AND REDEVELOPMENT AND CONSTRUCTION SITES</a> <ul style="list-style-type: none"> <li>List of elements to amend enforceable documents (codes, manuals, etc.) to be functionally equivalent to 2019 Permit Appendix 1 and the SWMMWW.</li> <li>Covers clarifications for continuous simulation modeling, replaced hard surfaces threshold, BMPs for equivalent areas, MR2 construction stormwater pollution prevention, MR5 on-site stormwater management, MR7 flow control, BMP C154 concrete washout, new source control BMPs, and wetlands modeling and monitoring.</li> </ul>	<ol style="list-style-type: none"> <li>Existing program likely complies with requirements, but a check of language clarifications is recommended.</li> <li>Compare changes to Appendix 1 (see list in Appendix 1 section of Permit Fact Sheet and list in Appendix 10 of Permit) against City codes, stormwater manual, design standards and other enforceable documents.</li> </ol>
APPENDIX 11	N/A	<a href="#">ANNUAL CONTRIBUTION AMOUNTS FOR REGIONAL MONITORING</a>	See recommendations for Condition S8
APPENDIX 12	<a href="#">IDDE REPORTING DATA AND FORMAT</a>	<a href="#">IDDE REPORTING DATA AND FORMAT</a> Documents the information required to submit as well as the format for the Annual Report submittal, as described in the IDDE section.	See recommendations for Condition S5.C.5

**Attachment B**  
Fiscal Analysis Update to City Financial Model



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# City of Des Moines



## Surface Water Rate Study

REVISED DRAFT REPORT  
October 2021

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**FCS GROUP**  
Solutions-Oriented Consulting

October 28, 2021

Loren Reinhold; Surface Water Manager  
City of Des Moines  
21630 11<sup>th</sup> Avenue S, Suite A  
Des Moines, WA 98198

Subject: Surface Water Rate Study Revised Draft Report

Dear Loren:

FCS GROUP is pleased to submit this revised draft report summarizing the results of the utility rate analysis for the City’s surface water management utility. Key revisions to the draft report include the updated CPI/ENR inflationary adjustment to rates in 2022, several new capital projects from the comprehensive surface water management plan as well as \$0.7 million in additional capital funding from the Lakehaven Water and Sewer District. The summary-level proposed rate increases are shown below. The methodology used to arrive at these results is described in the report. The rate increases are projected to generate revenue sufficient to meet the utility’s annual operating and maintenance expenditures, fund approximately \$17.9 million in new capital investment, and fund the utility’s operating and capital financial reserves.

The table below outlines the City-staff recommended annual rate adjustments needed for the Surface Water Management Fund from 2022 to 2029. The monthly rate for Single Family Residential (2,800 to 4,350 sq ft), the most common customer class, is expected to increase from \$24.66 to \$26.15 in 2022 – representing an increase of 6.04% above existing rates.

Summary of Results	2022	2023	2024	2025	2026	2027	2028	2029
Systemwide Revenue Increase Needs	6.04%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Monthly Single Family Residential Charge	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
Increase from Prior Year	\$1.49	\$0.79	\$0.81	\$0.84	\$0.86	\$0.89	\$0.92	\$0.94
Annual Single Family Residential Charge	\$313.80	\$323.28	\$333.00	\$343.08	\$353.40	\$364.08	\$375.12	\$386.40
Increase from Prior Year	\$17.94	\$9.48	\$9.72	\$10.08	\$10.32	\$10.68	\$11.04	\$11.28

It has been a pleasure to work with you and other City staff on this effort. Please let us know if you have any questions or need additional information on this report. I can be reached at (425) 336-1865.

Yours very truly,



John Ghilarducci  
Principal



Matt Hobson  
Project Manager



Sam Ault  
Analyst

# TABLE OF CONTENTS

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Introduction .....	1
Background .....	1
Methodology .....	1
Policy Framework .....	2
Fiscal Policies .....	2
Annual Inflation Adjustment .....	2
Financial Reserves .....	3
Operating Reserve .....	3
Capital Reserve .....	4
Capital Funding .....	4
Rate Funded System Reinvestment .....	4
Debt Management .....	5
Debt Service Coverage .....	5
Rate Setting .....	5
Revenue Sufficiency .....	5
Revenue Requirement Analysis .....	6
Background .....	6
Beginning Fund Balances .....	6
Economic Assumptions .....	6
Existing Debt Obligations .....	7
System Reinvestment .....	7
Capital Reserve Funding .....	7
Capital Expenditures Forecast .....	7
Revenue Requirement Forecast .....	8
Methodology .....	8
Capital Funding Strategy .....	9
Revenue Requirement Forecast .....	10
Forecasted Reserve Levels .....	10
Projected Rate Schedule .....	12
Alternative Capital Funding Option .....	12
Rate Survey .....	13
Conclusion .....	15

# INTRODUCTION

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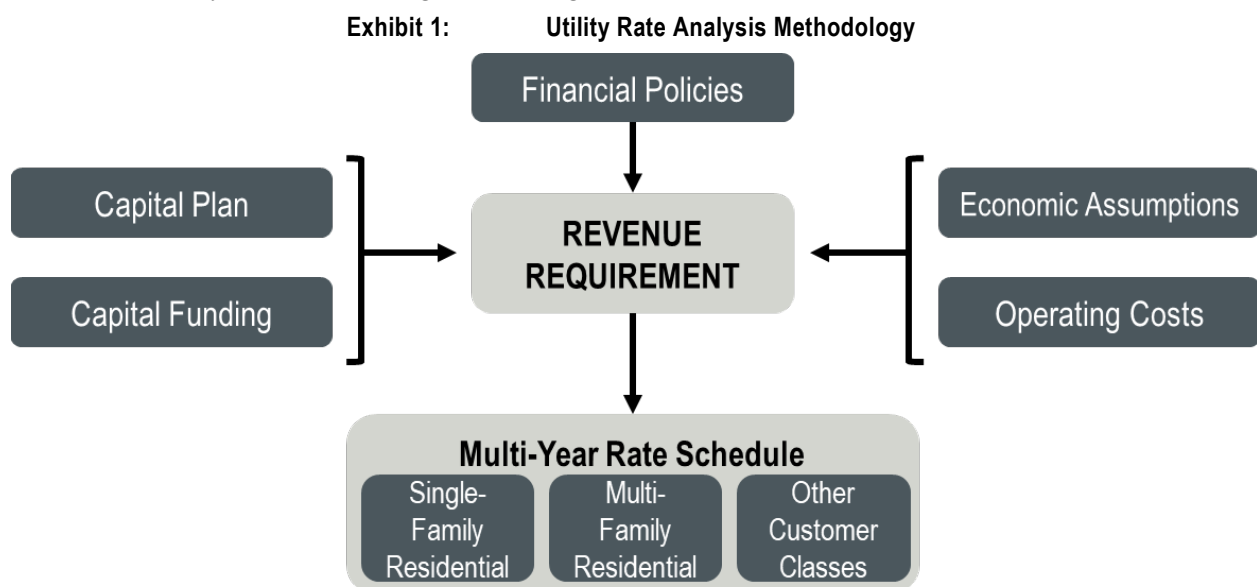
## BACKGROUND

In support of the mid-plan update of the 2015 Surface Water Comprehensive Plan (2015 SWCP), Parametrix, Inc. (Parametrix) contracted with Financial Consulting Solutions Group, Inc. (FCS GROUP) to perform a surface water rate update for the City of Des Moines. This current rate study builds upon the 2014 surface water rate study performed by FCS GROUP. The study evaluates annual rate revenue needs through 2029 while providing recommended adjustments to support the utility on a stand-alone basis.

The City of Des Moines Surface Water Management Division is responsible for addressing stormwater-related issues throughout the City. The utility's objectives are to minimize flooding, erosion, sedimentation, and water quality degradation; protect the stream ways and wetlands within the City limits; accommodate future urban growth and correct existing surface water problems; and safeguard public safety, prevent property damage, and improve water quality. The surface water utility is funded through a surface water utility fee, a development permit fee, and grants.

## METHODOLOGY

The basis for the utility rate study is a revenue requirement evaluation to establish a long-range financial plan and multi-year rate management strategy. Exhibit 1 illustrates the key components for the utility rate analysis. Elements of the revenue requirement include adopted fiscal policy targets, capital spending plans, ongoing operations and maintenance expenses, as well as current economic conditions. In simple terms, the revenue requirement forecast tells us the level of rate revenue needed to fund the utility's financial obligations and goals.



# POLICY FRAMEWORK

## FISCAL POLICIES

The financial plan is based on a framework of fiscal policies that promotes the financial integrity and stability of the surface water utility. The City’s surface water management program is not funded through taxes or other general fund revenue. Rather, it is funded through utility rates assessed to customers. The City maintains an enterprise fund to account for revenues and expenses related to the surface water management program. As rate revenue is the primary funding source for the utility, rates are adjusted annually to account for increases in operating costs and one-time capital projects.

The ensuing discussion provides a brief summary of the key policies addressed by the City and incorporated in this analysis in the following areas: financial reserves (operating reserve and capital reserve), capital funding, and debt management. While the utility currently does not have any long-term debt obligations, debt management is a component that is evaluated as part of a financial plan. For this reason, the report outlines general considerations and factors related to debt management.

**Exhibit 2** summarizes the surface water utility’s six key fiscal policies that are described in detail within this section.

**Exhibit 2: Surface Water Management Fund Fiscal Policies**

	Purpose	Target
<b>Annual Inflation Adjustment to Rates</b>	Adjusts rates to offset inflationary increases to operating expenses	Weighted Average of CPI-U (70%) and Construction Cost Index (30%)
<b>Operating Fund Balance</b>	Accommodate difference in revenue and expense cycles	4 months of operating and maintenance expenses plus 7 percent contingency
<b>Capital Fund Balance</b>	To provide funding for emergency repairs, unanticipated capital, and project cost overruns.	1% of Plant Assets
<b>System Replacement Funding</b>	Promote ongoing system integrity through reinvestment in the system.	20 percent of rate revenue from prior year
<b>Rate Setting</b>	A multi-year financial plan	Eight-year plan from 2022 to 2029
<b>Revenue Sufficiency</b>	Set rates to meet the total annual financial obligations of the utility on a stand-alone and self-supporting basis	Rates shall be set to cover O&M, capital, and fiscal policy achievement

## ANNUAL INFLATION ADJUSTMENT

Each year, surface water rates are adjusted based on regional consumer price and construction cost indices in accordance with Ordinance 1620. In 2015, based on the findings and recommendations of

the “City of Des Moines 2015 Surface Water Comprehensive Plan” prepared by Parametrix, City Council adopted Ordinance 1620 which establishes annual rate adjustments to offset inflationary increases in expenses. The ordinance provides for inflationary rate adjustments based on a weighted combination of the Engineering News Record (ENR) Construction Cost Index (CCI) for the City of Seattle and the Consumer Price Index Urban Consumers - Seattle / Tacoma / Bremerton (CPI - U). The index is calculated based on 30.00% of the ENR CCI and 70.00% of the CPI – U of the previous year. Per City ordinance, after applying the index, for the years 2020 and 2021 rates were increased by an additional 2.70%.

## FINANCIAL RESERVES

Like a business, a municipal utility requires certain minimum levels of cash reserves to efficiently operate. These reserves address the variability and timing of revenues and expenses as well as occasional disturbances in activities. Given the City’s responsibility to provide essential services to its customers at a certain standard, protection against financial disruption is even more important than it would be for private-sector or non-essential counterparts. A defined reserve structure serves to both maintain appropriate segregation of funds and promote the use of resources for their intended purposes.

When evaluating fund reserve levels and objectives, it is important to recognize that the value of reserves lies in their potential use. A reserve strategy that deliberately avoids any use of reserves negates their purpose. Fluctuation of reserve levels may indicate that the system is working, while lack of variation over many years strongly suggests that the reserves are, in fact, unnecessary.

### Operating Reserve

An operating reserve is designed to provide a liquidity cushion; it protects the utility from the risk of short-term variation in the timing of revenue collection or payment of expenses. Like other types of reserves, operating reserves also serve another purpose: they can help smooth rate increases over time. Target funding levels for an operating reserve are generally expressed as a certain number of days of operating and maintenance (O&M) expenses, with the minimum day requirement varying with the expected revenue volatility of each utility.

Industry practice for utility operating reserves typically range from 30 days (8.00%) to 120 days (33.00%) of O&M expenses, with the lower end more appropriate for utilities with stable revenue streams and the higher end of the range more appropriate for utilities with significant seasonal or consumption-based fluctuations. The City’s current fiscal policy requires the operating fund to maintain a minimum fund balance equal to 120 days of operating expenses, plus an additional 7.00% contingency intended to be used for emergency purposes only. The target minimum balance for 2021 equates to roughly \$1,256,000.

Surface water utility customers are charged once per year, on their property tax bill from King County. This billing method creates a cash flow surplus after the April and October payment deadlines and corresponding cash flow deficits in other months. The City must plan for a twice yearly revenue generation pattern, and begin each year with a substantial fund balance to ensure positive cash flow. For this reason, the operating reserve target for the City’s surface water program is set at a high level relative to other public utilities.

## Capital Reserve

In addition to protecting against variations in the timing of operating costs and revenues, it is prudent to maintain a capital contingency reserve to meet unexpected emergency capital outlays. There are several methods used in the industry to set the level of these types of reserves, including:

- **Percentage of fixed assets:** The most common method is for a capital contingency to be a percentage of the cost of fixed assets, usually 1-2% of the original cost of total assets. Alternatively, a percentage of replacement value can also be used, with the percentage adjusted downward to reflect the fact that replacement value is higher than original cost.
- **Most costly piece of equipment or infrastructure:** A utility may predict the cost of replacing its most expensive piece of equipment or infrastructure.
- **Average annual cost of capital program:** A utility may use a percentage of its projected capital program, or set the reserve equal to the average annual cost of its capital program.

This analysis assumes a target minimum balance equal to 1.00% of plant-in-service, which equates to roughly \$280,000 based on plant assets represented in 2019 financial statements and \$310,000 in 2021. The capital reserve is available in case of an emergency, should a piece of equipment or a portion of the utility's infrastructure fail unexpectedly. Additionally, reserve balances could be used for other unanticipated capital needs, including project cost overruns. These reserves are not intended to cover the costs of system-wide failures resulting from catastrophic events. City staff are proposing a new financial policy as part of the rate study to provide a funding source for unanticipated capital projects. This new policy transfers \$100,000 annually from the operating fund to the capital reserve beginning in 2022.

## CAPITAL FUNDING

Utilities typically fund capital improvement projects from a variety of sources, such as grants, developer extensions (e.g., privately-funded improvements), facility charges, utility rates, and debt. While grants and developer contributions would logically be applied to project costs first, the next choice in the funding "hierarchy" is not necessarily apparent.

### Rate Funded System Reinvestment

In order to avoid excessive reliance on debt, it is prudent to have a policy that commits a certain amount of annual rate revenue to the replacement of system assets. A common approach is to establish a planning target for rate-funded capital funding. This planning target, in combination with excess operating reserves swept into the capital account, mitigates the system's reliance on debt.

The level of planned rate-funded capital reinvestment is often set as a percentage of depreciation expense each year, where depreciation data is available. Conceptually, basing rate-funded capital funding on total depreciation expense addresses the following criteria for reasonable rates:

- **Financial integrity:** Funding depreciation expense from current rates avoids a decline in system asset value; and
- **Adequacy of capital funding:** Funding depreciation expense from current rates provides a stable funding source for capital expenditures, especially those related to the repair and replacement of existing infrastructure.

Effective 2009, the City established an internal budgetary goal to transfer a percentage of rate revenues to the capital reserve to be used for capital purposes. This analysis assumes an annual system reinvestment

funding target of 20.00% of total rate revenues from the prior year. In 2021, this target represents \$848,000 in system reinvestment funding.

## DEBT MANAGEMENT

Although the Surface Water Management Fund does not have any debt nor is debt projected as part of this rate study, debt financing is one appropriate tool for capital funding. Compared with pay-as-you-go funding, debt smooths out the rate impact of a capital program by spreading costs over time. It also creates intergenerational equity—it is sometimes called “pay-as-you-use” because future customers who use the assets are the ones paying for them. However, debt cannot be relied on too much because it carries the risk of default. Debt also reduces budget flexibility—cash-funded capital projects can be delayed if there is a revenue shortfall, but once the utility has sold debt, the debt service needs to be paid in good times or bad. So while debt is a useful option in the toolbox, it needs to be monitored to ensure that the system does not become too heavily dependent on it. To evaluate the City’s debt level, we will discuss a measurement called debt service coverage.

### Debt Service Coverage

Debt service coverage is a requirement typically associated with revenue bonds and some State loans, and it is an important benchmark to measure the riskiness of the utility’s capital funding plans. A typical minimum coverage requirement for utility revenue bonds is 1.25. The coverage requirement is a ratio of available revenues for debt service and debt service. For example, if the City were to sell bonds, it agrees to collect enough revenue to meet operating expenses and not only pay debt service, but collect an additional 25% increment above bonded debt service. The extra revenue is a cushion that makes bondholders more confident that debt service will be paid on time. While the results of this analysis do not require new debt issuance, a coverage requirement of 1.50 would provide extra revenue which could be used for capital expenditures, to build system reinvestment reserves, or for debt service on subordinate debt. Achieving a bonded debt service coverage level greater than the minimum required level is a positive signal that bond rating agencies notice, and it can result in more favorable terms if the City goes to the market for revenue bonds.

## RATE SETTING

When evaluating potential rate adjustments, the financial plan looks beyond the upcoming year. A multi-year financial plan enables the City to prepare for substantial capital projects in the mid to long-term and avoids setting rates based on anomalous year-to-year fluctuations in revenues or expenses. Historically, the City has planned for five to six-year financial planning cycles. This study examines the surface water utility’s financial outlook based on an eight-year plan.

## REVENUE SUFFICIENCY

Rates shall be set to meet annual operating and maintenance expenses, capital spending plans, and financial policy targets. The Surface Water Management Fund is an enterprise fund and as such, will set rates to fulfill annual obligations of the surface water utility on a stand-alone, self-supporting basis. The financial performance of the City is evaluated for each year in the eight-year forecast.



# REVENUE REQUIREMENT ANALYSIS

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## BACKGROUND

The revenue requirement is the amount of revenue that a utility's rates must generate to enable it to meet its various financial obligations. This analysis has two main purposes – it serves as a means of evaluating the utility's fiscal health and adequacy of current rate levels, and it sets the revenue basis for near-term and long-term rate planning. The rate revenue requirement is defined as the net difference between total revenue needs and the revenue generated through non-rate sources. Hence, the revenue requirement analysis involves defining and forecasting both needs and resources. This study assesses revenue needs for an eight-year rate-setting period (2022-2029).

## BEGINNING FUND BALANCES

This study is based on actual historical financials included within the Surface Water Management Fund. The beginning balance for the surface water utility's operating fund (Fund #450) was \$4,734,000 while the capital fund (Fund #451) beginning balance stood at \$1,270,000. In total, the surface water utility had a combined beginning fund balance of \$6,004,000 to start 2020.

## ECONOMIC ASSUMPTIONS

Operating costs are initially based on the 2020 budget, with adjustments for inflation and any anticipated future changes such as changes to programs or staffing levels. Additionally, actual financial expenses were analyzed over the five-year period from 2015 to 2019 to identify any adjustments to the 2020 budget based on historical expense patterns. The key assumptions and inputs used to develop the operating expense forecast are described in further detail below.

- General Cost Inflation – assumed to be 3.00% per year based on historical data from the Consumer Price Index Urban Consumers - Seattle / Tacoma / Bremerton (CPI - U).
  - » Per Ordinance 1620, the CPI - U is also used to set annual rate adjustments. For 2021 and 2022, the General Cost Inflation assumption is 0.89% and 5.52% respectively, consistent with annual rate-setting assumptions described within the City ordinance.
- Construction Cost Inflation – assumed to be 3.00% per year based on historical data from the ENR Construction Cost Index (CCI) – Seattle Construction Cost Index. However, this inflation assumption is not applied to capital outlays as project cost estimates were received inflated to the year of construction by Parametrix.
  - » Per Ordinance 1620, the CCI is used to set annual inflationary rate adjustments. For 2021 and 2022, the Construction Cost Inflation assumption is 0.02% and 7.29% respectively, consistent with annual rate-setting assumptions described within the City ordinance.
- B&O State Taxes – assumed at 1.75% of all operating revenue.
- City Utility Taxes – assumed at 15.00% per City municipal code.
- Personnel Cost Inflation
  - » Labor Cost Inflation: assumed to be 3.00% per year based on historical growth rate analysis.

- » Benefits Cost Inflation: assumed to be 2.50% per year based on historical growth rate analysis.
- Fund Earnings – 1.00% per year based on the Local Government Investment Pool (LGIP) historical yields in the 2015 – 2019 time period.
- Customer Growth – Based on a review of projected growth within the service area with City staff, a growth rate of 0.50% was assumed.

## EXISTING DEBT OBLIGATIONS

The City does not have any existing debt obligations related to the surface water utility.

## SYSTEM REINVESTMENT

The City's current policy target to fund annual system reinvestment is set to 20.00% of total rate revenues from the prior year. The 2021 system reinvestment target represents \$848,000 while the City's cumulative obligations over the rate-setting period are projected to be \$8.2 million.

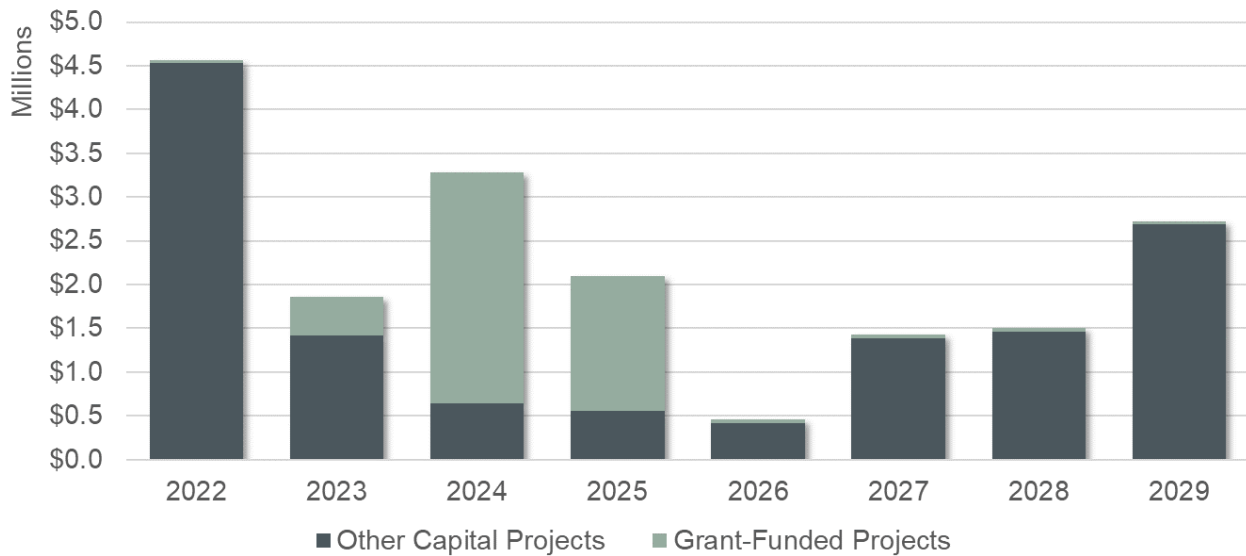
## CAPITAL RESERVE FUNDING

The Capital Reserve Fund is assumed to receive initial funding through annual operating fund transfers of \$100,000 beginning in 2022. Through the rate-setting period, cumulative capital reserve transfers will total \$800,000 by 2029.

## CAPITAL EXPENDITURES FORECAST

The capital forecast involves projecting annual capital expenditures and then developing a strategy to fund those expenditures. As a mid-plan update to the 2015 Surface Water Comprehensive Plan (SWCP), multiple capital spending plans were evaluated including a five-year and extended eight-year surface water utility project schedule. The extended 2022-29 capital spending plan is recommended by City staff, as described in the updated SWCP, and is detailed below. Costs were provided for each project, by year, and were received inflated to the year of construction by Parametrix. **Exhibit 3** shows planned annual capital spending.

**Exhibit 3: Annual Capital Expenditures, 2022 – 2029**



A few summary notes related to the capital plan are provided below:

- Two of the larger projects, the Massey Creek Pocket Estuary & Fish Passage project (\$3.0 million) and the Des Moines Creek Estuary & Fish Passage project (\$2.0 million), were recently awarded partial grant funding for design/permitting.
- The City anticipates receiving \$0.7 million from the Lakehaven Water and Sewer District to support the capital project plan.
- In the extended 2027-2029 period, there are six scheduled projects totaling \$5.7 million in estimated capital spending. City staff determined that delaying these projects is not anticipated to have adverse impacts on the surface water management program. Projects anticipated to be completed in the extended period are itemized below:
  - » 5<sup>th</sup> Ave / 212<sup>th</sup> Street Pipe Upgrade - \$1.3 million in estimated spending in 2027
  - » Service Center Material Storage Improvements - \$100,000 in estimated spending in 2027
  - » KDM / 16<sup>th</sup> Ave B Pipe Replacement - \$1.7 million in estimated spending between 2028-29
  - » 232<sup>nd</sup> Street (10<sup>th</sup> to 14<sup>th</sup>) Pipe Project - \$1.3 million in estimated spending between 2028-29
  - » 258<sup>th</sup> Street (13<sup>th</sup> Place to 16<sup>th</sup>) Pipe Project - \$0.5 million in estimated spending in 2029
  - » 6<sup>th</sup> Place/287<sup>th</sup> Street Pipe Replacement - \$0.8 million in estimated spending in 2028

## REVENUE REQUIREMENT FORECAST

### Methodology

The revenue requirement analysis evaluates the sufficiency of the utility’s revenues against its financial obligations, in the context of two sufficiency tests, detailed below. In determining the annual revenue requirement, the test with the greatest deficiency generally drives the rate adjustment in any given year. It is worth noting that the City can temporarily waive the requirements of the cash flow sufficiency test as part of a conscious decision to phase in rate increases, as long as its operating reserve balance is sufficient to absorb the resulting cash flow deficit. If the City has revenue bonds

outstanding, the coverage test must always be met, as failure to do so may result in a downgrading of the City’s credit rating.

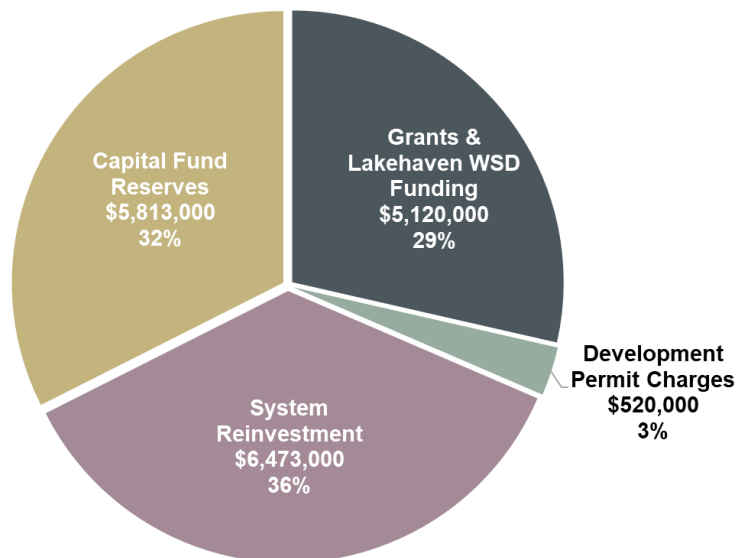
- **Cash Flow Sufficiency Test.** The cash flow test determines whether or not the utility’s annual revenues are sufficient to cover the known cash requirements for each year of the planning period. These cash requirements typically include O&M expenses, rate-funded capital outlays, and any additions to reserve balances. Specific to the City’s surface water utility, annual cash requirements include the system reinvestment transfer of 20% of prior year revenues to the capital fund and the \$100,000 transfer in reserve funding.
- **Coverage Test.** The coverage test evaluates the utility’s ability to meet applicable bond coverage requirements, as specified by typical bond covenants. This test is included in the financial model provided to the City but was not performed as the City does not have outstanding revenue bond debt nor is any new debt assumed in the financial plan.

### Capital Funding Strategy

Capital spending in the 2022-29 rate-setting period totals to \$17.9 million. The capital funding strategy and revenue requirement results are based on funding this eight-year capital plan. The anticipated funding sources for the City-staff recommended eight-year capital spending plan include the following items, as summarized in **Exhibit 4**.

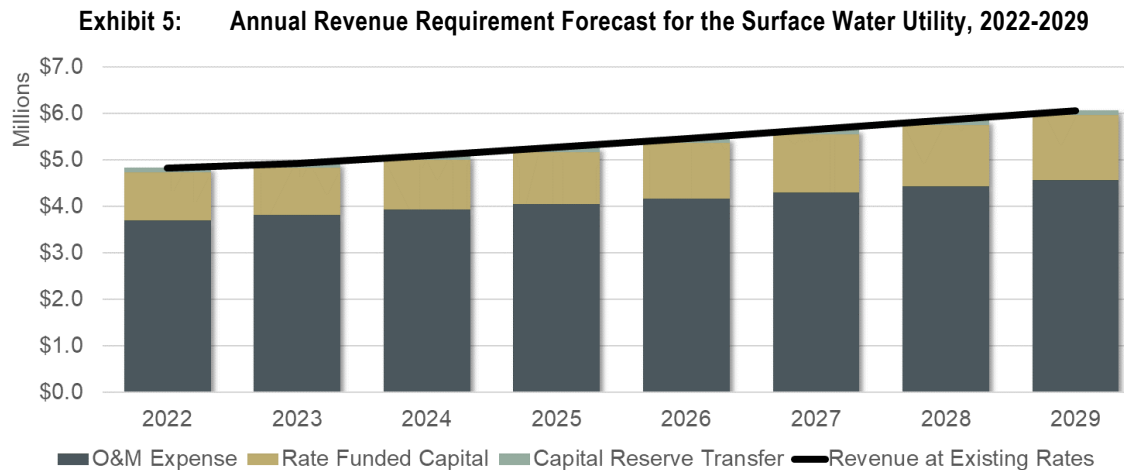
- System reinvestment funding: \$6.5 million;
- Capital fund reserves including transfers from operating fund and interest earnings: \$5.8 million;
- Development Permit Charge revenue: \$0.5 million; and,
- Grants and funding from the Lakehaven Water and Sewer District: \$5.1 million.

**Exhibit 4: Funding Sources for Capital Funding Strategy**



## Revenue Requirement Forecast

**Exhibit 5** graphically represents the operating forecast through 2029. The bars represent costs of the utility: operating expenses, capital reserve transfers, and rate-funded capital costs. The solid black line represents revenue at the existing 2021 rates—without future rate increases above inflationary adjustments. The existing rate revenue includes the assumed annual inflationary rate adjustments per Ordinance 1620 (6.04% in 2022, 3.00% annually thereafter).



Observations about the revenue requirement forecast are provided below:

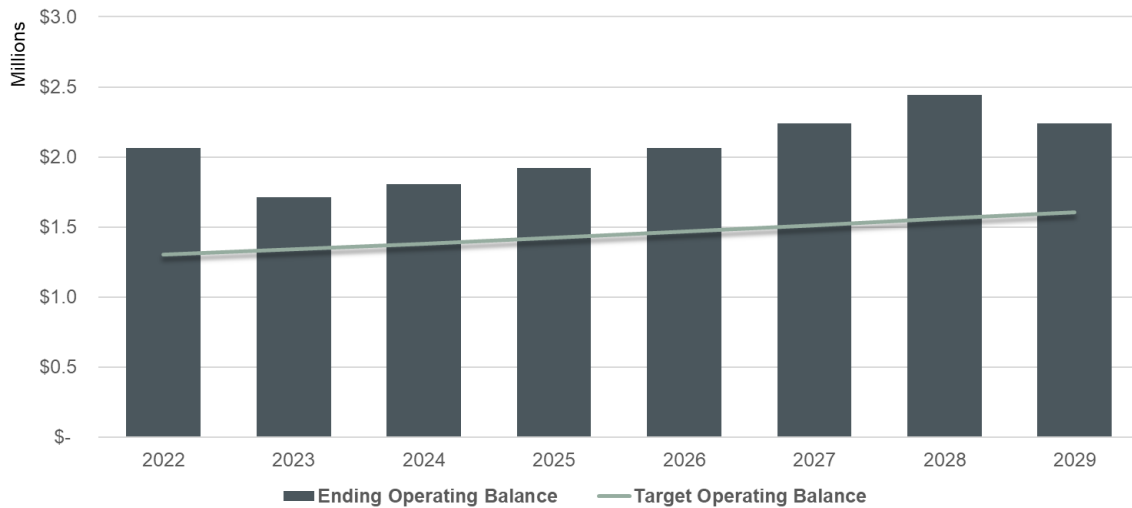
- **Black line:** Revenue at existing rates includes City Council approved inflationary increases.
- **Dark blue bar:** Existing cash operating expenses are well covered by the existing inflationary rate adjustments.
  - » Operating expenses are projected to grow from \$3.7 million in 2022 to \$4.6 million by 2029. By that time, anticipated revenues are projected generate a cash surplus of \$1.5 million to support future capital projects.
- **Gold bar:** Current rate path allows the utility to cash fund a portion of the eight-year capital plan.
  - » This strategy allows the utility to fund approximately \$9.4 million of the 2022-2029 capital plan and future capital projects with rate revenue. By spreading anticipated capital projects over an eight-year plan, the utility does not need to raise rates beyond inflationary adjustments.
- **Green bar:** Capital Reserve Fund transfers are scheduled to begin annually in 2022.
  - » The transfer is projected to generate \$800,000 in capital reserve funding by 2029.

## Forecasted Reserve Levels

**Operating Reserve:** The target operating reserve policy is set at 120 days of operating expenditures plus an additional 7.00% contingency. The operating reserve in 2021 is estimated at \$5.2 million or approximately 536 days. As discussed earlier, one purpose of a financial reserve is to provide a funding source for fluctuating expenses. This purpose is illustrated in the utility’s operating reserve strategy in 2024: the operating reserve is projected to be drawn down as capital spending increases. By 2029, the ending operating reserve is forecasted to be roughly \$2.2 million which equates to 179 days of operating expenditures. We recommend that the City continue to monitor the utility’s

operating reserves – especially during the latter years of the financial plan. If the operating reserve is below the minimum target, the City should consider alternative one-time funding sources (e.g., interfund loans) to manage the operating cash flow as needed. This strategy would help mitigate the timing for when the utility receives customer rate revenue (twice per year in April and October).

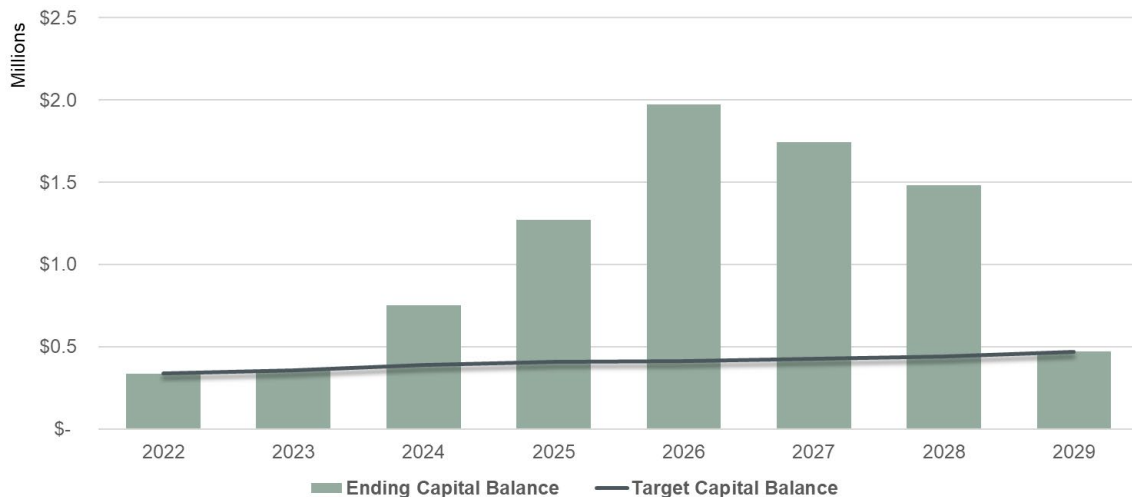
**Exhibit 6** illustrates the projected operating reserves from 2022 to 2029 compared to the target reserve policy.



**Capital Reserve:** The assumed policy for the capital reserve is to achieve a minimum year-end target of 1.00% of the original cost of fixed assets or \$310,000 in 2021. The capital reserve maintains an ending fund balance that meets the target levels through the 2021 to 2023 period. The reserve begins to build up starting in 2024 as grant funding is distributed for the Massey Creek and Des Moines Creek projects.

**Exhibit 7** summarizes the projected capital reserve from 2022 to 2029 compared to the target reserve policy.

**Exhibit 7: Capital Reserve Forecast**



## Projected Rate Schedule

**Exhibit 8** shows the projected rates resulting from across-the-board rate increases. “Across-the-board” (ATB) means that all stated rates increase by the same percentage, which maintains the existing rate structure. Rates for the single-family residential customer class are assessed per parcel based on the total impervious surface area. For other classes like multi-family, commercial and non-profit, rates are assessed per 3,450 square foot of impervious area per parcel.

The most common single-family residential customer in the utility’s service area falls within the 2,800 to 4,350 square foot of total impervious surface area customer class. The existing monthly rate for this class is \$24.66 and increases to \$26.15 in 2022. Annual 3.00% ATB increases result in a projected 2029 rate of \$32.20 for the single family residential (2,800 to 4,350 sq ft) customer. The rate for multi-family residential, commercial and non-profit customers is \$24.66 per 3,450 square foot of impervious area per parcel in 2021. By 2029 the rate for these classes increases to \$32.20.

Recommended Rate Schedule	Existing 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029
<b>Annual System-Wide Rate Increase</b>		<b>6.04%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>
Single Family Residential									
Less than 500	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
500 to 2,800	\$18.72	\$19.86	\$20.46	\$21.08	\$21.72	\$22.38	\$23.06	\$23.76	\$24.48
2,800 to 4,350	\$24.66	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
4,350 to 7,500	\$35.18	\$37.30	\$38.42	\$39.58	\$40.77	\$42.00	\$43.26	\$44.56	\$45.90
Greater than 7,500	\$24.66	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
Multi-Family Residential (per 3,450 sq ft Impervious)	\$24.66	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
Commercial	\$24.66	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
Non-Profit	\$24.66	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
<i>Info: Average Single Family Residential</i>	<i>\$24.66</i>	<i>\$26.15</i>	<i>\$26.94</i>	<i>\$27.75</i>	<i>\$28.59</i>	<i>\$29.45</i>	<i>\$30.34</i>	<i>\$31.26</i>	<i>\$32.20</i>

## Alternative Capital Funding Option

As part of the rate study, FCS GROUP also analyzed the rate impacts of completing the \$17.9 million capital improvement plan within a five-year period (2022 – 2026). The financial and customer rate impacts of funding this alternative capital funding option are summarized below.

**Exhibit 9** compares the projected rate increases, single-family residential monthly rate and capital costs for the City-staff Recommended Scenario (eight-year capital plan) and the Alternative Scenario (five-year capital plan).

A few observations of the comparative results are summarized below:

- **Rate Increases:**
  - » The Alternative Scenario would require 9.75% annual rate increases from 2023 to 2026 compared to the 3.00% inflationary rate increases required in the City-staff Recommended Scenario over the same time period. The rate increases for all other years would be the same for both scenarios.
- **Single-Family Residential Monthly Bill:** The monthly residential bill is projected to be \$28.70 in 2023 for the Alternative Scenario. As a comparison, the projected monthly residential bill in 2023 would increase to \$26.94 for the City-staff Recommended Scenario.
  - » The Alternative Scenario completes the capital improvement plan in 2026, three years earlier than the recommended scenario. The enhanced timeline results in increased rates for the utility’s customers. In 2027, the average Single-Family Residential monthly bill is \$8.76 higher than the average bill in the City-staff Recommended Scenario.

**Exhibit 9: Comparison of Capital Funding Scenarios**

	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>City-staff Recommended Scenario</b>									
Annual Rate Increase	3.33%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Single-Family (2,800 to 4,350 sq ft) Monthly Bill	\$ 24.66	\$ 26.15	\$ 26.94	\$ 27.75	\$ 28.59	\$ 29.45	\$ 30.34	\$ 31.26	\$ 32.20
Capital Spending	2,439,000	4,569,000	1,857,000	3,284,000	2,100,000	457,000	1,431,000	1,501,000	2,727,000
<b>Alternative Scenario</b>									
Annual Rate Increase	3.33%	6.04%	9.75%	9.75%	9.75%	9.75%	3.00%	3.00%	3.00%
Single-Family (2,800 to 4,350 sq ft) Monthly Bill	\$ 24.66	\$ 26.15	\$ 28.70	\$ 31.50	\$ 34.58	\$ 37.96	\$ 39.10	\$ 40.28	\$ 41.49
Capital Spending	2,439,000	4,569,000	1,857,000	3,841,000	4,208,000	3,451,000	-	-	-

## RATE SURVEY

**Exhibit 10** compares the City’s 2021 (existing) and 2022 (projected) monthly rates with the 2020 or 2021 rates of other jurisdictions (year based on data available on websites). Note that each jurisdiction has a unique set of geographic traits, customers, and system characteristics, each of which can have an impact on rates.

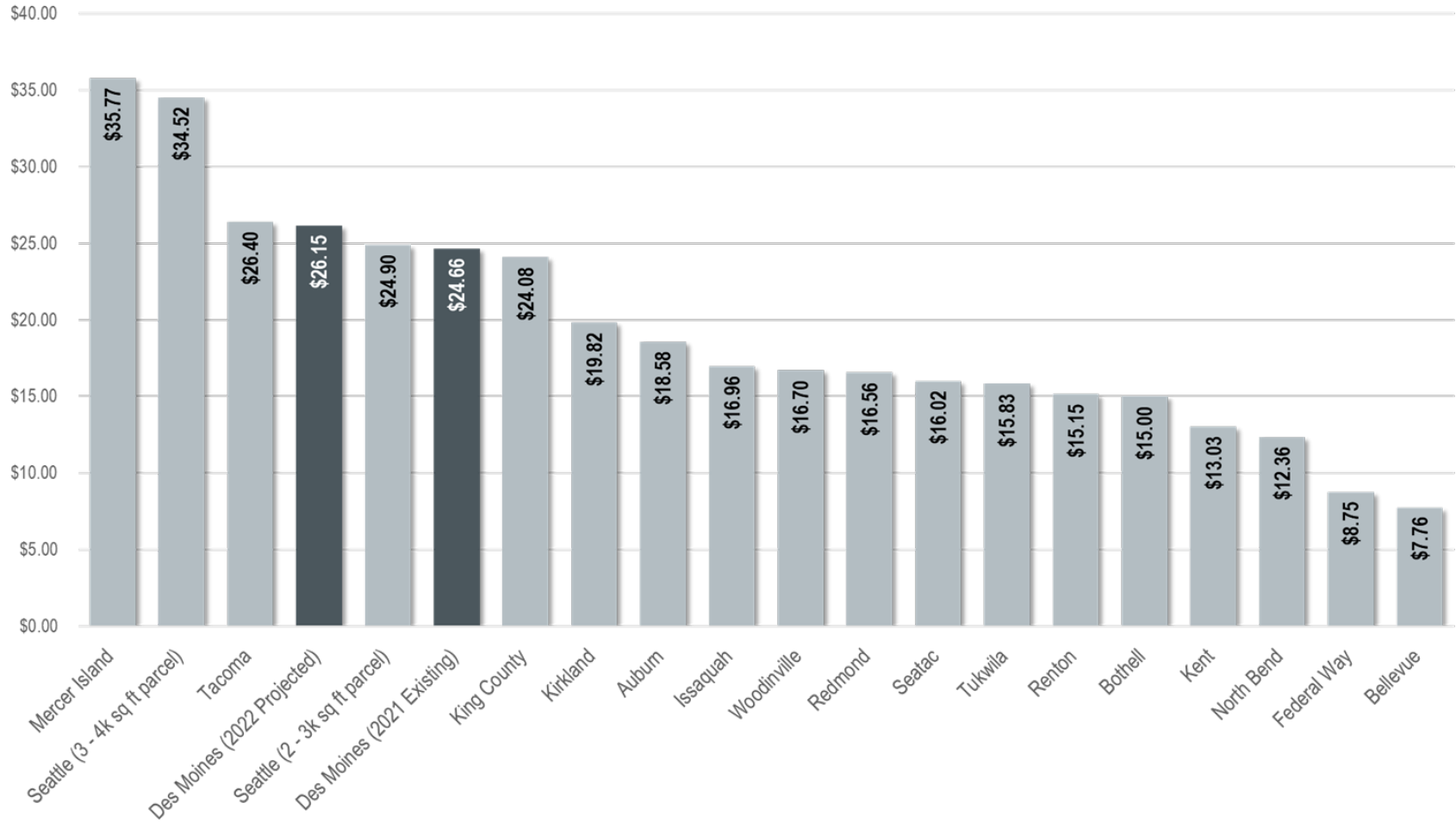
A few observations of the comparative results are summarized below:

- Existing 2021 rates of \$24.66 for Single Family Residential (2,800 to 4,350 sq ft) customers place the City of Des Moines in the upper-third of Single-Family Residential surface water rates among comparative jurisdictions.
- With the 6.04% inflationary rate increase in 2022, City surface water rates are projected to be \$26.15. Comparatively, 2022 rates are below existing rates for the City of Mercer Island, The City of Seattle (3,000 to 4,000 sq ft) and the City of Tacoma.



**Exhibit 10: Single-Family Residential Monthly Surface Water Survey\***

*\*City of Des Moines rates shown represent the 2,800 to 4,350 sq ft customer class.*



# CONCLUSION

To cover the forecasted financial obligations of the surface water utility, annual inflationary rate increases of 3.00% are needed from 2023 to 2029 in addition to the anticipated 6.04% inflationary rate adjustment in 2022. The rate increase strategy for the most common single family residential customer (2,800 to 4,350 sq ft of impervious surface area) is shown in **Exhibit 11**.

**Exhibit 11: Annual Rate Increase Needs**

Summary of Results	2022	2023	2024	2025	2026	2027	2028	2029
Systemwide Revenue Increase Needs	6.04%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Monthly Single Family Residential Charge	\$26.15	\$26.94	\$27.75	\$28.59	\$29.45	\$30.34	\$31.26	\$32.20
Increase from Prior Year	\$1.49	\$0.79	\$0.81	\$0.84	\$0.86	\$0.89	\$0.92	\$0.94
Annual Single Family Residential Charge	\$313.80	\$323.28	\$333.00	\$343.08	\$353.40	\$364.08	\$375.12	\$386.40
Increase from Prior Year	\$17.94	\$9.48	\$9.72	\$10.08	\$10.32	\$10.68	\$11.04	\$11.28

- All operating and maintenance expenditures, including cost increases related to inflation.
- Capital projects as identified by the City (totaling \$17.9 million from 2022 to 2029).
- A 120-day, plus additional contingency, operating reserve for every year except for 2029. We recommend that the City continue to monitor the utility’s operating reserves – especially during the latter years of the financial plan. If the operating reserve is below the minimum target, the City should consider alternative one-time funding sources (e.g., interfund loans) to manage the operating cash flow as needed. This strategy would help mitigate the timing for when the utility receives customer rate revenue (twice per year in April and October).
- A minimum capital reserve equivalent to 1.00% of the utility’s fixed assets in 2022 (approximately \$330,000).
- Initial funding for the utility’s Capital Reserve Fund via annual \$100,000 transfers beginning in 2022.

It is recommended that the City revisit the study findings during the forecast period to check that the assumptions used are still appropriate and no significant changes have occurred that would alter the results of the study. The City should use the study findings as a living document, routinely comparing the study outcomes to actual revenues and expenses. Any significant or unexpected changes will require adjustments to the rate strategy proposed in this report.