

Date:	June 28, 2019
То:	Councilmember Bruce Harrell, President Seattle City Council
	Councilmember Lisa Herbold, Chair Civil Rights, Utilities, Economic Development & Arts Committee
From:	Mami Hara, General Manager/CEO Seattle Public Utilities
Re:	Affordability and Accountability Strategic Plan and Risk and Resiliency Management Assessment

Attached are two reports to City Council responding to Resolution 31760 requesting Seattle Public Utilities prepare an Affordability and Accountability Strategic Plan and a Risk and Resiliency Management Assessment.

Improving rate affordability and accountability to our customers is paramount. While SPU is making progress in managing rates, the affordability of drinking water, wastewater and stormwater is a challenge in Seattle and for utilities nationwide. As we confront increasing costs of living in the housing and other sectors and the increase in economic inequality among our residents, the affordability of SPU's services becomes even more critical. The attached plan outlines a holistic approach to deliver essential utility services, keep rate increases lower, focus corporate culture on continuous improvement and make investments that deliver multiple benefits to the community.

The Risk and Resiliency Management Assessment addresses the most significant risks to make SPU more resilient. It describes challenges related to climate change, disasters, investment priorities, the economy, market forces, technology and workforce. It also gives examples of ongoing efforts to be resilient, equitable, and affordable. Consistent with the City's Race and Social Justice Initiative, each of our risk and resiliency strategies will strive to address systemic and institutional racism and will direct attention to disadvantaged communities.

Thank you for your work on behalf of SPU ratepayers. If you have questions, please do not hesitate to contact me.

Cc: Kirstan Arestad, Central Staff Director

SPU's ACCOUNTABILITY AND AFFORDABILITY STRATEGIC PLAN

FINAL REPORT – June 2019





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Introduction

Seattle residents and businesses depend on essential utility services. Safe drinking water, effective sewer and drainage systems and reliable solid waste collection are critical to the health of the city and its people. Seattle Public Utilities (SPU) is responsible for providing these life-sustaining services and must do so affordably by being accountable, efficient and community-centered. This Accountability and Affordability plan (Plan) focuses on achieving these goals. Doing so aligns with SPU's adopted strategy of "Operational Excellence" by providing "reliable, affordable, efficient, and high-quality services to all customers."

Seattle is becoming increasingly unaffordable for many residents and businesses. Higher costs of services affect SPU's customers directly, particularly customers with the least ability to pay. In addition, the value that SPU provides to customers is not always clear which makes it important for SPU to demonstrate results for the dollars spent. Enhancing accountability and affordability is critical to SPU's long-term success and this Plan includes specific strategies and actions for improving both.

Affordability focuses on "ability to pay." For SPU, this means providing essential services and providing pricing and assistance to customers that ensure everyone has the service they need. This pricing is often constrained by the need to maintain infrastructure, encourage conservation, protect the environment, and protect public health. Ensuring affordability includes strategies for reducing costs, increasing productivity and efficiency, investing in assets that have multiple benefits, removing barriers to service access, and fully using systems and organizational capacity, both in the short and long-term.

SPU's commitment to affordability extends beyond rates and includes planning and implementation of utility policies, services, projects and programs. SPU explicitly plans and responds to the ways in which lower income customers might access and be impacted by all SPU business. This requires dialogue and understanding of how utility practices are neutral, help or hinder affordability. Understanding and taking actionable steps is critical in realizing SPU's goals to be affordable and community centered.

Accountability focuses on how SPU demonstrates results. For a utility with many stakeholders and customers, this means people and organizations understand how resources are being spent, the value for investments is clearly demonstrated and transparent, and the utility takes action and makes progress on the long-range goals of the community. Ensuring accountability includes strategies for measuring and demonstrating results, engaging customers and stakeholders in identifying and implementing investments, being fair and equitable, and being responsive to the day to day essential needs of the community.

How we work matters. This Plan focuses on how SPU delivers capital projects, ensures access to services, partners with organizations, and conducts other business practices. The utility must continuously take a hard look at how it operates and assess ways to improve service, provide better value, and focus in a sustained and disciplined way on accountability and affordability. This Plan builds on strong practices within SPU and emphasizes work to be done through six practice areas of strategies and actions:

1. Capital Planning and Delivery. Increase the speed and efficiency of planning and delivering of capital improvement projects while maximizing community value.

- 2. Efficiency and Improvement. Develop a culture of continuous improvement to enhance value to our customers and improve efficiency and performance.
- **3. Customer Assistance.** Focus on the affordability of SPU's services, with a special (but not sole) focus on the needs of low-income customers, and the portfolio of assistance programs and tools that can be strategically deployed to meet the needs of diverse customers.
- **4. Partnership Opportunities.** Improve SPU's ability to partner with organizations, institutions, and companies to leverage broader benefits, reduce costs, share risks, and improve outcomes for the communities that we serve.
- 5. **Regulatory Alignment.** Reduce the cost and risk of meeting regulatory demands while ensuring public health and safety, environmental protection, a vibrant local economy and social equity outcomes.
- 6. Budgeting and Financial Management. Streamline and integrate budget and financial planning practices and align investments with the long-range strategic goals of SPU and the community.

Responsive to Council's Direction. City Council initiated this Plan in 2017. Resolution 31760, which approved SPU's 2018-2023 Strategic Business Plan Update calls for SPU to prepare an accountability and affordability strategic plan focused on managing future rate increases and corporate performance for inclusion in the 2021-2026 Plan Update.

An Immediately Actionable Plan. The strategies and actions included in the Plan are based on the work of a cross functional SPU core team and more than 150 participants and subject matter experts. Work was conducted over an eight-month period through more than 20 work sessions and in concert with SPU Executive leadership. SPU's customer review panel provided review and feedback on the recommendations of the report. Building the plan collaboratively with people doing the work helps ensure buy-in, understanding, and commitment to move forward on the recommendations which improves SPU's chances of success.

The strategies and actions set forth are both ambitious and pragmatic. For example, SPU plans to substantially improve the speed and effectiveness of the capital planning and delivery program. This is a significant undertaking impacting a \$1.5 billion, six-year capital program and the work of hundreds of SPU team members. The gain for the community has greater significance – by engaging in this important work SPU will deliver more value more quickly and the impact will be tangible.

"Go First Actions" and moving forward. Each practice area and strategy identify one or more actions that will advance efforts over the next one to two years. Overall, the strategies and actions will be implemented over the next five years and the plan will be updated in conjunction with future Strategic Business Plan updates every three years.

The Plan includes 12 strategies and 47 tangible actions for moving forward. Work has already begun on eight of the actions and implementation of an additional 25 actions will occur in 2019 and 2020. In addition, SPU will report on the progress of the Plan every six months in conjunction with updates on the 2018-2023 Strategic Business Plan implementation progress.

AT A GLANCE: Accountability and Affordability Strategies and Actions

This "At a Glance" section provides all strategies and actions contained in the plan in this report. More detailed information on each strategy and action, along with background and purpose, can be found starting on page 9.



Go First Action: SPU identified these actions as the immediate next step that will be accomplished in the next 1-2 years.

Capital Planning and Delivery

Why is this practice area important? Capital projects and financial policies account for approximately 25% of the total 2018-2023 SPU utility rate. Improvement and changes to the planning, speed and delivery of this large capital program can have significant effects on the affordability of SPU's rate to customers and the beneficial impact of SPU projects.

Strategy 1: Capital Planning. Coordinate capital planning across LOBs and across other City departments to maximize potential for community value.



Action 1A. Improve capital planning coordination by regularly convening SPU branches to identify planned capital improvements within common geographic locations.



Action 1B. Integrate planning across the Drainage and Wastewater LOB to identify future investments that provide the greatest community and environmental benefits.



Action 1C. Develop Drainage and Wastewater capital planning guidance to consistently value multiple community and environmental benefits in CIP options analysis.

Action 1D. Apply guidance and lessons learned from the drainage and wastewater LOB work in B and C to all lines of business.

Action 1E. Integrate standard portfolio project management practices into the development and monitoring of the CIP such as strategic prioritization across LOBs and portfolio performance and risk analysis.

Action 1F. Partner with SDOT to identify opportunities for improved coordination and delivery of capital projects.

Strategy 2: Capital Delivery. Improve capital project delivery by reducing project costs, accelerating project delivery, and providing multiple community benefits. Focus the stage gate process to provide customer value through streamlined and cost-effective decision making that requires the minimally optimal analysis to supports life cycle cost evaluation and strategic priorities.



Action 2A. Streamline the project approval process to reduce decision cycle times and better align delegation of approval authority (decisions made at the right level).



Action 2B. Incorporate reprioritization and elimination of stalled or lower priority projects into capital monitoring practices.



Action 2C. Improve the efficiency of capital project management by eliminating duplication of project management systems and activities.



Action 2D. Review and streamline capital project options analyses leading to stage gate 2 to reduce cycle times and project costs.

Action 2E. Revamp the Asset Management Committee (AMC) review process.



Action 2F. Transition to the use of portfolio reserves and/or pooled risk reserves to reduce the total dollar amount of management reserves.

Action 2G. Reduce total cycle time in the procurement full solicitation process.

Action 2H. Better incorporate operational considerations into capital project development and review.

Strategy 3: Capital Reporting and Transparency. Improve the transparency and accountability of project delivery through improved financial data and reporting, and responsive customer service (LOBs as customers).



Action 3A. Make available and use actionable data on a quarterly basis to identify project risks and issues early on so that adjustments can be made in a timely fashion.

Action 3B. Improve PPM (SPU's enterprise project management system) so that LOBs and management can easily find the information they need.

Efficiency & Improvement

Why is this practice area important? The strategies and actions of this practice area are intended to slow the growth in SPU's rate path by identifying and taking action on hundreds of small and large opportunities for improving service to the customer and reducing non-value-added activities and cost in SPU's work. Examples of non-value-added activities include "waste in process" such as having large inventories of parts, equipment downtime or being unavailable when teams are ready to work, and fixing the same problem twice. Focusing on work in this way not only improves efficiency and productivity; when done well, and in an engaged and respectful way with team members, it can improve employee engagement and job satisfaction.

Strategy 1: Improvement and Efficiencies. Develop a culture of continuous improvement to enhance value to our customers and improve efficiency and performance.



Action 1A. Practice and Learn Lean Problem Solving. Pilot lean problem solving within the Drainage and Wastewater (DWW) Branch.

Action 1B. Identify and resource stalled or incomplete improvements.

Action 1C. Plan for and sustain improvement across SPU. Integrate improvement planning and measurement into strategic and business planning.

Action 1D. Systematically identify and take action on improvements across SPU.

Customer Assistance

Why is this practice area important? The Customer Assistance Practice Area is focused on the affordability of SPU's services, with a special (but not sole) focus on the needs of low-income customers. This area targets

programs and tools SPU has or could develop to more effectively meet affordability needs of our diverse customers.

Strategy 1: Align Efforts to Community Need. Prioritize and align Customer Assistance efforts and resources towards meeting the needs of the community and improving impact.



Action 1A. Perform rigorous affordability analysis when affordability metrics are finalized.

Action 1B. Conduct Pilot Program to Prevent Service Shut-offs for UDP Customers.



Action 1C. Explore income eligibility alignment with other City of Seattle and King County assistance programs.

Action 1D. Explore ways to support the affordability of side-sewer and other costly private infrastructure repair costs for homeowners.



Action 1E. Provide greater benefit to the customer in cases of unforeseen leaks.

Strategy 2: Increase access to and participation in existing affordability programs.



Action 2A. Identify legal and operational barriers and options for transferring SPU UDP credits at SCL to SPU to prevent a water shut-off action.



Action 2B. Launch Web-Based Application Form for UDP and EAP

Action 2C. Targeted enrollment and cross-enrollment efforts for UDP, including a self-certification pilot program.

Action 2D. Expand Access to Emergency Assistance

Partnership Opportunities

Why is this practice area important? Partnerships are a primary vehicle for centering SPU's work on the needs of the communities the utility serves and for driving innovation, building capacity in the community and leveraging a broader set of benefits than what the Utility can provide on its own.

Strategy 1: Develop an SPU culture that nurtures innovation, extending existing and developing new partnerships across all branches to expand the value and reach of SPU investments for the communities we serve.



Action 1A. Create a community of practice to share and learn from each other and build capacity within SPU.

Action 1B. Identify, prioritize, and remove organizational barriers to partnering.

Action 1C. Focus partnerships on demonstrating qualitative and/or quantitative impacts and provide routine opportunity to capture and communicate their stories, value and outcomes.



Action 1D. Build partnership capacity in the communities SPU serves and identify and expand opportunities for partnerships with private and community organizations to improve health and environmental outcomes.

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Regulatory Alignment

Why is this practice area important? SPU's regulatory costs are significant and are ultimately paid for by customers. For example, SPU's 2018-2023 Capital Improvement Program (CIP) is \$1.5 billion and \$0.7 billion (45%) is dedicated to regulatory compliance projects such as the Ship Canal Water Quality project.

Strategy 1: Regulatory Alignment. Align to Community Need and Impact. Prioritize and align SPU regulatory resources towards meeting the needs of the community, improving impact and "least cost" regulatory action.



Action 1A. Develop a unified federal and state legislative agenda that focuses efforts on proactively improving the environment, public health, social equity, and the local economy.

Action 1B. Develop a utility agenda for external engagement and influence that benefits the entire enterprise.

Action 1C. Develop risk and cost reduction measures for select areas of regulatory influence.

Strategy 2: Regulatory Alignment Move from Prescriptive to Performance. Move from prescriptive to performance-based regulations to reduce or avoid costs, share or reduce risk, and/or enhance community outcomes.



Action 2A. Seek to build performance based regulatory practices that adjust to meet the intended outcome into the combined sewer overflow (CSO) consent decree.

Action 2B. Take action on promising areas where SPU is regulated or the regulator that might be influenced to move from a prescriptive to a performance-based approach.



Action 2C. Collaborate with other city and local agencies to develop a list of regulations where there are potential efficiencies.

Budget and Financial Management

Why is this practice area important? Seattle Public Utilities is financially and operationally complex, spending over \$1 billion annually to deliver drinking water, sewage transport, stormwater conveyance and treatment and garbage and recycling services across Seattle and parts of the region. The size and complexity of the organization requires strong financial management to maintain the lowest cost of service while providing value to customers.

Strategy 1: Review SPU financial policies; provide options focused on risk, affordability, and investment.



Action 1A. Perform a comprehensive update of SPU's financial policies.

Action 1B. Assess and make recommendations on reserves/emergency reserves.

Strategy 2: Revamp the SPU budget process to be driven by strategy, priority, and customer needs.



Action 2A. Advocate with the City Budget Office to pilot biennial budgeting with Seattle Public Utilities.

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Action 2B. Pilot the development of a flexible rate model that integrates affordability criteria into rate development.

Action 2C. Develop a standard integrated enterprise approach to prioritization, improvements and efficiencies.

Strategy 3: Enhance financial and performance monitoring to better inform budgeting and financial planning.



Action 3A. Pilot quarterly enhanced financial monitoring to increase transparency, integrate risk, and improve financial planning.



Action 3B. Provide core/simple financial information on capital and operations and maintenance more frequently and broadly, making the data useful, accessible and actionable for managers.

Action 3C. Pilot the use of organizational capacity analysis and staffing forecast tools.

Practice Area: Capital Planning and Delivery

Increase the speed and efficiency of planning and delivering of capital improvement projects while maximizing community value.

What is this practice area about and why is it important?

Seattle Public Utilities stewards a citywide and regional system of community capital assets which delivers essential drinking water, sewage transport, stormwater conveyance and treatment and garbage and recycling services. To support these services, SPU plans and delivers capital infrastructure projects to provide customers with reliable and enhanced delivery and protect human and environmental health.

Capital projects and financial policies account for approximately 25% of the total 2018-2023 SPU utility rate. Improvement and changes to the planning, speed and delivery of this large capital program can have significant effects on the affordability of SPU's rate to customers and the beneficial impact of SPU projects. SPU engaged practitioners from across the utility to better understand how the utility might:

- improve the process of planning & delivering capital projects;
- better address capital project portfolio risk while minimizing costs;
- improve the transparency of capital project delivery for customers; and
- provide the most equitable benefits to communities and neighborhoods.

In 2019, 27% of annual spending for SPU was allocated to the CIP. Evaluating the area of capital delivery is an important part of finding ways to keep our services affordable to our ratepayers. Below is a chart showing SPU's adopted budget for 2019.



What is the current state of capital planning and delivery in SPU?

Improving upon a foundation of strong capital project management. SPU has a large capital portfolio and a structured system for planning, delivering, and managing capital assets. In general, each line of business (LOB) - Solid Waste, Drainage and Wastewater, and Water – manages its own capital assets and program. The Project Delivery and Engineering Branch (PDEB) is responsible for designing and constructing most new and replaced capital assets in collaboration with the LOBs. Each SPU LOB has a six-year capital improvement program informed by infrastructure assessment and analysis, regulatory requirements, and current and probable future needs, problems, risks and customer complaints.

Using strong management practices to deliver large capital projects. The Ship Canal Water Quality project will keep more than 75 million gallons of polluted stormwater and sewage out of the Lake Washington Ship Canal, Salmon Bay, and Lake Union on average each year. This \$570 million project is being completed in partnership with King County to decrease impacts on nearby communities and as part of a long-term comprehensive strategy to protect Seattle's waterways and is responsive to the federal Clean Water Act and state regulations. The project is utilizing best management practices in program and project management including a schedule, cost, and risk management strategy that evaluates uncertainties and risks across the entire program. This results in a confidence-based schedule and cost estimate which is managed monthly. The management team emphasizes obtaining the best value in the project which has resulted in over \$77 million in scope and cost reductions by project staff.

The approved 2018-2023 CIP for all LOBs totaled \$2 billion with the following breakout by year and LOB:

FUND	2018	2019	2020	2021	2022	2023	Grand Total
WATER	\$141.2	\$120.5	\$81.0	\$83.5	\$78.2	\$67.3	571.7
DWW	176.8	218.5	243.1	256.7	222.3	187.1	1,304.5
SW	9.0	20.2	24.7	7.7	4.0	3.8	69.4
TOTAL	\$327.0	\$359.2	\$348.8	\$347.9	\$304.5	\$258.2	\$1,945.6

2018-2023 SBP CIP PROJECTIONS (\$ MILLIONS)

Once the CIP is adopted, individual projects are then executed following the general workflow illustrated below, starting with the project Initiation Phase:



Stage Gate Process Flow for CIP Infrastructure Projects

The Stage Gate (SG) workflow shows a series of five distinct phases punctuated by five separate check points or gates. Each gate requires SPU executives to approve scope, schedule, and budget for capital projects with a life cycle cost over \$50,000. In 2009, SPU adopted the SG practice to ensure cost-effective, consistent, transparent, and customer orientation in executive decision-making through planning, selecting, and delivering capital projects.

During the initiation phase LOBs detail discrete problems to be solved and approximate schedule and budget. During the options analysis phase the LOBs develop and analyze options for solving those problems. The analysis includes triple bottom line economic analysis (social, environmental and financial considerations) as well as comparison of present value life cycle costs for each option. SPU began evaluating all projects using the triple bottom line in 2002. Selection and approval of the preferred project option is completed at Stage Gate 2.

After Stage Gate 2, projects are typically transitioned from the LOBs to PDEB. PDEB leads the design phase and develops formal plans and specifications necessary for public works contracting. PDEB also manages the construction and closeout phases of the project ending with final acceptance of the new or replaced asset by the LOB. PDEB is responsible for delivering between \$86 million to \$194 million in capital project spending annually or between what 40% to 54% of the overall capital budget (years 2016-2019).

There are several opportunities to enhance the efficiency of the capital planning and delivery process and focus on providing greater value to the customer. SPU's ultimate customer is always our rate payer. However, in the delivery of capital projects there are many intermediate customers. Adjusting our processes to provide value to these intermediate customers can help identify ways of eliminating waste (i.e. what those intermediate customers would not pay for) and streamline process.

As part of this initial assessment, the practice area work group identified a series of issues that create time delays in project delivery without adding significant value including:

- The consultant contracting and procurement process can be unnecessarily cumbersome. For example, signatures and contract review is required for small dollar limits.
- Decisions that should be made by the project team are often elevated to the highest levels of management, delaying project progress.
- Some projects proceed past initiation without appropriate definition or clarity in applicable policies often causing long pauses to obtain information and re-work based on new direction given.
- The project options analysis process that began in 2002 is time consuming, requires a lot of resources, and has not been re-evaluated since its inception.

Further, by reviewing current processes and identifying and better understanding what our internal customers value the work group also identified several overlapping opportunities for alignment and improvement including:

- Reducing the significant variation in the ways the LOBs plan for capital projects
- Spending and capital planning targets not being achieved which results in millions of dollars in idle capital each year
- Projects experiencing significant delays, sometimes for many years
- Substantive rework occurring in different phases and between stage gate checkpoints, resulting in delays and increased spending
- Data on project schedule and detailed cost performance not being readily available which limits the transparency and accountability of the capital planning and delivery process
- Uncertainty and risk aversion stalls movement or creates rework between gates
- Operation and maintenance needs are sometimes not well understood within capital planning and delivery which can create difficulty in managing assets once built
- Time and resources spent on options analysis is sometimes more than necessary to make the preferred option decision which is both costly and delays moving projects from planning to delivery.

STRATEGIES AND ACTIONS

Over the next five years, SPU plans to focus on improving the speed and efficiency of capital project planning and delivery while maximizing community value by:

- Improving and integrating capital planning across LOBs and other City departments.
- Reducing unnecessary project costs, accelerating project delivery, and providing multiple community benefits (such as improved water quality and passive recreation). Specifically, focus the stage gate process to provide customer value through streamlined and cost-effective decision making.
- Improving the transparency and accountability of project delivery through improved financial data and reporting, and responsive customer service.

Strategy 1: Capital Planning. Coordinate capital planning across LOBs and across other City departments to maximize potential for community value.

Strategy 1 Actions



Action 1A. Improve capital planning coordination by regularly convening SPU branches to identify planned capital improvements within common geographic locations.

Integrate project planning within those geographic areas to more efficiently meet multiple infrastructure and community needs. This action will allow the utility to be more strategic about finding opportunities to minimize construction disruption to the community, maximize the possibility of creating multiple community benefits (e.g.

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improved drainage, stream quality, and passive recreation), and create efficiencies and cost savings by combining projects.



Action 1B. Integrate planning across the Drainage and Wastewater LOB to identify future investments that provide the greatest community and environmental benefits.

Finding the best investment solutions for Seattle's drainage and wastewater systems begins by engaging with community. The Drainage and Wastewater integrated system plan will incorporate robust stakeholder engagement so that planning goals and objectives reflect community values and serve as a model and a guide to be incorporated into the capital planning of SPU's other LOBs (see below).

Integrated planning for enhanced value. SPU is developing a 50-year plan for managing and improving Seattle's drainage and wastewater systems while optimizing social and environmental benefits for the City. We are developing our plan through technical analysis, robust community engagement and an integrated approach to planning. By the end of 2022, SPU will have near- and long-term plans for drainage and wastewater programs, partnerships, and infrastructure investments that provide the greatest community value (e.g. improving environmental quality, public health, local economy, and social equity). This planning is part of building a better Seattle by providing drainage and wastewater services that are affordable, safe, green, and just in a climate uncertain future.



Action 1C. Develop Drainage and Wastewater capital planning guidance to consistently value multiple community and environmental benefits in CIP options analysis.

Once a set of problems have been identified in the integrated planning process, evaluation of solutions to solve that problem begins during the options analysis phase. This action will develop necessary guidance for how to maximize community benefits into the overall analysis of potential solutions. The Drainage and Wastewater LOB has begun this process and will lead the development of guidance to be used by the other SPU LOBs.

Action 1D. Apply guidance and lessons learned from the drainage and wastewater LOB work in B and C to all lines of business

Action 1E. Integrate standard portfolio project management practices into the development and monitoring of the CIP such as strategic prioritization across LOBs and portfolio performance and risk analysis.

While SPU has strong project management practices in place, the organization can further strengthen organizational alignment to business objectives, risk optimization, and resources allocation by treating the entire capital program as a series of capital project portfolios and adopting several industry-wide standards for portfolio management. This action will compare SPU practices at the utility against industry standards and recommend and implement changes to bring SPU into alignment with current best practices aimed at reducing overall portfolio risk, more efficient use of staffing capacity, and more timely delivery of capital projects.

Action 1F. Partner with SDOT to identify opportunities for improved coordination and delivery of capital projects.

SPU has the opportunity to better coordinate work with existing and upcoming SDOT capital projects. Currently, SPU does not consistently approach SDOT to plan for and integrate SDOT's priorities and projects into SPU SPU ACCOUNTABILITY AND AFFORDABILITY STRATEGIC PLAN - 14 projects that impact the right-of-way. This can provide efficiencies and minimize impacts to Seattle neighborhoods by finding joint opportunity projects.

Strategy 2: Capital Delivery. Improve capital project delivery by reducing project costs, accelerating project delivery, and providing multiple community benefits. Focus the stage gate process to provide customer value through streamlined and cost-effective decision making that requires the minimally optimal analysis to supports life cycle cost evaluation and strategic priorities.

Strategy 2 Actions



Action 2A. Streamline the project approval process to reduce decision cycle times and better align delegation of approval authority (decisions made at the right level).

Identifying the right level of approval authority will minimize time lost in moving projects forward. This action involves collaboratively working with executive management across SPU to evaluate current approval authority, eliminate and establish new rules, formalize new practices, and monitor and adjust for issues.



Action 2B. Incorporate reprioritization and elimination of stalled or lower priority projects into capital monitoring practices.

Projects can stall for many reasons, but these delays always result in higher costs and longer schedules. This action would set up check points and thresholds for projects to identify when stalls have occurred and a process for re-evaluating their place in the portfolio.



Action 2C. Improve the efficiency of capital project management by eliminating duplication of project management systems and activities.

SPU uses two formal enterprise project management software systems and a variety of informal solutions to meet project management needs. This results in process inefficiencies and the lack of consistent and readily available data for tracking and reporting on projects. This action is focused on consolidating existing information into one management system and expanding that system to add functionality currently being managed in an ad-hoc fashion.



Action 2D. Review and streamline capital project options analyses leading to stage gate 2 to reduce cycle times and project costs.

Reduce the number of projects using options analysis and focus analysis on the high risk, high complexity, politically/community sensitive, and high cost projects. The options analysis phase is used to identify and evaluate alternatives to solve the identified problem. SPU treats most projects the same during this process, which can lead to unnecessary cost and more time to complete analysis. This action will evaluate the current process to look for streamlining opportunities, recommend modifications to process and implement changes.



Action 2E. Revamp the Asset Management Committee (AMC) review process.

The AMC review process is intended to ensure that SPU has selected the right investment but often results in unnecessary delay, re-work, over-processing through redundant briefings, and over-analysis while not necessarily ensuring the right investment is being made. This action will evaluate the current process, look for streamlining opportunities, apply appropriate thresholds for which projects use this process, identify changes that will ensure that investment decisions are happening at the correct time and in an efficient manner and revisit dollar thresholds for what should constitute stage gate changes.



Action 2F. Transition to the use of portfolio reserves and/or pooled risk reserves to reduce the total dollar amount of management reserves.

Each capital project holds a percentage of the overall project budget in reserve to address contingencies for what is termed the "unknown-unknowns". There is significant uncertainty in whether the money will be more than needed or not enough. Moving these reserve funds to a program portfolio level will lower the total dollars being held in reserve potentially resulting in lower budget needs. New processes to access the management reserve pool will provide greater oversight and accountability around reserve usage and align spending with the budget.



has multiple opportunities for reduction of cycle times which will help increase the speed of capital project delivery. Initial improvements will focus on development of scopes for solicitation and contract negotiations.

Action 2H. Better incorporate operational considerations into capital project development and review.

New and replaced infrastructure must meet the operational needs and maintainability requirements of our crews. Any additional funds and staffing resources associated with this infrastructure must also be identified and obtained. This action will identify gaps in the current practice and propose and implement solutions.

Strategy 3: Capital Reporting and Transparency. Improve the transparency and accountability of project delivery through improved financial data and reporting, and responsive customer service (LOBs as customers).

Strategy 3 Actions



Action 3A. Make available and use actionable data on a quarterly basis to identify project risks and issues early on so that adjustments can be made in a timely fashion.

Successful project management requires identification and active management of risks and mitigation strategies. This action will enhance SPU's current enterprise portfolio project management system (PPM) to include modules that will house collected data and allow for proactive project management. The action also includes deployment of an earned value management system to improve project performance and forecasting and an integrated change control program to manage project scope changes.

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Action 3B. Improve PPM (SPU's enterprise project management system) so that LOBs and management can easily find the information they need.

Currently, SPU holds project data in a variety of data management systems. There is no control process to gather and store this information in a single database nor is there a control process that compiles the data into reporting that leads to efficient and effective portfolio and project management. This action will enhance the current system of record (PPM) to allow for effective project management use, data storage, information control and project reporting.

Practice Area: Efficiency and Improvement

Develop a culture of continuous improvement to enhance value to our customers and improve efficiency and performance.

What is this practice area and why is it important?

The efficiency and improvement practice area focuses on how SPU, as an enterprise, identifies and sustains improvement to drive efficiency and provide increased value to rate payers. This practice area supports SPU's strategic business plan focus area of "Operational Excellence" by providing actionable steps for enhancing and building continuous improvement skills and practices across the utility.

This practice area is essential to improving accountability and

Operational Excellence in SPU's 2018-2023 Strategic Business Plan. "We provide reliable, affordable, efficient, and highquality services to all customers."

affordability. The strategies and actions of this practice area are intended to slow the growth in SPU's rate path by identifying and taking action on hundreds of small and large opportunities for improving service to the customer and reducing non-value-added activities and cost in SPU's work. Examples of non-value-added activities include "waste in process" such as having large inventories of parts, equipment downtime or being unavailable when teams are ready to work, and fixing the same problem twice. Focusing on work in this way not only improves efficiency and productivity; when done well, and in an engaged and respectful way with team members, it can improve employee engagement and job satisfaction.

What is meant by continuous improvement?

Continuous improvement and lean involve simple systematic methods for focusing on what the customer values and eliminating from process what the customer does not value (and would not pay for). The core of the method, a plan-do-check-adjust (PDCA) improvement cycle, is based on the scientific method of proposing a change in a process, implementing the change, measuring the results, and taking appropriate action (see plan-do-check-adjust illustration).

The PDCA cycle is the foundation for continuous improvement. Continuous improvement can be





focused on many small, medium, and large improvements ranging from reducing the number of steps it takes to fill out a report to streamlining an organization's process for capital planning and delivery.

Continuous improvement includes:

• Involving employees and external stakeholders in problem identification and problem-solving activities;

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- Reducing the complexity of processes;
- Using performance metrics and simple visual controls to provide rapid feedback to improve real-time decision-making and problem-solving; and
- Approaching improvement activities using systems thinking.

What is the current state of continuous improvement in SPU?

SPU has engaged in a variety of continuous improvement efforts over the past decade. These process improvement efforts use varying methods including process mapping, special consultant studies, rapid improvement events, staffing analysis, and other techniques. The methods and skill in using these tools vary heavily by manager and line of business.

Workshop discussions and interviews on this topic revealed four themes:

1. process improvement is occurring in some lines of business;

2. while there is often initial improvement, improvement is sometimes not sustained due to turn over or conflicting priorities;

Reducing unnecessary inspections and costs through data analysis and lean methods. As part of the City's Stormwater Permit, SPU's Drainage and Wastewater (DWW) Branch was directed to perform inspections of privately-owned stormwater facilities every two years, which would have substantively increased program costs. Through process improvement and data review, DWW demonstrated that less frequent inspections would provide the intended environmental benefits and were able to avoid adding 2 FTE staff and reduced process time by 17%. Improving service delivery through process improvement. SPU's Water division received complaints from developers that the installation of water taps to new facilities was taking 3 months or more. By conducting a lean workshop and consistently checking and acting on process data, Water was able to reduce the time per inspection by 30%. While this shaved days and weeks off the process, additional work is needed to meet customer expectations.

3. data on process and costs is often difficult to gather or does not exist; and

4. there is a strong interest in process improvement, but the skills and support are not always available.

STRATEGIES AND ACTIONS

Strategy 1: Develop a culture of continuous improvement to enhance value to our customers and improve efficiency and performance.

Moving from "pockets of excellence" and improvement to "sustained operational excellence."

SPU will build capability across the organization through applied problem solving and improvement, learn from that experience, and then, over time, apply the learning to more of the organization. At the same time, the utility will integrate the "plan-do-check-adjust" model into key management practices at SPU (see illustration). This

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dual focus on both applied learning and integration with key management practices of the organization can provide a greater probability that progress and results from improvements are sustained over time through cycles of checking and adjusting and engaging greater numbers of employees in identifying and solving problems upstream at the source in more systemic ways. The essence of continuous improvement is to engage staff members responsible for the work in redesigning it, keeping in mind the need to provide the best possible product or service to the customer (external or internal).



Plan-do-check-adjust as a management system.

SPU has several key organization processes (e.g. budget development and financial & performance monitoring) which can be better woven together into an integrated system for learning. For example, during the development of the strategic business plan and budget, opportunities for improvement might be identified (plan) and executed (do). During monitoring, progress might be checked on (check) to see if the action is in progress and having the intended impact and if not, an alternative method might be put in place (adjust). The cycle would then start again and the strategy (plan) is adjusted to reflect what was learned.

Continuous improvement strategies and actions are embedded into multiple Accountability and Affordability practice areas, strategies and actions.

For example, the capital planning and delivery practice area (page 9) includes several actions to improve capital planning. Actions include streamlining the process and improving data to reduce project costs and delays and to provide multiple community benefits. Similarly, the budget and financial management practice area includes several strategies and actions (page 37) which will help improve SPU's budget management by better integrating budget development, business planning, and financial monitoring. Actions include streamlining the budget process and improving financial monitoring transparency.

Strategy 1 Actions



Action 1A. Practice and Learn Lean Problem Solving. Pilot lean problem solving within the Drainage and Wastewater (DWW) Branch.

SPU has experience using improvement methods such as lean problem solving to address single issues or programs. Many of these improvements are typically not sustained for several reasons: they rely on an individual manager's effort without the reinforcing management support, checking, and necessary coaching; efforts face many competing priorities; improvements focus on one portion of a process versus focus on root cause;

improvements are overly ambitious or don't start small and gain momentum; or staff are not ready or energized to do improvement work.

During the next two years, DWW will pilot lean problem-solving methods across the LOB. Learning from this pilot will be applied to other areas.



Action 1B. Identify and resource stalled or incomplete improvements.

Several improvement efforts have begun but some are currently stalled or not sustained due to resource, data or other constraints. SPU will give priority and focus to diagnosing, resuming, completing and learning from efforts underway. This might include efforts with water taps, stormwater inspections, and other work.



Action 1C. Plan for and sustain improvement across SPU. Integrate improvement planning and measurement into strategic and business planning.

Improvement and efficiency identification are ad hoc exercises typically performed within the budget process and in response to reduction or cost cutting targets. These budget process reductions are often not strategic and sometimes focus on cutting service or deferring maintenance which may not be sustainable or are symptoms not causes of the issue needing improvement.

During the development of the strategic business plan, SPU will develop a portfolio of potential areas for improvement focus such as areas with customer dissatisfaction (internal and external), long wait times, higher than anticipated cost, or other opportunities.

Action 1D. Systematically identify and take action on improvements across SPU.

A number of issues have been identified by work groups in several areas of SPU (e.g. poor customer experience, high cost, time delays) that will be prioritized, resourced, and acted on. SPU expects this work to reveal valuable and essential process/practice fixes and some areas where anticipated results are not sufficient to warrant investment in overhaul or other changes. Two examples of potential areas for improvement include:

- Performing effective utility system maintenance and upgrade work in the downtown core. SPU would address how best to plan and align crew work so that it is as efficient and effective as possible in a critical system area to limit failures and service calls.
- Organizing and scheduling infrastructure inspections touched by multiple city departments. SPU would identify overlap and skill crossover in those departments that could reduce duplicate work. SPU could also evaluate whether the inspection process could be streamlined to save valuable field time.

Practice Area: Customer Assistance

Focus on the affordability of SPU's services, with a special (but not sole) focus on the needs of low-income customers, and the portfolio of assistance programs and tools that can be strategically deployed to meet the needs of diverse customers.

What is this practice area about and why is it important?

The Customer Assistance Practice Area is focused on the affordability of SPU's services, with a special (but not sole) focus on the needs of low-income customers. This area targets programs and tools SPU has or could develop to more effectively meet affordability needs of our diverse customers.

Given that SPU utility rates are a financial burden for many households and that Seattle is becoming increasingly unaffordable for other reasons, the key policy question that drives the work in this practice area is: *What can SPU do to help customers struggling with affordability, without placing undue burden on all rate-payers?*

Seattle is not alone in examining and facing the challenges of utility affordability. At a national level, industry organizations such as the American Water Works Association (AWWA), the National Association of Clean Water Agencies (NACWA), and the Federal Environmental Protection Agency are engaged with utilities and other stakeholders to revamp how utility affordability is measured. Previous Federal guidance looked only at utility bills as a percent of median household income comparisons and did not take into account the ability of the poorest households to pay, nor did it account for local costs of living and growing income disparities.

While SPU is engaged in the national effort to revamp utility affordability metrics, there is no agreement on a precise way to measure whether a utility service is affordable.

The Customer Assistance Practice Area work group members came together to identify all existing or potential programs, policies, and tools that intersect with customers and have affordability implications, displayed in the "Customer Assistance Tool Kit" in Table 1:

	Financial	Informational	Technical/Operational
•	Bill adjustments	Access	Claims
•	Bill credits	Availability	Dispute Resolution
•	Bill discount programs	Classes	• Forms
	(UDP)	Contact Centers	Installation Assistance
•	Bill waivers	How To's	Program Enrollments
•	Billing cycles	Language Translations	Service Portals
•	Conservation programs	Notifications	Service Signups
•	Customer help network	Response Programs	Service Turn On/Turn Off
•	Customer support		
	donations		

Customer Assistance Toolkit (Table 1)

- Emergency assistance (EAP)
- Infrastructure insurance programs
- Loans
- Payment arrearage
 programs
- Payment plans
- Percentage of income payment plans (PIPPs)
- Rate design/structures
- Rate size
- Rebates
- Service level choices
- Severance policy
- Shut off policy
- Tiered assistance

Although the Utility Discount Program (UDP) is SPU's largest customer assistance program, both in terms of cost (\$16 million cost to SPU in 2018) and in terms of customers served (24,000 SPU customers), it is one part of a much larger tool kit that provides different kinds of assistance for different customers with different needs.

For example, the UDP provides long-term assistance in the form of a 50% discount on all bills, while the Emergency Assistance Program (EAP) provides a one-time (or two-time, if there are children in the household) 50% discount to avoid a water shut-off action. The EAP served 884 customers last year, at a cost of \$225,500 to SPU. SPU policies and practices related to how water shut-offs are managed are also important tools in the larger affordability portfolio.

ΤοοΙ	Number of Customers Impacted	Cost to SPU
Utility Discount Program (UDP)	24,000	\$16 million
Emergency Assistance Program (EAP)	884	\$225,500
Leak adjustment policies	916	\$1,330,269
Water shut-off policies and practices for UDP customers	237 UDP customers experienced a water shut-off	N/A

Select Affordability Tools: Impact and Cost for 2018 (Table 2)

Some of the other customer assistance related affordability efforts that SPU has completed in the last year or has underway include:

- Excluding Medicare Part B from the gross income eligibility requirements to help fixed-income seniors qualify for the UDP and EAP.
- Offered extended payment plans to customers experiencing financial hardship due to the partial federal government shut down that took place in late 2018.

- Improving the bill complaint/dispute process.
- Re-examining and updating customer account management and billing policies.

The Customer Assistance Practice Area work group also developed the following six principles to guide affordability efforts:

Six guiding principles:

- 1. Empower customers (and employees) by providing effective tools.
- 2. Proactively solve problems as early as possible.
- 3. Help particularly vulnerable households with long-term need.
- 4. Help people in short-term financial crisis.
- 5. Help customers avoid catastrophic bills.
- 6. Hold ourselves accountable through measurement and reporting.

SPU aims to look comprehensively across the different tools in its affordability toolbox, take a strategic approach, and make targeted improvements for better results.

STRATEGIES AND ACTIONS

Strategy 1: Align Efforts to Community Need. Prioritize and align Customer Assistance efforts and resources towards meeting the needs of the community and improving impact.

As Seattle and SPU's customer base evolve and change, so do the needs relating to affordability. Rather than guesswork or reactionary piece-meal responses, SPU proposes to develop an organization-wide approach that is data-driven, comprehensive, and strategic, to provide the best possible outcomes with the least burden on ratepayers.

Strategy 1 Actions

Action 1A. Perform rigorous affordability analysis when affordability metrics are finalized.

SPU has contracted with consultants to develop affordability measures that make sense for the utility and the local community. The federal Environmental Protection Agency is revising its measures soon as well. When these measures are ready in the next year, SPU will apply them to inform longer-term objectives to strengthen customer assistance efforts.

Action 1B. Conduct Pilot Program to Prevent Service Shut-offs for UDP Customers.

SPU proposes to conduct a water shut-off prevention pilot program to proactively identify and reach out to low income UDP customers experiencing financial distress, using new modes of communication, messaging, and assistance. The goal is to reduce the UDP shut-off rate from the approximately 1% shut-off rate today, and to gather data on who is struggling to pay their utility bill even with the UDP discount.

SPU will use this pilot data to inform longer-term programmatic changes targeting income level(s) at which an additional, more deeply discounted tier might make sense for UDP assistance, as well as how to proactively identify customers experiencing financial difficulty, do effective outreach, and provide improved assistance to all customers.



Action 1C. Explore income eligibility alignment with other City of Seattle and King County assistance programs.

To align as much as possible with other city and county benefit and assistance programs, SPU will work with Seattle City Light (SCL) to analyze alternative income eligibility requirements and what income metric and/or thresholds might make sense for alignment of the UDP.

Action 1D. Explore ways to support the affordability of side-sewer and other costly private infrastructure repair costs for homeowners.

Side-sewer and water service leak repair costs can range from \$5,000 - \$50,000 and financing can be difficult to obtain for some homeowners. An estimated 30,000 Seattle homeowners could at some point be faced with these repair costs and may not have resources to finance such an expense.

SPU will explore low or zero-interest financing options and subsidized insurance for homeowners in need, to address high-cost infrastructure repair needs, potentially through the Office of Housing's Home Repair Program.



Action 1E. Provide greater benefit to the customer in cases of unforeseen leaks.

SPU is amending internal policies with respect to billing adjustments in cases where a leak occurs, to provide greater benefit to the customer.

Strategy 2: Increase access to and participation in existing affordability programs.

While looking to comprehensively assess affordability and the effectiveness of SPU's portfolio to address those needs (Strategy 1), there is a need in the near term to increase access to those in need to the programs and resources already in place (Strategy 2).

Strategy 1 Actions



Action 2A. Identify legal and operational barriers and options for transferring SPU UDP credits at SCL to SPU to prevent a water shut-off action.

For a small subset of customers enrolled in the UDP who are renters in single-family homes, their UDP credit for SPU goes onto their Seattle City Light account because they do not have customer accounts with SPU directly. The UDP credits that accrue on the Seattle City Light account are not available to the customer for their SPU payments, even in the case of imminent water shut-off action.

SPU will work with SCL to obtain

Case Study: Access to UDP Credits

"Chris" is a disabled UDP customer renting a house near University Village. In September 2017, Chris owed SPU \$533.69 for his total SPU bill and faced the threat of water shut-off.

Although he had \$870 in UDP credit with Seattle City Light, he struggled to get this transferred to cover his SPU balance because: 1) as a tenant, the account was not in his name so he could not have the SCL credit transferred to an SPU account, and 2) he could not obtain a refund check from SCL before the scheduled shut-off.

He had already used EAP earlier in the year, and so wasn't eligible for it now. His water was shut-off on October 25, 2017.

conclusive analysis of the legal barriers and options available for addressing this issue and pursue a fix with Seattle City Light if legally possible.



Action 2B. Launch Web-based Application Form for UDP and EAP.

Customers who wish to apply to the UDP or EAP (SPU and SCL made recent improvements to allow the same application to qualify a household for both programs), the customer can obtain an application online, but cannot complete or submit the application online. It is a PDF document that must be printed and either scanned or sent as an attachment via email.

To increase access to these affordability programs, SCL and SPU are launching an online self-service portal for utility customers, which will include a web-based UDP and emergency assistance application form. This is anticipated to go live in the third quarter of 2020.



Action 2C. Targeted enrollment and cross-enrollment efforts for UDP.

The steering committee that oversees UDP administration will pursue cross-enrollment opportunities with the following means-tested programs. This action may provide enrollment increases and administrative efficiencies similar to those gained through the successful Seattle Housing Authority (SHA) cross-enrollment partnership:

- National School Lunch Program
- Women, Infants and Children (WIC)
- Medicaid
- Tribal TANF
- Supplemental Security Income (SSI)
- Bureau of Indian Affairs General Assistance

Case Study: UDP Cross-Enrollment

In 2015, SPU worked with Seattle City Light to remove a longstanding barrier in the Seattle Municipal Code that prevented customers living in facilities operated by Seattle Housing Authority from participating in the UDP. By removing that barrier and establishing cross-enrollment with SHA, the UDP enrolled 7000 new households in 2016.

The steering committee is also developing a multi-year, strategic outreach and marketing plan for the UDP to increase enrollment. The plan will be completed this summer.

In addition, SCL and SPU will conduct a UDP Self-Certification Pilot Program to boost enrollment in low-income areas of the city, as well as test the effectiveness of new marketing strategies, a new fast-track application form, and new auditing techniques.



Action 2D. Expanding Access to Emergency Assistance.

SPU will expand access to emergency assistance in three important ways, by:

- 1. increasing the income eligibility ceiling from 70% to 80% of State Median Income to help households experiencing short-term financial crisis.
- 2. proactively reaching out to UDP customers facing a potential water-shut off with information about the Emergency Assistance Program;
- 3. pursuing changes to the Seattle Municipal Code to allow application of emergency assistance up to 100% of the customer's bill (up from the 50% limit in place today); and
- 4. exploring the creation of a donation-based emergency assistance fund, akin to Seattle City Light's "Project Share."

Practice Area: Partnership Opportunities

Improve SPU's ability to partner with organizations, institutions, and companies to leverage broader benefits, reduce costs, share risks, and improve outcomes for the communities that we serve.

What is this practice area about and why is it important?

Partnerships are the network of suppliers, vendors, firms, funders, collaborators, advocates, service providers, and peer organizations that make a business model work and provide value to the customer. SPU engages in three types of partnerships:

- 1. traditional buyer and supplier relationships;
- 2. strategic alliances where organizations bring different capabilities together to deliver a product or serve a customer; and
- 3. joint ventures where organizations enter a new business to provide a different service or asset for a new customer segment.

SPU engages in hundreds of partnerships worth hundreds of millions of dollars (see examples below).

Partnership Examples Across Lines of Business

- Water treatment plant contracts
- Relationships with ethnically based community organizations to meet service goals
- Solid waste contracts
- Wholesale water sales to other utilities
- Shared customer call center with City Light
- Ship Canal project with King County
- Agreements with sewer districts for sewage treatment
- Recycling and conservation partnerships with our customers
- Relationships with business coalitions and City departments to build WMBE capacity and usage
- Co-implementation of water conservation projects at the Ballard Locks with U.S. Army Corps of Engineers
- Foundation and philanthropy relationships to amplify, align and supplement health equity, environmental justice, and climate adaptation
- Joint property purchase and land swaps with other agencies such as Seattle Parks and Recreation and the Army Corp of Engineers to conserve and protect parcels

The Utility enters into partnerships to reduce costs, share risks, and to gain a resource or the ability to engage in an activity that is outside of existing capabilities. Most SPU partnerships provide multiple benefits to SPU and to the partner organizations and communities. Often benefits are quantifiable in financial and performance output

terms such as reduced cost. Many benefits are also qualitative, such as better relationships with stakeholders or increased community organization capacity to engage.

Partnerships are a primary vehicle for centering SPU's work on the needs of the communities the utility serves and for driving innovation, building capacity in the community and leveraging a broader set of benefits than what the Utility can provide on its own.

Partnerships are also critical to delivering SPU's core services. SPU is not able to meet operational goals and regulatory requirements alone, especially in the face of growing environmental threats and affordability concerns. During the development of the "Building Partnership Opportunities" strategies and actions, SPU identified a set of principles to guide its continued work (see "Five Partnership Principles").

The following are specific highlights of SPU's partnership principles in action along with the value and variation of partnership efforts in SPU:

SPU's Five Partnership Principles:

- 1. To have a good partner, be a good partner and help create mutual purpose.
- 2. Get out of transactional mindset, move into a transformational mindset.
- 3. Balance risk with the potential for new or expanded opportunities.
- 4. Focus on long-term relationships and building trust.
- 5. Build capacity in the community and with the organization.

Leveraging supplier/provider partnerships to improve service and customer value. SPU's Solid Waste division negotiated new contracts worth approximately \$1 billion over 10 years for solid waste services. The new contracts were negotiated to cost the utility \$25 million less than what was assumed in adopted rates while continuing to deliver reliable services, positive environmental outcomes, and enhanced services. These lower than anticipated costs were carefully negotiated with the vendor to also ensure the long-term viability of the contractor and risk sharing. This example illustrates principle 1 and 5.

Engaging in a strategic alliance with a private developer for clean water. A private developer approached SPU with a proposal to voluntarily divert dirty stormwater runoff from WSDOT's Aurora bridge into a park like green space constructed by the developer in the City right-of-way to improve water quality in Lake Union. SPU entered into an agreement with the developer and the project will effectively divert and clean 160,000 gallons of stormwater per year. This agreement enabled improved water quality in the region beyond what can be done by Agencies and created a community green space asset for the future. Partnerships to add bioretention at the time of redevelopment is far less costly than if the entities did the work on their own. It also spurred SPU to develop a better internal system to establish similar partnerships in the future. This example illustrates all five principles.

Entering into a joint venture to bring more partners to the table. In 2018, SPU partnered with Mary's Place, a nonprofit organization serving families experiencing homelessness, to explore new opportunities around food rescue and improving community health. Approximately 95,000 tons of food are wasted each year locally at a cost to SPU customers to compost or landfill. At the same time, more than 250,000 King County residents are experiencing food insecurity. Working together, the Food Rescue Innovation Lab was convened, which brought together stakeholders from a range of agencies, departments, and sectors to better understand the issue, surface new opportunities for collaboration, and create buy-in for long term engagement and solutions. By engaging with a community connected and passionate partner, SPU is now partnering with many private, community, and philanthropic organizations to meet the dual objective of reducing the amount of high-quality food going into the waste stream and feeding residents in need. This example illustrates principles 1, 3, 4, and 5.

Creating strategic alliances and community trust with local non-profits. Community Connections is an SPU program which fosters long-term contracted partnerships with non-profit community-based agencies, with a goal to improve the quality of life for people of color, immigrant, and low-income communities through transformative

engagement and education on utility functions and services. The partnership explicitly focuses on overcoming a lack of trust through relationship building and is an example of using targeted approaches to reach the universal goal of engaging all SPU customers. This example illustrates all five principles.

STRATEGIES AND ACTIONS

Strategy 1: Develop an SPU culture that nurtures innovation, extending existing and developing new partnerships across all branches to expand the value and reach of SPU investments for the communities we serve.

This strategy builds on the collective experience of SPU to better leverage internal resources, grow a community of practice and organizational learning, and sustain and expand the number of partnerships. SPU's partnership efforts typically benefit individual programs or business areas, but staff expertise, data, and lessons learned from past efforts are not widely leveraged across the utility. As SPU's innovation culture continues to mature, the partnership strategy will evolve into an enterprise-wide, cross-functional approach where the Utility collaborates across the organization and with the community to improve affordable and accountable outcomes.

In addition, partnerships serve business purposes to reduce costs, spread risk, and improve service. Consistent with the accountability and affordability framework, partnerships should strive to develop and use evidence, and demonstrate results to ensure that both SPU and the communities served are benefiting from them.

SPU Employee Perspectives on the Culture of Partnership

"The opportunity to leverage what we do and what others do to create a greater collective whole is inspiring."

"We work together but we don't always view our relationships as partnerships. If you look at it as a partnership, it may create more value because you approach it differently."

Strategy 1 Actions



People come to work in the public sector with fresh ideas and energy to improve upon what's already been delivered. We are living through rapid technological advances and unprecedented connectivity, challenging us to take advantage of all there is to offer in a reasonable and affordable manner.

SPU can learn to better adapt to shifting demands and can provide innovative approaches. Creating a community of practice is one approach for strengthening and encouraging a culture of innovation within the utility by creating a sponsored forum for sharing knowledge and learning led by experts and practitioners in SPU.

Action 1B. Identify, prioritize, and remove organizational barriers to partnering.

Partnerships can create value but sometimes City and SPU processes are barriers to moving forward. For example, our contracting processes are not nimble and designed for transactional partnerships (supplier/provider) and less focused on strategic alliances or joint ventures which can provide broad benefits to the community. This can result in lost time and missed opportunities to build trust and better serve our

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customers and community, and help meet utility goals while sharing the costs, risks, and rewards of sustaining a healthy environment.

Action 1C. Focus partnerships on demonstrating qualitative and/or quantitative impacts and provide routine opportunity to capture and communicate their stories, value and outcomes.

SPU's work requires an ability to engage and inform officials and the public about how rate payer dollars are spent, the benefits, and what was achieved. For SPU, there exists commonplace reporting on the performance of utility assets and achievement of broad utility goals. The stories of success reached through partnerships is often under-reported and may be lacking metrics in similar fashion to how performance is measured in other areas of the utility.



Action 1D. Build partnership capacity in the communities SPU serves and identify and expand opportunities for partnerships with private and community organizations to improve health and environmental outcomes.

SPU would like to build a reputation as "open for innovation" by the broader community, with clear private sector and community organization partnership opportunities. While SPU has organizational experience and capability in building partnerships, it does not have an enterprise-wide approach to marketing the potential for broader partnerships. SPU will build from successful experience through efforts such as WMBE, Green Stormwater Infrastructure and other the examples illustrated in this document to build an outreach and marketing plan based on strategic priorities and targeted outcomes.

For example, planning is currently underway to expand and build partnerships for Green Stormwater through colocation opportunities with other City Departments and potential community based organizations or developer partnerships to encourage greater private investment in water quality and other community goals.

Practice Area: Regulatory Alignment

Reduce the cost and risk of meeting regulatory demands while ensuring public health and safety, environmental protection, a vibrant local economy and social equity outcomes. Focusing on regulation in this way is expected to improve affordability for our customers by eliminating unnecessary process, selecting viable lower cost alternatives for the same or greater benefit, and moving from prescriptive requirements to performance-based approaches.

What is this practice area about and why is it important?

Seattle Public Utilities is both *regulated* by other governmental agencies and is a *regulator* of local governments, companies and individuals. Regulation of water, wastewater, drainage, and solid waste is essential to SPU's core mission of protecting public health and the natural environment. At the same time, regulatory activities must be done through an equity lens to protect the communities served while being careful to minimize negative economic impact that regulations might have.

SPU has a long record of regulatory compliance as well as innovative practices influencing regulation for more locally, sustainable health and environmental outcomes and reduced costs. Far from avoiding regulation, SPU has advocated for practices that move upstream to protect and restore ecosystem functions and proactively reduce regulatory response through voluntary compliance across many areas including increasing recycling rates, conserving water, and natural systems approaches to stormwater runoff in neighborhoods.

This regulatory alignment strategy builds on the experience and practices within SPU to better leverage resources, institutionalize enterprise learning, and improve the use of evidence to influence regulation and improve outcomes. By emphasizing a more adaptive approach, this strategy also better prepares SPU for the future impacts of climate change which will require greater regulatory flexibility to respond to a shifting and increasingly uncertain future. During the development of the Accountability and Affordability strategy, SPU identified a set of principles to guide continued work (see "Seven Regulatory Principles").

SPU's Seven Regulatory Principles:

- 1. Be Adaptive and shift from "regulate and forget" to a responsive, data driven, iterative approach.
- 2. Pilot and test new approaches on limited scale and learn from them
- 3. Move upstream and influence the issue early
- 4. Constantly reassess for the intended impact
- 5. Focus on outcomes over process
- 6. Engage allies to improve outcomes
- 7. Prioritize and focus on a few key areas

Laws and regulations impact SPU's lines of business to different degrees. For example, the federal Clean Water Act primarily impacts the Drainage and Wastewater line of business (LOB) but to a lesser degree the Water LOB and Solid Waste LOB. Some laws and regulations impact only one LOB, such as the state Water Code regarding water rights. Others impact all SPU lines of business, such as the federal Fair Labor Standards Act. Attachment B provides examples of laws and regulations that impact SPU.

SPU's regulatory costs are significant and are ultimately paid for by customers. For example, SPU's 2018-2023 Capital Improvement Program (CIP) is \$1.5 billion and \$0.7 billion (45%) is dedicated to regulatory compliance projects such as the Ship Canal Water Quality project. SPU's regulatory strategy seeks to improve outcomes in ways that also improve affordability and accountability for the customer.

STRATEGIES AND ACTIONS

Strategy 1: Align to Community Need and Impact. Prioritize and align SPU regulatory resources towards meeting the needs of the community, improving impact and "least cost" regulatory action.

As SPU continues to mature, its regulatory strategy will evolve into an enterprise wide, cross functional approach with collaboration across SPU, other City departments, jurisdictions, and regulators to improve outcomes for the community. Instead of just responding to emergent opportunities, SPU will work to develop an organization-wide approach that is coordinated and proactive, and intentional about providing the best possible outcomes with the least burden on ratepayers.

Strategy 1 Actions

Action 1A. Develop a unified federal and state legislative agenda that focuses efforts on proactively improving the environment, public health, social equity, and the local economy.

Historically, SPU has used an ad hoc approach to state and federal legislative agendas, focusing on issues that arise out of LOB-identified legislative priorities or are responsive to external factors. This has sometimes resulted in focusing on issues that may not have the highest priority need for SPU, nor have they been fully grounded in improving the environment, public health, social equity and the local economy ('the four community outcomes"). Finally, it also means we miss proactive opportunities to make big operational improvements.

SPU will develop an agenda that focuses on legislation and existing regulation. It is essential to be proactive in supporting lawmakers and regulators in making decisions informed by good risk- and cost-data and a sound business case. This includes regulatory solutions that are more holistic and connected as opposed to siloed in approach.

The opportunity to improve regulation may arise anywhere in the regulatory lifecycle shown below, from the development of the original legislation to the measurement and assessment stage.



The objective for creating a common legislative agenda is seek out cross-LOB and enterprise-wide opportunities that have the greatest impact on SPU's costs and multiple benefits to the community. For example, laws and regulations that affect water quantity and quality have implications for all lines of business and can benefit the environment, public health and safety. Similarly, laws and regulations for public works contracting also impact the enterprise overall while helping the local economy and social equity. In some instances, the scope of proposed legislation can be expanded to create multiple benefits. By being strategic about its legislative priorities, SPU can focus its resources on proposals that would best serve the community.

Action 1B. Develop a utility agenda for external engagement and influence that benefits the entire enterprise.

SPU successfully responds to emergent opportunities to work with regulators, industries and the community to improve regulation. SPU is involved with national and local organizations that advocate for changes to regulations, such as the American Water Works Association, National Association of Clean Water Agencies, and the Solid Waste Association of North America.

However, these successes are often reactive rather than proactive, which limits the spread of ideas to individuals working on that problem. Other people in SPU, along with regulatory agencies and partner organizations, do not benefit from the improvement and learning. This can be a missed opportunity, because concerns in one LOB are often shared across other LOBs with potential multiple benefits for the community.

For example, PCB toxins are industrial chemicals which can show up in the solid waste stream, and then from there to wastewater and surface water. Although those are different LOBs, by coordinating people and resources systematically, SPU can jointly identify the problem and put resources where they will be most effective: eliminating PCBs from solid waste before they lead to harder and more costly work of removing them from streams and waterways.

Addressing waste and contamination at the source.

SPU's Solid Waste Division collaborates extensively with partners to extend manufacturer's responsibility for disposal of their products. This work has resulted in legislation and actions over the past 20 years that have diverted hundreds of thousands of tons of materials from the landfill. By working in partnership with the Northwest Product Stewardship Council, hazardous chemicals found in electronics, light bulbs, and pharmaceuticals have been repurposed for a second life or disposed of in ways that won't harm the environment.

Action 1C. Develop risk and cost reduction measures for select areas of regulatory influence.

While SPU works to affect and better manage regulation, we often do not have a baseline for measuring the effectiveness of those activities or for reducing or avoiding costs and impacting the intended outcome. Having credible baseline information as well as information demonstrating the impacts of emerging issues such as climate change increases the probability that we can advocate for more adaptive and effective interventions with regulators. In addition, targeted risk and cost reductions are not typically formally considered when assessing the potential benefits of changing or influencing regulations.

SPU has some success in influencing regulation when we provide regulators analysis of the efficacy of the regulation and, in some cases, modifications of process that can make the regulation more effective.

An example of this is SPU's handling of the Stormwater NPDES Permit (see Case Study: Reducing the administrative burden of managing the stormwater permit).

Strategy 2: Move from Prescriptive to Performance. Move from prescriptive to performance-based regulations to reduce or avoid costs, share or reduce risk, and/or enhance community outcomes.

The landscape of regulation is large and complex, and because important community outcomes such as public health and safety, environmental protection, economic vitality, and social justice are at stake, it is important to be

Reducing the administrative burden of managing the stormwater permit.

SPU gives the National Pollutant Discharge Elimination System (NPDES) permit to people with private stormwater drains. As part of the permit, SPU does a manual inspection every year. Based on actual inspection and maintenance data, SPU has been able to demonstrate that the permit requirement of inspecting privately owned stormwater facilities every year is unnecessarily prescriptive and does not result in increased maintenance or environmental benefit, but instead uses inspector resources that could be used for greater benefit in other programs.

thoughtful and purposeful about this work. By changing both our mindset and our internal approaches, we can more easily identify and advocate for regulations that provide a better value with improved outcomes to residents.

Strategy 2 Actions

Action 2A. Seek to build performance based regulatory practices that adjust to meet the intended outcome into the combined sewer overflow (CSO) consent decree.

In July 2013, Seattle entered into a Consent Decree with the Environmental Protection Agency, Department of Justice, and the Washington State Department of Ecology to reduce sewer overflows (SSOs) and combined sewer overflows (CSOs). The cost of addressing the consent decree was estimated at \$600M in 2013. In the last five years, the capital costs of meeting Consent Decree requirements have increased significantly due to changing rainfall patterns, increasing costs of capital projects and overall growth in the City market conditions. However, the existing prescriptive requirements for CSOs limit how SPU can respond to these changes in an effective, cost-effective manner. Shifting to a more adaptive approach for CSOs through a Consent Decree modification would direct future capital investment towards the greatest public health and environmental outcomes, while providing the flexibility needed to partner with King County on more cost-effective projects and manage climate and affordability challenges.

Action 2B. Take action on promising areas where SPU is regulated or the regulator that might be influenced to move from a prescriptive to a performance-based approach.

Sometimes a prescriptive process or alternative is expensive and not as effective as enforcing performance standards. In other cases, the prescriptive measure might be more appropriate.

Prescriptive approaches to regulation describe how or what must be done such as "take water samples" or "report quarterly" but may not measure the intended impact or outcome or may have little evidence that they
impact the outcome they are trying to achieve such as no toxins in streams. Compliance has a cost but may not have an offsetting benefit. In contrast, a performance-based approach starts with the desired outcome and measures either the outcome (e.g. healthy salmon habitats) or conditions related to the outcomes (e.g. increasing salmon populations). Opportunities exist to shift more regulations to a performance-based approach.

The table below contrasts the difference between prescriptive approaches compared to regulation that uses a performance-based approach.

Cost effective ways to ensure "mountain fresh" drinking water.

SPU's water division worked creatively with the Environmental Protection Agency, local environmental organizations, and local tribes to keep drinking water safe, avoid unnecessary costs, and protect the environment. By focusing on data and intended impact, SPU developed an acceptable alternative to the EPA's prescribed approach to filter drinking water. This option helped avoid building a costly large capital facility and instead put resources into protecting natural areas.

Prescriptive vs. Performance-based Approaches to Regulation					
Prescriptive	Performance				
Prescriptive-based regulation	Impact-based regulation				
• Mandated technology, equipment, action/tasks	Set results-oriented goals				
 Specified behaviors or methods to comply 	Establish objectives or standards				
Demand specific solutions be implemented	 Encourage flexibility and innovation 				
Focus on inputs and activity	 Focus on outputs and outcomes 				

SPU will be looking at all regulation through this lens: both its own proposed regulation of otherss and those proposed that would apply to SPU. An important part of this process is ensuring there is good data to inform these choices.

Action 2C. Collaborate with other city and local agencies to develop a list of regulations where there are potential efficiencies.

SPU directly regulates in a variety of areas, sometimes in concert with other City departments. Some of these regulations and processes have never been reviewed for process or outcome effectiveness and efficiency. In addition, layering separate regulations creates unnecessary complexity for City departments and parties that need to comply.

In recent years, SPU and other City and partner agencies have worked for better coordination but these early efforts might benefit from clearer understanding of the outcome-based needs for each entity and then a more focused effort on improving affordability and outcome.

For example, when a developer is building a new building, a permit and installation is required to access utility services from utility mainlines to the building. Permitting activity is done in conjunction with Seattle Department of Construction and Inspection (SDCI) and Seattle Department of Transportation (SDOT) and consists of permitting and installation of utility service lines and SDOT permits to work in the right of way and patch the pavement. This process takes many months and involves multiple inspections. While some amount of time is necessary for

permitting, the total permitting time can be reduced which would benefit developers without impacting utility integrity and the street.

More coordination within SPU and with other partners, especially City departments, will help add value to projects, reduce duplication of effort or at cross purposes, while improving outcomes and avoiding unnecessary costs.

Modify Midway Landfill Consent Decree. This modification would allow waste removal for I-5 expansion and Sound Transit south Link and allow development of the site as a Sound Transit maintenance facility.

The freeway expansion is to meet obligations under a Franchise Permit and the development of the site for rail and potential maintenance facility is a great opportunity for the region and may save SPU, WSDOT and Sound Transit significant capital cost.

Develop policy updates for Stormwater Code. These modifications would allow for public private partnerships to treat stormwater from City Right of Way on private property and vice versa.

Current policy and code restrict this type of arrangement, leading to inefficiencies and lost opportunities to leverage multiple funding sources to meet regulatory requirements and provide facilities that meet a community centered approach.

Practice Area: Budgeting and Financial Management

Streamline and integrate budget and financial planning practices and align investments with the long-range strategic goals of SPU and the community.

What is this practice area about and why is it important?

Seattle Public Utilities is financially and operationally complex, spending over \$1 billion annually to deliver drinking water, sewage transport, stormwater conveyance and treatment and garbage and recycling services across Seattle and parts of the region. The size and complexity of the organization requires strong financial management to maintain the lowest cost of service while providing value to customers.

SPU's six-year rate path, adopted in the 2018-2023 Strategic Business Plan, forecasts continually increasing rates for our customers. The rate path is expected to grow higher than the rate of inflation during the Plan's six-year window, putting pressure on customers' ability to pay for critical services. This trend mimics a trend over the past 30 years where SPU rates have an average growth at double the rate of inflation. Increases in costs are driven by a variety of factors including aging infrastructure, growing complexity in the regulatory environment, and increases in service demand. The current rate path trajectory and affordability challenges in the local economy create an opportunity to examine financial practices throughout the organization to ensure SPU is maximizing opportunities to lower costs to customers.

Through this effort, SPU engaged practitioners from across the utility to better understand how the utility might better:

- balance short and long-term financial health,
- prioritize and make financial decisions,
- control costs and manage risks, and
- align the budget with strategic objectives.

What is the current state of financial management and budgeting in SPU?

SPU is financially healthy. SPU's current and projected financial health across the Water, Drainage and Wastewater and Solid Waste funds is evidenced by high bond ratings across all funds. SPU has a history of maintaining high bond ratings that allow SPU access to lower the cost of capital project financing which, in turn, lowers long-term costs for rate payers. Additionally, SPU is on the higher end of bond ratings compared to cities with similar systems. *Attachment A* includes a comparison of SPU's bond ratings with similar systems.

There are also several opportunities to enhance the efficiency and effectiveness of financial management within SPU including:

SPU's financial policies need revision to align with current risks and needs. SPU's financial policies, adopted by Council, guide rate setting, financial decision making, and are designed to ensure the long-term and short-term health of each utility fund. Financial policies are also metrics that bond rating agencies use to compare SPU to peer agencies and validate that the Utility is consistently achieving the required reserve levels. Over the past few

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years, rating agency criteria and the financial needs of the organization have changed; however, all three funds' financial policies have not undergone a formal review since 2012.

Streamlining and realigning the budget process. SPU's budget development, rate setting, and long-term strategic planning has become much more complex and time consuming over the past five years and not always providing the intended value.

- SPU is spending a great deal of time and resources in the various expenditure updates needed to create an annual budget, rate studies and the Strategic Business Plan updates. The drivers of the various efforts are not well understood across and between levels of leadership.
- Short and long-term risks at the fund level are sometimes not well understood or transparent to managers.
- SPU's approach to prioritization and efficiencies is not consistently applied across the enterprise or only in response to external requests for budget reductions.

Financial monitoring is challenging and not well understood across the organization. SPU has struggled over the past year to conduct financial monitoring consistently, simply, and in a timely manner due, in part, to implementation of the new PeopleSoft system. In addition, spending is consistently under budget, sometimes significantly.

- Financial information has become more complex with the new PeopleSoft implementation.
- Monthly monitoring needs to be simplified for greater understanding as well as potentially enhanced by adding or removing information.
- The tools and process for financial monitoring are not consistently available across the utility.
- Quarterly fund reporting is currently at the Executive leadership level, but not broader leadership levels. In addition, the reporting and monitoring is missing important information on fund risks and emerging issues.

STRATEGIES AND ACTIONS

Over the next five years, SPU will streamline and integrate budget planning, monitoring, and financial policies by focusing on:

- Reassessing and modernizing SPU financial policies and reserves;
- Streamlining and aligning the budget process; and
- Improving accountability through enhanced financial monitoring.

Strategy 1: Review SPU financial policies; provide options focused on risk, affordability, and investment.

Strategy 1 Actions



Action 1A. Perform a comprehensive update of SPU's financial policies.

SPU's financial management policies were last reviewed in 2012. Over the past seven years a variety of issues have been identified that are not explicitly considered in these policies including managing rate and reserve levels for economic downturns or during significant natural disasters such as earthquakes. In addition, rating agencies have adjusted criteria that are explicitly considered in SPU's bond ratings, but the utility's adopted financial policies may not reflect the changes. These changes, coupled with an interest in managing risk at an enterprise level and a focus on creating long-term affordability, provide an opportunity for SPU to assess current financial policies with long-term planning, policy objectives, and rating agency criteria. This analysis will include a review of reserve classifications, categories, and cash balances compared to industry standards and best practices.

Action 1B. Assess and make recommendations on reserves/emergency reserves.

Based on Action A, SPU will conduct a financial and alternative analysis for implementing financial policy and reserve changes. This alternative analysis will assess the financial impact of implementing changes on rate payers in both the short and long-term.

Strategy 2: Revamp the SPU budget process to be driven by strategy, priority, and customer needs.

Strategy 2 Actions

Action 2A. Advocate with the City Budget Office to pilot biennial budgeting with Seattle Public Utilities.

The City's biennial budget process remains largely an annual exercise. The annual budget process is very resource intense and does not currently allow for enough time for strategic prioritization and planning. Moving to a biennial process can allow for improvements that enhance accountability, efficiency and create space for deeper long-term planning, analysis, and prioritization in the off years.

Whether SPU formally moves to a biennial budget process or not, there are actionable opportunities to reduce time spent on the technical aspects of budget production including reducing the frequency of spending plan updates or limiting updates to only large projects or areas of major change. SPU also has the flexibility to internally design the process of mid-biennial updates where changes to the budget are severely limited and done on an exception basis. Changes in process should be done in tandem with improvements to financial monitoring which are expected to increase accountability and accuracy of projections. As a part of this action, SPU will reassess the process and timing of the three-year cycle of providing rate study updates.



Action 2B. Pilot the development of a flexible rate model that integrates affordability criteria into rate development.

The Drainage and Wastewater division (DWW) is developing a flexible rate model incorporating new methods for assessing affordability for both the utility and customers. The tool and methods are expected to help SPU quickly

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assess alternative long-term rate and investment scenarios. The model will provide a 30-year rate projection incorporating SPU financial policies, sensitivity analysis, and multiple program and capital funding scenarios. Organizational learning from the pilot will be incorporated into rate models for the Water and Solid Waste rate models.

Action 2C. Develop a standard integrated enterprise approach to prioritization, improvements and efficiencies. SPU will develop explicit guidance for efficiencies and improvements and incorporate that guidance into the strategic business planning and budget development process. This action is intended to move SPU away from a reactionary budget cutting approach to a more long-term systemic and measured approach aligned with recommendations on continuous improvement in the Efficiencies and Improvement practice area.

Strategy 3: Enhance financial and performance monitoring to better inform budgeting and financial planning.

Strategy 3 Actions



Action 3A. Pilot quarterly enhanced financial monitoring to increase transparency, integrate risk, and improve financial planning.

Opportunities exist to incorporate risk, alternative analysis around topical issues, more accessible financial data and deeper understanding of spending and projections across the enterprise. Conceptually, frequent, active monitoring, integrated with clear accountability for control and action can help narrow variance in financial performance and increase affordability. There are additional opportunities to improve both accountability and the efficiency of the process including potentially moving to a rolling 24-month projection standard.



Action 3B. Provide core/simple financial information on capital and operations and maintenance more frequently and broadly, making the data useful, accessible and actionable for managers.

Over the past year, the instability of the City's financial system has exacerbated reporting issues. Financial data is more complex, including several overheads, paid time off, allocated costs and interdepartmental billing. This complexity has become a challenge in providing useful and timely reporting to budget managers. There is a need to report complex calculations in a meaningful and timely manner and allow for more self-service reporting. Additional opportunities exist to include new report formats that work for both Budget and Department clients, including a set of expectations on timing, review, and actions.

Action 3C. Pilot the use of organizational capacity analysis and staffing forecast tools.

Capacity analysis, which includes forecasting demand and analyzing whether an organization has sufficient resources to meet the demand under different scenarios, is not widely used in SPU. This type of analysis can allow an organization to identify resource gaps or excesses, explore alternatives, and identify opportunities for either using excess capacity or filling projected gaps in capacity. SPU has some capability and tools for doing this work in some areas but the current work on capacity analysis and active use of staffing forecast tools focuses on the short-term monthly or annual planning. This pilot will focus on the development of both tools and skills to enhance long-term planning and manage operational risks.

Attachment A: SPU's Bond Ratings and Comparisons

Tool	Standard and Poor's	Moody's
Prime maximum safety	AAA	Ааа
High grade high quality	AA+ Water, Drainage & Wastewater and Solid Waste	Aa1 Water and Drainage & Wastewater
	AA	Aa2
	AA-	Aa3 Solid Waste
Upper medium grade	A+	A1
	А	A2
	A-	A3
Lower medium grade	BBB+	Bbb1
	BBB	Bbb2
	BBB-	Bbb3
Non-investment grade	BB+	Bb1

SPU Bond Ratings

Water & Sewer/Stormwater Bond Ratings (% in each category by Jurisdiction)



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Attachment B: Examples of Laws and Regulations Affecting SPU

Primary Goal of Law/Regulation

-Protect Human Health and Safety

-Protect or Enhance Environmental Quality

-Ensure Social Equity

-Support Local Econom	y			
Level	Law/Regulation	Water LOB	DWW LOB	Solid Waste LOB
Federal	Safe Drinking Water Act	•	0	0
	National Environmental Policy Act	•	•	•
	Clean Water Act	0	•	0
	Clean Air Act	0	0	•
	Endangered Species Act	•	•	
	Resource Conservation and Recovery Act	0	0	•
	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund)		•	•
	Federal Water Power Act (FERC)	•		
	Homeland Security Act	•	•	•
	Flood Disaster Protection Act	•	•	
	Fair Labor Standards Act	•	•	•
	Americans with Disabilities Act (ADA)	•	•	•
	The Occupational Safety and Health Act (OSHA)	•	•	•
	NPDES General Permits	0	•	0
	State Environmental Policy Act	•	•	•
	Water Code	•		
Stata	State Accountancy Act	•	•	•
State	Business and Occupation Tax	•	•	•
	Group A Public Water Supplies (WAC 246-290)	•		
	The Washington Industrial Safety and Health Act (WISHA)	•	•	•
	Procurement of consultant services (SMC 20.50)	•	•	•
	Business Tax—Utilities (SMC 5.48)	•	•	•
Local (City/County)	*Cross-connections (SMC 21.04.070)	•	0	
	*Solid Waste Handling (SMC 21.44)			•
	*Stormwater Code	0	•	0

*SPU is the regulator

SPU's RISK AND RESILIENCY ASSESSMENT AND FRAMEWORK

2019 Final Report





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Section 1: Introduction

Organizations today are faced with multiple risks and uncertainties as they work to fulfill their missions. Being resilient offers a powerful way of addressing risks comprehensively, managing uncertainty, and taking advantage of new opportunities. For Seattle Public Utilities (SPU), resiliency is the capacity to recover in the face of sudden or gradual stressors that impact utility services and the community.

SPU delivers essential water, drainage and wastewater, and solid waste services – all fundamental for public and environmental health. Seattle has been a leader in making utility investments that have multiple, long-term community benefits. After the Great Seattle Fire of 1889, the citizens of Seattle voted to create a public water system and develop the Cedar River water supply system. Seattle's water, drainage, wastewater, and solid waste utilities have faced many challenges over the years and have evolved to improve services and reduce pollution impacts. As a community-centered utility, SPU seeks to proactively address community needs and risks to improve resiliency.

In 2017, Seattle City Council requested that SPU "prepare a risk and resiliency management assessment." SPU delivered the status report to Council on August 1, 2018. This final report details risks to SPU and provides examples of ongoing efforts to be resilient, equitable, and affordable. Sections 2-8 provide descriptions of various risks and SPU's progress in addressing those risks. Section 9 describes SPU's next steps to advance this work throughout the utility to best serve the community.

SPU faces a variety of challenges: a changing climate, the threat of natural disaster, technological advances, inequity, economic variability, competition, and an aging workforce. In order to be resilient, SPU needs to look to the future and be positioned to adapt to risks and opportunities as they arise. SPU has developed a comprehensive risk and resiliency



School visit to the watershed

framework that includes the broad areas of operational and strategic risks. This framework helps SPU to assess vulnerabilities, identify new risks, and develop strategies and solutions that support utility and community resiliency. SPU's goal is to optimize utility investments that address multiple risks at the same time.

In accordance with the City of Seattle's Race and Social Justice Initiative, risk and resiliency strategies will strive to address systemic and institutional racism and will direct attention to disadvantaged communities. SPU recently conducted a series of Racial Equity Toolkit meetings with subject matter experts from across the utility. These meetings helped SPU to identify and develop responses to the disparate impacts these risks can have on vulnerable communities. The aim of this ongoing work is to embed the equity lens within the risk and resiliency framework and utility plans.

Planning Integration

SPU is working directly with lines of business to connect this work to their policies, programs, projects, comprehensive and capital plans, and daily operations. The risk and resiliency framework is being incorporated into the Solid Waste Comprehensive Plan amendment and the Drainage & Wastewater Integrated System Plan. SPU's Strategic Business Plan will also incorporate risk and resiliency as one of the main priorities for the utility.

SPU is working with a variety of federal and state agencies, community partners, and tribes, and has shared this work with the Community Advisory Committee and the Customer Review Panel. The risk and resiliency framework integrates with other efforts such as the City of Seattle's Resilience Strategy and the All-Hazards Mitigation Plan as well as King County's Wastewater Treatment Division's Resiliency and Recovery Program. SPU is also working with the Environmental Protection Agency on the best way to develop resilient stormwater infrastructure in response to regulations. As the diagram below shows, partnerships are critical to fostering resilient utility services that support the whole community.



Goal Statement

The risk and resiliency goal statement serves to guide how SPU applies its risk and resiliency framework to policies, programs, plans, projects, and operations.

• To make "no-regrets" investments in infrastructure, operations, and people that improve SPU's ability to provide critical utility services in the face of future disruptions, changes, and opportunities.

Risk Focus Areas

The table below shows the seven strategic risk areas SPU has identified. Sections 2-8 address these focus areas and provide a description of the risks as well as SPU's accomplishments in addressing these risks.

Climate Change	Disasters	Investment Priorities	Economy	Market Forces	Technology	Workforce
Drought	Earthquake	Regulatory- driven	Affordability	Ability to site facilities	Emerging and changing systems	Institutional knowledge loss
Extreme downpours	Terrorism	Projects and programs initiated by others	Population growth	Availability of raw materials	Independent systems	Skill availability and development
Sea level rise	Cyberattack	Aging, substandard infrastructure and facilities	Loss of customers and revenues	Recycling markets and revenues	New treatment techniques	Retention and turnover
Wildfires	Dam failure		Cost of debt			Marketplace competition
Air quality degradation	Volcanic eruption					
Temperature rise	Flooding					
	High winds					

Planning Process

SPU has developed a risk and resiliency planning process that brings together the assessment and management of both operational and strategic risks. SPU has had an operational risk framework since 2004. Programs, such as safety, security, and claims, are examples of ways that SPU manages operational risks. SPU also has been assessing and managing long-term, strategic risks, such as climate change and disasters. The following diagram shows SPU's planning process to comprehensively manage risk.



Brief Description for the Risk and Resiliency Planning Process:

- 1. *Risk Identification* Identify risks within SPU and the industry.
- 2. *Future Casting and Data Analysis* Develop and manage data, models, and scenarios that will assist in planning for a variety of possible futures.
- 3. *Risk Ranking and Prioritization* Rank risks according to established measures and determine how this informs the prioritization of various bodies of work.
- 4. *Options Analysis* Identify risk reduction options and assess cost-benefit, affordability, and impacts to vulnerable communities.
- 5. *Strategic Planning* Determine how best to carry out and integrate selected options by exploring partnering, phasing, and additional planning.
- 6. *Implementation* Plan how to initiate projects and programs, making sure they are incorporated into ongoing efforts.
- 7. *Monitoring* Track the change in risk status and the effectiveness of strategies and controls.
- 8. Adaptation Make changes as needed by returning to relevant steps in the planning process.

Section 2: Climate Change

Global warming puts more energy into the earth's atmosphere, which results in rising temperatures, changing weather patterns, more powerful storms, and melting ice caps and glaciers. The water cycle is particularly impacted. In the past, infrastructure engineers could assume, for the most part, that the future would conform to historical trends; now there is increasing uncertainty. Puget Sound climate patterns are changing and are expected to continue to do so in the coming decades. Climate change is impacting infrastructure systems, staff, and the communities SPU serves. SPU is a leader in assessing and working to adapt to a changing climate.



Drought

Description: SPU's water supply system historically relies on snowpack as a means of additional storage to meet demands during dry summer months. Snowmelt is more predictable than spring rains and releases water more slowly and over a longer period into the summer. Declining snowpack, rising temperatures, and more intense precipitation will result in an increase in the number and length of droughts.

Impacts: SPU's two water supply reservoirs, located in the mountains, are vulnerable to drought conditions. Drought years that produce little to no snow stress the system's capacity to provide sufficient water for people and fish.

- Climate Change Assessments: SPU has completed three climate change assessments that focus on
 potential impacts to water supply availability, reliability, and streamflow. The 2002 assessment focused
 on reductions in snowpack and water supply. The 2007 assessment emphasized scenario planning and
 included some adaptation options. In 2015, the assessment shifted toward system vulnerabilities under
 multiple future scenarios. The assessments help SPU identify triggers for when to pursue more expensive
 adaptation options for water supply.
- Water Demand Forecasting: Uncertainty analysis is incorporated into SPU's long-term water demand forecast. This forecast is used to help make important long-term policy and investment decisions dependent on the future demand for water. Computer modeling factors in uncertainties around modal inputs and assumptions such as demographic growth, future water rates, conservation programs, and efficiency standards.

- *Morse Lake Pump Plant:* In 2015, SPU installed a new floating pump station and refurbished an existing pump plant for backup use on Chester Morse Lake, the largest of SPU's two water supply reservoirs. These pumps allow SPU to access high quality water when the lake level is low. This project improves SPU's resiliency during droughts while maintaining instream flows for aquatic habitat.
- *Water Shortage Contingency Plan:* This plan provides guidelines to manage water supply and demand in the event of water shortage, such as a drought or system failure. SPU has activated this plan six times in response to droughts over the last 20 years.
- *Climate Change Project Analysis:* SPU assesses potential climate change impacts for all proposed capital projects. An integral part of the economic analysis is considering how the project options might be affected by climate change in the form of altered precipitation patterns, warmer temperatures, reduced snowpack, and sea level rise. The analysis also considers the carbon footprint of these options.

Extreme downpours

Description: The city of Seattle is experiencing an increase in extreme rain events. Due to climate change, storms that were predicted to occur once a century now occur every 25 years.

Impacts: Extreme rain events pose capacity and water quality challenges for the drainage and wastewater system. With more inflow during peak rain events, the City's ability to remain in compliance with federal regulations for combined sewer overflows (CSOs) will grow more challenging. Extreme rain events can also increase sewer backups, localized urban flooding, and landslides, which have greater impacts on vulnerable communities (see 'Flooding' in the Disaster Section). In addition, extreme downpours can elevate turbidity in SPU's water supply systems, creating challenges for water treatment in the Cedar system.

- Drainage & Wastewater Integrated System Plan: This plan provides an overall system analysis that includes climate change, growth impacts, flooding, water quality, and asset age and criticality, as well as equity and environmental assessments. The plan is being developed through engagement with the community, City departments, and partner agencies and organizations.
- Drainage & Wastewater Models: These models investigate anticipated climate change impacts on the stormwater system. There is an already-evident trend of more intense rain events and flooding. Results of this work will be considered in selecting and prioritizing projects and programs in the forthcoming Integrated System Plan. The possible long-term impacts of increased intensity and volume of rainfall on CSOs are an important part of this work given federal and state regulations.
- CSO Sizing Approach Implementation Guidance 2017: This guidance provides sizing parameters for CSO infrastructure based on anticipated climate change impacts. Recently planned CSO projects have been upsized to deal with known changes in rainfall and additional projected changes in order to avoid overtaxing the system in future decades. This approach is based on comprehensive modeling and the best available science with the intent of balancing costs and system longevity.

- Green Stormwater Infrastructure (GSI) Expansion Initiative: GSI uses nature-based processes to lower the impact of polluted runoff on the environment and reduce flooding while maximizing community benefits. GSI increases the resiliency of the drainage and wastewater system in the face of climate change and urban growth by providing system capacity, redundancy, and emergency water supply. This initiative will accelerate the use of GSI through partnerships, innovation, and removal of barriers to implementation.
- Duwamish Valley Infrastructure Investment: SPU is making significant investments in South Park's Lower Industrial Area to address drainage, flooding, and stormwater quality. SPU is also partnering with the City of Seattle's Duwamish Valley Program and the South Park community to ensure these investments align with community priorities. The Center for Community Investment has given SPU a grant to work with City departments, outside partners, and the community to leverage these investments while building community capacity.

Sea level rise

Description: Seattle's Puget Sound shoreline has already risen more than six inches in the past century. By 2100, sea level rise (SLR) is projected to increase by another two to four feet. Water levels associated with storm surges and king tides that now occur annually will eventually become monthly, even daily events.

Impacts: SLR affects the extent and frequency of coastal flooding, particularly in areas such as the Duwamish, Interbay, and Alki. Impacts to these areas also include saltwater intrusion, corrosion, and loss of near-shore habitat and use. When high tides coincide with extreme rainfall, portions of the drainage system are briefly not able to discharge properly and back up, potentially flooding nearby areas.

- Sea Level Rise (SLR) Maps: SPU has been mapping SLR for the last ten years to develop high resolution maps. SLR has been incorporated into the City's Stormwater Manual. The Drainage & Wastewater Line of Business developed and now applies their Sea Level Rise Guidance specifications to all new projects. All new infrastructure projects must be able to accommodate expected SLR within the project lifespan. As an example, the forthcoming South Park Pump Station will be raised by at least two feet to accommodate higher water levels.
- Duwamish Valley Climate Change Adaptation Strategy: SPU is partnering with the United States Army Corps of Engineers (USACE) on a sea level rise adaptation strategy in the Duwamish Valley. A 2017 USACE study found benefits to investing in infrastructure to protect the South Park industrial area. This study is the first step in joint work by the USACE and the City to fund and construct sea level rise infrastructure projects in this area. The next steps will include a detailed feasibility study and broader engagement with City departments and affected businesses.



Wildfire

Description: With a warming climate, the fire seasons are getting longer and there are more fires. Warmer temperatures and droughts increase the flammability of forest fuels and thereby increase fire intensity. Even the forests on the west side of the Cascade Mountains are now starting to be impacted. As a result, wildfire risk could be increasing in Seattle's two forested mountain watersheds. These watersheds provide Seattle's drinking water supply and serve as protected nature reserves.

Impacts: Wildfires in the watersheds could impact water quality and supply as well as habitat.

Progress:

- *Watershed Management:* SPU manages a closed watershed (no public access) and controls activities in the watershed during periods of high fire danger. SPU has a wildfire protection crew, equipment to respond to forest fires, and mutual-aid agreements with other agencies.
- *Watershed Wildfire Modeling:* SPU is working with partners including the City of Portland Water Bureau, Washington State University, University of Idaho, and the United States Forest Service to conduct wildfire modeling to assess potential impacts to municipal water quality and supply. This collaborative modeling effort will inform risk management strategies.
- Cedar River Watershed Habitat Conservation Plan (HCP): SPU has updated the watershed forest protection and restoration strategies in the HCP. These strategies resulted from a forest vulnerability assessment based on projected climate change, including the impacts of drought, snow loss, and forest insects and diseases. These strategies include forest thinning and planting different tree species that are better adapted to a changing climate. SPU is monitoring forest growth, disturbances, and mortality.



Air quality degradation

Description: Air quality is expected to worsen due to increased heat waves and wildfire smoke. For the past three summers, the city has been blanketed in smoke from wildfire events. Atmospheric warming is expected to intensify ground-level ozone and increase the prevalence of airborne allergens and air pollutants.

Impacts: Decreased air quality can negatively impact SPU employees, particularly operations and maintenance staff. Vulnerable populations, especially those with existing respiratory conditions, will be most impacted.

Progress:

 Air Quality Safety Program: SPU created a program to educate and train employees on safety measures during periods of degraded air quality. This program includes issuing protective respirator masks and monitoring air quality and the risks from smoke related to wildfire events. SPU is also partnering with other departments on a citywide effort to protect employees.

Temperature rise

Description: Seattle has averaged only a handful of extreme heat $(90^{\circ}+)$ days per year during the past few decades. By 2100, it is estimated that more than two weeks of extreme heat are projected each summer.

Impacts: Rising temperatures increase the likelihood of water quality incidents, including bacterial outbreaks and algal blooms. Warmer temperatures stress wildlife habitat and salmon recovery efforts. More frequent heat waves will also impact SPU staff and equipment, such as HVAC systems. Lower-income and minority communities will likely be most impacted by hotter summers.

- *Heat Island Maps:* SPU is working with King County's Department of Natural Resources and Parks to better understand and quantify the ways in which land cover affects heat. The first ever complete urban heat island mapping project will take place during the summer of 2019 and is expected to inform community and infrastructure planning.
- *Heat Stress Training:* Providing crews with heat stress training and warnings when higher temperatures are expected. SPU's Safety Team provides cooling supplies and equipment to operations and maintenance staff when temperatures climb beyond 85°.
- *Fleet Reduction and Electrification:* SPU is working on fleet reduction and electrification to help mitigate climate change impacts and meet City goals. As the fleet is replaced, SPU is selecting cost-effective electric vehicle options. SPU is also installing electric vehicle charging stations, back-up generators, and exploring the use of solar powered charging stations so the fleet can function during an emergency when fuel and power is limited.

Section 3: Disasters

According to the City of Seattle Office of Emergency Management, Seattle faces the highest number of hazard types of any major American city. Disasters cause loss of life, public health issues, and property and environmental damage. Lower income and minority communities tend to suffer the most from disasters. For SPU, disasters damage infrastructure and facilities and disrupt the delivery of critical services. This can impact other downstream systems such as firefighting capability.

Earthquake

Description: Washington State has the second highest earthquake risk in the nation, following California. The Seattle area is prone to multiple earthquake types, ranging from Seattle Fault events to large scale Cascadia Subduction Zone events. In the last few decades, there has been new mapping of faults and cataloging of past seismic events. Impacts include ground movement, liquefaction, landslides, tsunamis, and seiches. Secondary impacts include fire, property damage, limited mobility, and loss of power.

Impacts: Damage to SPU's infrastructure will disrupt potable water provision, wastewater disposal, and solid waste collection and disposal. SPU will face more difficulty in responding to broken assets due to damaged roads, bridges, facilities, and other systems. Communities located in liquefaction zones, such as Georgetown and South Park, are even more vulnerable to earthquake impacts.

- Water System Seismic Study 2018: This study modeled impacts of a magnitude 7.0 Seattle Fault Zone earthquake and a magnitude 9.0 Cascadia Subduction Zone earthquake. The study identifies over \$850 million of seismic investments over the next 50 years. Improvements include installing earthquake isolation valves on reservoirs and upgrading high-risk portions of the water system.
- Seismic Investments: Following the 1990
 water system seismic study, SPU has spent
 more than \$100 million on seismic upgrades
 to transmission pipelines, pump stations,
 storage tanks, and other projects. Several
 reservoirs have been seismically upgraded
 with the goal of minimizing water losses
 after an earthquake.



- Drainage and Wastewater System Seismic Study 2019: A seismic study will be conducted to determine the impact of significant earthquake events on the drainage and wastewater system. The 2011 Tohoku earthquake, 2010 Christchurch earthquake, and the 1995 Kobe earthquake, all caused significant damage to drainage and wastewater systems, which prompted efforts to study impacts in Seattle.
- *Disaster Debris Management Plan:* This plan covers earthquakes, floods, and high winds. Only two jurisdictions in Washington State have Federal Emergency Management Agency-approved plans: SPU and Snohomish County. The plan designates staging areas within the City for debris and works in partnership with the Port of Seattle and the University of Washington.
- Solid Waste Management Plan Amendment 2019-2020: SPU is amending its 2011 Solid Waste Management Plan to integrate risk and resiliency objectives among other updates. The Plan details how SPU will manage the City's solid waste for the next twenty years and is required to be updated every five years. The Solid Waste Line of Business is also working to ensure the resiliency of their contractors that provide collection, hauling, processing, and landfill services.
- All-Hazard Planning: SPU plans for all hazards and the impacts those hazards have in common. The Continuity of Operations Plan (COOP) supports the continuation of SPU essential utility functions in an emergency. The Emergency Operations Plan (EOP) supports the restoration of core utility services in an emergency. The Comprehensive Emergency Management Plan (CEMP) and the SPU Hazard Identification and Vulnerability Assessment (HIVA) both serve as umbrella guiding documents.
- *Replacement Pipe/Materials Stockpiles:* Water system replacement pipe and other materials are being stockpiled at remote sites. An earthquake or other disruption could result in widely dispersed damage and impact transportation networks. Locating replacement parts near where they are needed will support repair work. Staff is also addressing the impact of power outages by providing back-up generators at all critical facilities.
- *Back-up Power:* SPU is developing a plan for back-up power units and extending the life of back-up power for security systems. The Security Team performs an annual assessment of facilities and tracks crime trends to better understand the measures needed to counteract vandalism, terrorism, and power outages.
- Emergency Management Training and Exercise Program: This program includes Incident Command System training and a quarterly exercise series. SPU also implements an After-Action Review process that identifies corrective actions and engages business units to make improvements. Additionally, SPU carried out a campaign to encourage staff to prepare their families for emergencies. To return to work after a disaster, staff must feel confident that their families are taken care of.
- Water Supply Forum: SPU is one of the co-founders of the Water Supply Forum that is comprised of water systems in King, Pierce, and Snohomish Counties. Staff have been involved in the development of the *Regional Water Supply Resiliency Project* to assess regional water systems for earthquake, climate change, drought, and water quality risks. The forum identified actions to be taken by water utilities including installing earthquake resistant piping and providing emergency potable water.

• *Mutual Aid Systems:* SPU is a member of a variety of mutual aid systems which provide equipment and personnel in the event of a disaster. SPU is part of the Washington Water/Wastewater Agency Response Network, the regional Pacific Northwest Emergency Management Arrangement, and the National Emergency Management Assistance Compact. These networks help SPU to be more resilient to disasters.

Terrorism

Description: SPU infrastructure and services, due to their critical and life-sustaining nature, are potential targets for terrorist attack.

Impacts: Terrorism can target SPU infrastructure and facilities such as pipelines, pump stations, treatment plants, and reservoirs. Contamination of the water supply is of particular concern. Impacts to the drainage and wastewater system could result in releases of untreated sewage into surface waters.

Progress:

- EPA Water Infrastructure Act of 2018: SPU is working on an Environmental Protection Agency (EPA) required risk assessment that will examine physical vulnerabilities in infrastructure, sites and facilities. This is a continuation of work that SPU has been performing for years to ensure the safety of the water system.
- All-Hazards Planning** (see progress item under Earthquake)
- *Emergency Management Training and Exercise Program*** (see progress item under Earthquake)
- *Mutual Aid Systems*** (see progress item under Earthquake)

Cyberattack

Description: A cyberattack involves a malicious, deliberate act that compromises data or critical infrastructure systems through disruption, theft of private information, fraud, or extortion.

Impacts: SPU can be impacted by cyberattacks on its operating systems for water, drainage and wastewater, and billing. Unauthorized access of personally identifiable or sensitive information could impact public trust and result in legal costs.

- *Computer Systems Protection:* SPU is working with the Department of Homeland Security and other organizations testing and ensuring systems are protected by following industry best practices.
- All-Hazards Planning** (see progress item under Earthquake)
- *Emergency Management Training and Exercise Program*** (see progress item under Earthquake)

Dam Failure

Description: SPU operates fourteen dams of various sizes located mostly upstream of densely populated communities. All SPU dams are regulated by either the State Department of Ecology or the Federal Energy Regulatory Commission. Most of the dams are rated as High Hazard by the State or Federal regulators.

Impacts: A dam failure would impact people and property in downstream communities and SPU's water supply and storm detention systems.

Progress:

- Tolt Dam Failure Exercise: In May 2019, SPU partnered with Seattle City Light to lead a full-scale exercise that included regional response agencies. The Tolt Dam provides both power generation and roughly one third of SPU's drinking water supply. While the risk of dam failure is very small, the exercise allowed responders to practice, build relationships, test plans and procedures, and review lessons learned together.
- Emergency Action Plans (EAP): SPU developed EAPs for all high-hazard dams that could impact communities in the event of a dam failure. The EAPs clarify roles and notification responsibilities and are periodically exercised to test readiness of responders and stakeholders. EAPs were developed in collaboration with other City departments, affected communities, and emergency management agencies.
- *Dam Safety Program and Programmatic Plan*: SPU's utilizes this program and plan to actively monitor dam performance and to ensure safe operations.

Volcanic eruption

Description: Washington State is home to five active volcanoes located in the Cascade Range east of Seattle. Potential eruption impacts include blast, lahar, and ashfall.

Impacts: Ashfall can impact water quality, pipes and drains, vehicles, energy, and transportation systems.

- All-Hazards Planning** (see progress item under Earthquake)
- *Emergency Management Training and Exercise Program*** (see progress item under Earthquake)
- Mutual Aid Systems** (see progress item under Earthquake)



Progress:

Flooding

Description: SPU grapples with three flood types: major river flooding, coastal flooding, and urban and small stream flooding.

Impacts: In addition to safety impacts, floods can damage SPU infrastructure and private property. The increased frequency and severity of flooding due to climate change will lead to greater costs for claims, repair, and up-grading infrastructure.

- *Wet Weather Readiness and Response Plan:* This plan identifies resources within SPU to prevent, prepare for, respond to, and recover from flood events to minimize adverse flooding impacts.
- Sewer Backup Protection: SPU developed a policy to provide guidance to SPU projects and programs to fund installation of backwater valves on customer property when the public sewer system can cause sewer backup on the property. In recent years, SPU has installed backwater values in Broadview, South Park, and downtown.
- *Claims Process:* SPU developed a process to help customers impacted by events, including flooding, to quickly activate the claims process. SPU also helps place customers in emergency housing when these types of events are caused by SPU asset failure and when a customer's home is uninhabitable. SPU does this through direct placement into temporary housing or by partnering with non-profits and other City Departments.
- All-Hazards Planning** (see process item under Earthquake)

High winds

Description: SPU's systems can be impacted by winds over 60 mph and gusts over 90 mph. Winds of these intensities have become more frequent in the Puget Sound region.

Impacts: Power outages caused by high winds impact operations and systems. High wind events also frequently block roads with debris and make it more difficult to respond to emergencies. Impacts to SPU watershed operations include loss of power, communications, and road access.

- Disaster Debris Management Plan** (see progress item under Earthquake)
- All-Hazards Planning** (see progress item under Earthquake)
- *Back-up Power*** (see progress item under Earthquake)

Section 4: Investment Priorities

SPU is one of many City of Seattle departments guided by the Mayor and City Council and is affected by citizen initiatives and other governmental agencies like King County, Washington State, Sound Transit, the Port of Seattle, and the Federal Government. Projects, programs, regulations, and citizen initiatives can result in new requirements for SPU and create added costs for regulatory compliance and maintaining public trust. In addition, up-grading and replacing aging infrastructure, adding new infrastructure, and adjusting for climate change and disaster impacts are costly but essential improvements to utility systems. All these initiatives can cause SPU to reprioritize projects and redirect programs, ultimately putting pressure on rates and impacting affordability.

Regulatory-Driven

Description: Regulations can result in new requirements with associated costs for compliance while also addressing important concerns and needs.

Impacts: SPU invests in new projects and programs to meet new and evolving regulations. This can lead to a reprioritizing of work and higher utility rates.

Progress:

Ship Canal Water Quality • Project: SPU entered a consent decree with the **Environmental Protection** Agency, the Department of Justice, and Washington State Department of Ecology in 2013 to reduce sewer and combined sewer overflows into Seattle's local water bodies. The Ship Canal Water Quality Project, which will reduce these overflows, was built to maintain compliance with this decree. This is a joint project with King County that will cost \$570 million. Seattle's share is \$390 million.



- Regulatory Review and Collaboration: SPU is tracking, reviewing, and commenting on federal and state
 rules, policies, and permits that impose new requirements. The goal is to mitigate risks around regulatory
 compliance while maximizing the value of investments. SPU routinely provides written comments and inperson meetings to describe potential impacts to utility business. When possible, SPU provides alternative
 approaches that meet regulatory goals by reducing the impact to ratepayers.
- Joint Operations and System Optimization Plan: SPU is collaborating with King County Wastewater Treatment Division on the Joint Operations and System Optimization Plan approved in 2017. The goal is to improve drainage and wastewater system performance through collaboration and information sharing. The plan works to ensure compliance, maximize the capture and treatment of flows, and reduce operating costs.
- Long Term Control Plan: SPU is working on a financial capability assessment that informs the update to the Long Term Control Plan for combined sewer overflows. This analysis will incorporate new methods of evaluating the affordability of the plan that go beyond the Environmental Protection Agency guidelines. The outcome will also be used to negotiate with regulators about how best to maintain affordability, protect public and environmental health, and meet regulations.
- *Water Treatment Requirements:* SPU manages 100,000 acres of forested land that comprise the Cedar River and the South Tolt Watersheds. City ownership of watershed lands allows SPU to control access which safeguards water quality. Due to the high degree of protection of the Cedar River watershed, SPU is not subject to more costly federal and state treatment requirements from this source.

Projects and programs initiated by others

Description: Many agencies, including the City of Seattle, can adopt projects or programs that affect SPU's finances and operations and force a reprioritization of current work plans. Voters also can propose or repeal legislation through ballot measures.

Impacts: Future initiatives can force SPU to relocate or replace assets sooner than anticipated, resulting in new unplanned for, and unfunded costs. This work may also provide strategic opportunities to address infrastructure improvements and build partnerships.

Progress:

• *Right of Way Cooperation and Shared Cost Program:* SPU is working with a variety of transportation agencies on the Right of Way Cooperation and Shared Cost Program. Major initiatives, such as Move Seattle, have significant impacts on SPU infrastructure project selection and prioritization. SPU strives to improve right of way coordination to reduce impacts on the public during construction activity and to otherwise prioritized projects.

Aging, substandard infrastructure and facilities

Description: SPU manages extensive infrastructure systems that include reservoirs, treatment plants, piping networks, pump stations, transfer stations, landfills, and more. Growth generates the need for greater system capacity, adding more wear and tear to the system, and making it more complicated to work in the right-of-way.

Impacts: Portions of the system, particularly in the piping network, are approaching a century or more in age. The piping systems are below ground and costly to access, repair, and replace. The need to address seismic and climate change risks will require expensive system upgrades.

- Asset Management Program: SPU is managing infrastructure assets to achieve optimal value. SPU's Asset Management Program develops plans for asset classes to guide their management through operational, maintenance, and investment recommendations. Each plan integrates risk criteria such as impacts to public and environmental health, regulatory compliance, and service interruptions. As an example, the Drainage & Wastewater Pipe Rehabilitation Program completed 12 miles of work in 2018, the highest annual amount in SPU history.
- Water Main Rehabilitation and Replacement Program: SPU's water system includes over 1,630 miles of water main pipes. The average age of these pipes is more than 70 years. SPU proactively rehabilitates and replaces water pipes based on a risk profile that includes the history of leaks and breaks. Rehabilitation includes lining the interior of the pipe and/or adding cathodic protection.
- *Cathodic Protection Program:* Cathodic protection is a method used to minimize the rate of corrosion by shifting the corrosion process away from metal pipes and onto more easily corroded "sacrificial" pieces of metal. Cathodic protection systems have been shown to extend the life of pipes and reduce the risk of failures as the pipes age. SPU installs and maintains these systems on sections of water mains and transmission pipes where feasible and cost-effective.
- Solid Waste Transfer Stations: SPU has completed two new Solid Waste transfer stations - the South **Transfer Station in** 2013, and the North Transfer Station in 2016. These facilities are built to withstand seismic events, process material more quickly, and hold more material during shipping delays.



- Watershed Headquarters Building: SPU completed the new Watershed Headquarters building in 2018. This facility supports field and office staff and can function as an incident management center outside of city limits, but will primarily serve watershed-related emergencies such as wildfire. This LEED Gold building uses on-site geothermal energy for HVAC and can support future solar power generation. In 2019, SPU will erect a radio tower to improve adverse weather communications.
- *Flood Control Projects:* SPU is being awarded over \$17 million dollars from the King County Flood Control District for projects that address significant flooding problems in three priority areas of the city. The projects are drainage improvements in South Park neighborhood, culvert replacement in West Duwamish, and addressing flooding in Broadview neighborhood.
- In-City Facilities Master Plan 2016/2018** (see progress item in Market Forces/Ability to site facilities)

Section 5: Economy

Changes in the economy affect the growth and vibrancy of the City and customers' ability to pay for their utilities. Economic conditions impact revenue streams, rates, labor costs, construction costs, debt costs, and SPU's ability to provide affordable services. SPU strives to balance the costs of maintaining utility systems and making needed upgrades while keeping rates affordable.



Affordability

Description: Seattle is becoming increasingly unaffordable and this puts pressure on SPU customers' ability to afford utility services.

Impacts: Increased costs make it more difficult to find the balance between maintaining and upgrading infrastructure systems and services while achieving affordability.

- Affordability and Accountability Initiative: A central purpose of this initiative is to improve service, provide better value, and increase the utility's focus on accountability and affordability. A plan has been developed with the following focus areas: Capital Planning and Delivery, Efficiency and Improvement, Customer Assistance, Partnership Opportunities, Regulatory Alignment, Budgeting and Financial Management.
- Utility Assistance Programs: SPU's Utility Discount Program (UDP) provides eligible customers with a 50% discount on their SPU bills, and the Emergency Assistance Program (EAP) provides a 50% discount for customers at risk of shutoff. In 2018, approximately 32,000 households were enrolled in UDP and 884 households were provided emergency assistance.
- Low-income Water Conservation Program: Since 2001, this program has provided free fixtures and installation for qualified single-family and multi-family customers. By the end of 2016, the program had served over 6,000 single family households and nearly 20,000 multi-family households.
- Water Supply Demand Management** (see this progress item under Loss of customers and revenues)

Population growth

Description: The City of Seattle's population continues to grow rapidly. Growth creates more demand for services, puts pressure on resources, drives up construction and land costs, and creates a burden on infrastructure. Future population growth could also result from people moving to Seattle to escape more pronounced climate change impacts elsewhere.

Impacts: Despite the growth in the customer base, overall consumption has continued to decline due to conservation practices and the shift toward multi-family housing. Growth has also significantly increased the cost of housing and worsened traffic congestion. Recent surveys found that 75% of SPU field staff and 60% of office staff now live outside the city. Increased traffic congestion makes it more difficult for staff to commute, get to job sites, and respond to emergencies.

Progress:

- Budgeting and Forecasting: SPU is tracking economic trends and factoring them into budgeting and forecasting. Seattle's recent economic and population growth has increased the costs of construction, property, and labor. In the past, population growth would increase revenues through higher demand for water and wastewater services. As anticipated by SPU forecasters, water demand has been flat over the last decade as increased water use efficiency has offset the growth in the customer base.
- Affordability and Accountability Initiative** (see progress item under Affordability)

Loss of customers and revenues

Description: Relatively high costs for utility services and/or other factors can drive customers to seek other providers. An economic downturn can lead to a decrease in consumption/revenues of SPU services with little decrease in the cost of providing those services.

Impacts: Loss of major retail or wholesale customers can reduce associated revenues, which can result in increased rates for remaining customers. Loss of revenues due to an economic downturn can result in rate increases, staff reductions, or reduced services.

- Water Supply Demand Management: Effective demand management has led to a large decrease in total water demand despite large population growth. Since 1990, water use per person has shrunk from 152 to fewer than 90 gallons per day. This has allowed SPU to avoid developing expensive new supply sources. This was achieved through conservation programs, rate structure changes, and efficiencies. Demand management supports resiliency and affordability while providing more water for in-stream flows.
- Affordability and Accountability Initiative** (see progress item under Affordability)
- Budgeting and Forecasting** (see progress item under Population boom)
- *Financial Policies*** (see progress item under Cost of debt)



Cost of debt

Description: When local governments and utilities pay high interest on debt, less money is available for providing services and this can impact rates and affordability. High levels of debt can impact bond ratings and the cost of borrowing. SPU and the City of Seattle have good financial health. This allows SPU to borrow at low interest rates, thereby reducing overall project costs.

Impacts: New regulatory requirements, City and County initiatives, and other factors can result in the need to take on higher levels of debt. SPU will likely incur significant expenditures to undertake seismic, climate change, and other system-wide improvements to be resilient. SPU will have to balance how to fund needed system upgrades while keeping rates affordable.

- *Financial Policies:* SPU has adopted financial policies that provide for long-term financial health and contingency funding for disruptions. The City and Utility's strong financial health allows SPU to achieve low cost financing. SPU works to support a predictable rate path with gradual changes as households with limited means are hit hardest by rate spikes.
- Affordability and Accountability Initiative** (see progress item under Affordability)
- Water Supply Demand Management** (see progress item under Loss of customers and revenues)
- Budgeting and Forecasting** (see progress item under Population boom)

Section 6: Market Forces

SPU is impacted by market-based actions taken by other businesses, organizations, states, and countries. SPU's market connections include the ability to site facilities, obtain raw materials, and sell commodities like recyclables. Market forces can increase SPU's cost of doing business but also provide opportunities for bringing in more revenue to offset costs.

Ability to site facilities

Description: As the City becomes denser through infill and up-zoning, land acquisition costs increase. Siting industrial-type facilities in areas with a growing mix of residential development also becomes more challenging. In addition, site selection is restricted by flooding, climate change, and seismic considerations.

Impacts: SPU is faced with higher costs for siting and building facilities.

Progress:

• In-City Facilities Master Plan 2016/2018: SPU completed an In-City Facilities Master Plan in 2016 that was updated in 2018. This plan provides a facility condition and needs assessment with an investment plan for the next 30 years. Investing in resilient facilities will be essential to supporting emergency response and service restoration in a variety of disasters, particularly earthquakes.

Availability of raw materials

Description: The availability of raw materials changes with market conditions, foreign relations, government agreements, and wars.

Impacts: SPU's construction and maintenance projects are impacted by sudden changes in raw material prices such as the price of steel.

Progress:

• Ship Canal Water Quality Project Analysis: SPU is evaluating the impact of construction market conditions on the design and construction of the Ship Canal Water Quality Project. This analysis broke down costs between raw materials, property, and skilled labor for purposes of improved budget planning and transparency with customers, elected officials, and the public.

Recycling markets and revenue

Description: Revenue from recyclable materials is subject to market fluctuations and foreign government decisions. Many commodity markets exist offshore and are subject to trade agreements.

Impacts: These markets can change, having a negative or positive impact on SPU contractors' ability to sell recyclables. Revenues received from the sale of sorted recyclable commodities support on-going programs and keep customer rates down.

- Recyclable Processing Contract: SPU developed a recyclable processing contract that provides protection against upward and downward market swings. The contractor is paid a set fee to process recyclables and the revenue from selling the recyclables is reimbursed to the City. This helps the contractor stay in business during periods of low prices and ensures that SPU recycling services are not disrupted. The benefits of recycling are further augmented by the avoided costs of landfill disposal.
- Responsible Recycling Task Force: SPU is working with regional partners to address changes in international recycling markets as part of the Responsible Recycling Task Force. This was prompted by China's Blue Skies Policy that significantly tightened the standards and costs for the import of specific materials, including mixed plastics and mixed waste paper. These restrictions have impacted costs to sort and process materials and caused a significant price drop in recyclable commodities. The Task Force explored how to improve and expand domestic markets for recyclables and published recommendations in January 2019.



Section 7: Technology

New and rapidly evolving technologies present opportunities and challenges for SPU. Advancements can eliminate jobs while creating new jobs that require training. The rate of change can create a burden on SPU's ability to stay current. New platforms usually require costly integration and employee training. New technologies can also increase efficiency and help to recruit and retain employees. Emerging technologies are often heralded with benefits that need to be tested before potential adoption. The internet provides new ways for customers to connect with SPU services, but economic, racial, and language barriers to access these services need to be considered.



Emerging and changing systems

Description: The increasing pace of technological change could require SPU to make system upgrades that drive up costs due to software licenses, training, and resourcing technology projects and initiatives. Emerging technologies can also alter the way work is done, rendering certain tasks or systems obsolete. Technology can also help to optimize existing systems. For example, an array of sensors throughout the piping network could assist in monitoring flows and detecting backups, leaks, and other issues.

Impacts: Technological changes have the potential of improving overall system efficiency, helping to focus investments, and improving safety. In addition, the increased speed and complexity of change can drive demand for tech-related equipment replacement and employees with new skills. All these changes have associated costs, which can impact efficiency, service quality, and rates.

- Data Management: SPU staff in collaboration with Seattle IT are developing a data governance program and providing data management resources. SPU staff have been identified as Business Owners for over 150 technology applications that support SPU work. SPU will also create a guide to data access to give staff the information they need to leverage data resources.
- *Privacy Program:* SPU created a privacy team to embed the City's privacy policies into SPU computer applications, projects, and contracts. This effort to responsibly manage personal information helps maintain employee and customer privacy as SPU navigates technological change.

• *Robotics:* SPU is researching new ways to use robotics to investigate the condition of SPU infrastructure. Any use of robotics will include a partnership with the City and strict compliance with the City's Privacy Policy.

Independent systems

Description: There are ongoing advancements in decentralized systems for treating and collecting storm and wastewater and disposing of solid waste. Decentralized systems may also support resiliency after disasters and other disruptions.

Impacts: Loss of customer-base to decentralized water systems may reduce revenues. However, decentralized systems could assist SPU in delaying the need to develop costly new water supplies and help manage drainage flows.

Progress:

• Decentralized Systems: SPU is exploring the role of decentralized systems in providing a more distributed and resilient utility system. SPU is an active member on the National Blue-Ribbon Commission for Non-Potable Water Systems which is developing water quality criteria and operational guidelines, assisted in the City's two Living Building Pilot programs, and is working with agencies and non-profits to develop clear statewide rulemaking for design, permitting, and operation.

New treatment techniques

Description: Discovery of new contaminants, stricter water quality standards and regulations, and new treatment techniques may require new or enhanced treatment systems.

Impacts: SPU could be required to install costly new treatment equipment or even build new treatment facilities for its water, wastewater, and stormwater systems.

Progress:

• Water Treatment: SPU's water treatment plants use ultraviolet radiation and ozonation for treating microorganisms like Giardia and Cryptosporidium. SPU's burying of in-city treated water reservoirs prevents contamination while allowing open space and park usage on the surface.



Section 8: Workforce

SPU employees are the organization's most important asset. Hiring and retaining employees with the right skills and protecting institutional knowledge is critical for executing SPU's Mission. Reduced skill availability in certain job categories, loss of institutional knowledge from retirement or departure, speed of turnover, and market competition all impact SPU's ability to deliver high quality services. Workforce challenges also provide opportunities to create a diverse and equitable utility that reflects the community SPU serves.

Institutional knowledge loss

Description: As workers retire or depart, SPU loses the knowledge and history they have. As the 'boomer' generation continues to retire, an increased institutional knowledge loss is expected.

Impacts: Recent estimates indicate 46 percent of SPU employees are eligible for retirement within five years. Without sufficient transfer programs or succession planning, this loss of knowledge has the potential to reduce the efficiency of operations and affect service quality.

Progress:

 Skills and Knowledge Transfer: SPU is managing a series of programs that address workforce risks led by the Skills and Knowledge Transfer Team. There are two mentoring programs that pair new and longer-term employees. One is a traditional six-month program, and the other is a collaboration to identify solutions to workplace challenges. The Pathways to Leadership, Utility 101 lunch-time presentation series, and guided tours of the water and solid waste systems also facilitate knowledge transfer and training.



- *Procedures and Manuals:* SPU is updating procedures and manuals and maintaining those documents on SPU's SharePoint site for easy reference. The Fleets and Warehouse Division is a leader in this effort. They pair newer employees with those nearing retirement to ensure knowledge transfer and use special projects as an opportunity to cross-train employees and further employee development.
- Apprenticeship Program** (see progress item under Skills availability and development)
Skill availability and development

Description: SPU's positions are diverse, and many require highly technical skills or multiple years of experience. Skill gaps exist where there are not enough candidates in certain categories, both internally and externally.

Impacts: These issues can result in longer vacancies, a less skilled workforce, and decreased production. Competition can reduce the pool of eligible candidates, push wages up, and result in longer vacancy times.

Progress:

 Apprenticeship Program: SPU is restarting the registered apprenticeship programs for pipe workers in the Water and Drainage & Wastewater Lines of Business. Filling key operations and maintenance staff positions is becoming more challenging with retirements and competition from other employers. These programs address institutional knowledge loss by involving longterm operations and maintenance staff in curriculum design and teaching. Apprenticeship opportunities also serve the goal of supporting a more diverse workforce.



- Skills and Knowledge Transfer** (see progress item under Institutional knowledge loss)
- Procedures and Manuals** (see progress item under Institutional knowledge loss)

Retention and turnover

Description: High turnover increases the need for training and leads to decreased knowledge and experience. Employee retention is impacted by professional development opportunities, training and mentoring, workload, performance management, and market competition. As the economy booms, the turnover speed increases.

Impacts: SPU's service delivery and costs are impacted by rates of retention and turnover.

Progress:

- New Employee Orientation Program: This program includes three levels of orientation. On the first day, new employees receive a two-hour session that includes SPU and City of Seattle basic information. Within the first month of employment, employees will receive a four-hour session to increase their knowledge about working for SPU. Within the first quarter of employment, new supervisors will receive a four-hour session to prepare them for their roles of managing staff.
- Apprenticeship Program** (see progress item under Skills availability and development)
- Skills and Knowledge Transfer** (see progress item under Institutional knowledge loss)

Marketplace competition

Description: Private and non-profit sectors as well as other public organizations compete with SPU for skilled candidates. Governments face stiff competition from the private sector's higher wages. Competition may also drive up wages for positions requiring specialized and in-demand skills. While government jobs have certain advantages over other sectors, there are also tradeoffs.

Impacts: Seattle's rising cost of living and long commutes negatively impact employees' quality of life, creating competition with employers closer to workers' homes. Interest in the public sector fluctuates and impacts SPU's ability to hire a diverse and skilled workforce.

Progress:

• *Recruitment Strategy:* SPU is enhancing its recruitment strategy to increase the candidate pool for open positions. As the recruitment market shifts and demographics change, SPU is implementing more creative ways to attract talent. With the addition of a new Recruitment Manager and an additional recruitment staff position, SPU will move toward a community-centered outreach approach for filling vacancies.

Section 9: Next Steps



SPU recognizes that managing risk and resiliency is key to sustaining vital public services. This has been a central feature of how the Water, Drainage & Wastewater, and Solid Waste services have evolved to meet new challenges and opportunities. In recent decades, the diversity and magnitude of recognized risks has grown. As a community-centered utility, SPU has undertaken this recent effort to be more systematic and integrated about risk management.

This report has described each of the strategic risk categories along with progress assessments. Some risk areas, such as climate change and disasters, have been on the radar for several decades and are being addressed by a variety of programs and projects. Other categories, such as technology, are developing rapidly and require increased focus. The framework assists SPU's business units to optimize investments that comprehensively address risk and improve resiliency.

Next steps include:

- A vulnerability matrix detailing the most significant risks for SPU
- A complete inventory and assessment of existing work for high priority risk areas
- Identification of critical interdependencies with other agencies and organizations
- Identification of disparate community impacts and opportunities to take equitable and corrective actions
- A prioritization of work that addresses high priority risk areas
- Cost benefit analyses of projects and programs that support risk reduction
- Efforts that address multiple risk areas while optimizing public benefits
- Further development of data sets, models, and scenarios
- A workshop to explore potential future impacts of technology on service delivery
- Communication and outreach with agency and community partners

SPU's risk and resiliency framework will continue to evolve. As this work develops, SPU will share progress and seek feedback from a variety of partners and stakeholders. SPU does not have a crystal ball to see the future, but risk and resiliency efforts improve the utility's ability to adapt to disruptions, changes, and opportunities. This all aligns with SPU's mission to provide vital services to the community that are affordable, equitable, and resilient.

Appendix A: Impact-Likelihood Matrix



This chart is very high level and is provided for illustrative purposes only.

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