



King County Wastewater Treatment Division

Capacity Charge Affordability Analysis and Findings

February 2019

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Executive Summary

THE NEED

The King County Wastewater Treatment Division (WTD) requires a capacity charge payment (currently \$64.50-per-month for 15 years for a single-family dwelling) from all new connections to the regional wastewater system to help offset the costs associated with serving the growing need for wastewater treatment services.

King County is currently facing extensive affordable housing challenges. The cost of wastewater services, including the capacity charge, are a small but considerable portion of the cost of housing. WTD has heard from many customers that the capacity charge can be unaffordable. In response to this challenge, WTD initiated research to identify affordability challenges for its capacity charge customers and evaluate possible mitigating measures.

WTD engaged Corona Environmental Consulting (“Corona”) to collaboratively:

- Conduct research to characterize the scope and scale of the affordability problem with capacity charge customers by analyzing census tract and billing data to create estimates of the percentage of customers likely to be facing a range of poverty metrics, creating maps that illustrate where capacity charge customers (customers) are most likely to be located, and developing tables describing customer characteristics over time.
- Develop and implement an engagement plan to gather the objectives, barriers, and opportunities for a customer affordability policy.
- Analyze the benefits and costs to WTD, customers, and the community for a broad range of potential assistance opportunities.
- Support WTD as they develop a package of affordability enhancements that together meet many of WTD’s affordability objectives.

This report provides full details on the work conducted by the project team, including methodology, detailed findings, and the process for stakeholder engagement.

CURRENT AFFORDABILITY OPPORTUNITIES

The capacity charge is a monthly charge amortized over 15 years. New customers may elect to pay off the charge early as a lump-sum at a discounted rate. The 2018 capacity charge is \$62.60 per month.¹

WTD currently provides three assistance opportunities to improve affordability:

- **Payment Plans:** Any customer with an overdue balance (typically a bill represents a quarterly payment) can request a payment plan and work with a WTD customer service representative to split the overdue and future amounts owed into smaller, monthly, payments. After the payment plan is agreed upon, the full overdue balance along with any new charges must be paid within six months.

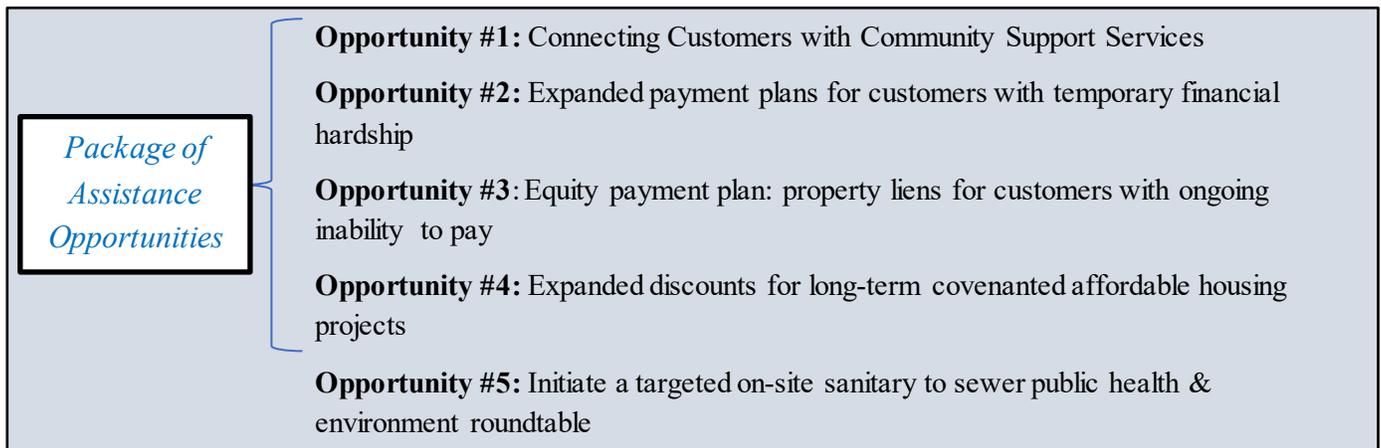
¹ For simplicity the 2018 charge amount was used in all analyses.

- **Discounts to low-income housing owners:** King County Code (“the Code”) currently authorizes a discount for low-income housing, defined as multifamily housing in which occupancy is restricted by household income and living units are no larger than 400 square feet.²
- **Property liens:** Customers who miss two or more payments have their delinquent balance placed with the Assessor’s office as a property lien. Currently, when a property lien is assigned, a lien recording fee is assigned, along with interest and a late fee.³ WTD typically receives the deferred revenue in full when the property is sold.

A PACKAGE OF ASSISTANCE OPPORTUNITIES

Five assistance opportunities met the selection criteria and received a full analysis (Figure 1). Opportunities #1- 4 work together to meet the full range of WTD assistance objectives and together form a “package of assistance strategies”. Opportunity #5 is considered separately as the focus is targeted public health and environment benefits, with improved affordability as a potential ancillary benefit.

Figure 1: Capacity Charge Assistance Opportunities



BENEFITS AND REVENUE IMPACTS

The package of assistance provides benefits to three categories of beneficiaries: individual capacity charge customers, the community as a whole, and the environment. Public benefits, shared by the whole community, increase the value of living in the service area (e.g. reduction in neighborhood homelessness), while benefits to individual customers include increasing the ability of individual customers to pay their capacity charge bill.

This package of assistance would provide benefits to an estimated 4,700 capacity charge households per year and support construction for approximately 11 new restricted affordable housing a year. The financial impact would be an estimated \$1 million to \$2 million in delayed revenue and between \$1.7 million and \$3.6 million of lost revenue annually.

² KCC 28.84.050(O)

³ Interest is calculated by the interest of the prime lending rate plus four percentage points and late fees are ten percent of the total due.

Project Overview

PROJECT APPROACH

The team's approach was to:

1. Understand customer characteristics including household type, poverty rates, and locations
2. Develop criteria to guide the selection of assistance strategies
3. Identify a full range of assistance opportunities and analyze the costs and benefits of each

PROJECT TEAM

The capacity charge affordability project was guided by an internal team of WTD experts with significant review and input from community subject matter experts (Figure 2).

Figure 2: Capacity Charge Affordability Assistance Team

WTD Internal Team:

- Alison Saperstein, Project team leader—Rates and Finance
- Tom Lienesch, Economist—Rates and Finance
- Devin Barnes—Account data
- Dan Dicks—Customer service and accounts
- Sharman Herrin—Government relations
- Erika Peterson—Community relations
- Kelly Foley Kruse—Community relations
- Eunice Verstegen—Accounts, program history

Community Subject Area Experts

Subsidized Housing Agencies. The project team met with many subsidized housing agencies to solicit input on the impact of the capacity charge on the development of affordable housing. King County Department of Community and Housing Services, King County Housing Development Consortium, Snohomish Development Consortium, Bellwether, Mercy, Low-Income Housing Institute, Seattle Office of Housing, King County Housing Authority, Seattle Housing Authority, A Regional Coalition for Housing, Vashon Household and BLOCK Project

For-Profit Developers. For profit low-income housing developers were also informed and interviewed.

Sewer Agencies. The project team convened three meetings with representatives from several sewer agencies. Representatives from the cities of Bellevue, Auburn, Seattle, Bothell and Redmond, Valley View Sewer District, and Sammamish Plateau Water were active participants for the stakeholder meetings.

Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC). The MWPAAC Rates and Finance sub-committee was briefed and provided input periodically over the course of the study.

FOUNDATIONAL RESEARCH QUESTIONS

WTD hired Corona Environmental Consulting to assist them in addressing the following fundamental affordability policy questions:

Can WTD, through changes in capacity charge policies and practices, make meaningful improvements to the affordability of wastewater utility services and housing for its customers?

- **Yes, the need is there.** Approximately one-quarter of current capacity charge customers may live on incomes at or below 200 percent or below the federal poverty metric (as many as 33,000 households and 69,000 people).
- **Yes, opportunities exist.** Due to the large size of the capacity charge payment amount, WTD affordability policies can: reduce the potential that a temporary financial setback (e.g. car repair or medical bill) would create a downward spiral; increase options for low-income elderly and individuals with disabilities on fixed incomes to stay in their homes; and increase the number of permanently affordable housing units.

What are WTD's affordability related priorities?

- Assist the low-income customers most in need.
- Help customers with temporary hardship.
- Support affordable housing development.
- Limit impacts and implications on other customers.
- Focus on solutions that are administratively and legally feasible to implement in the near term.

Who has a stake and information?

Corona facilitated discussions with WTD and other King County Department of Natural Resources and Parks agency staff, Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) members, local sewer agencies, and housing agencies working with low-income households to identify opportunities and barriers for WTD to contribute to addressing community affordability challenges, and to obtain feedback and develop support for potential affordability policies.

Characterization of Capacity Charge Households

HOUSEHOLD TYPES

An analysis of capacity charge household characteristics was conducted to identify customer needs for assistance (Figure 3). The analysis also provided the basis for quantitative estimates of the benefits and costs of different potential changes in policies and practices.

Figure 3: WTD Capacity Charge (CC) Customers in 2017

The number of capacity charge customers who paid a bill every month in 2017 include:

➤ Total accounts	62,581
➤ Total housing units	118,614
➤ Total single-family households	54,198
➤ Total multifamily households	64,416
➤ Estimated # of people in single-family households	151,754
➤ Estimated # of people in multifamily households	122,390
➤ Liens Filed to Date	2,848

POVERTY RATES

An estimate of the number of customers facing poverty was developed by geo-coding customer locations and matching them to census tract locations and then applying census level rates of poverty to customers in each census tract (Figure 4). The Corona team assumed that capacity charge customers have similar rates of poverty as all households in a census location. Although a number of poverty metrics were examined, the team used households living below 200 percent of federal poverty (Figure 5) as the definition of extreme poverty.

Figure 4: Estimated Ranges of Capacity Charge Households Facing Extreme Poverty*

Total capacity charge households with incomes 200 percent below federal poverty	25,000 - 33,000
Single-family households living with incomes 200 percent below federal poverty	8,100 - 12,500
Multifamily households with incomes 200 percent below federal poverty	14,800 - 24,500
On-site sanitary system to septic households with incomes 200 percent below federal poverty	120 annually

*200 percent below the federal poverty line

Figure 5: Federal Poverty Guidelines

Household Size	100 Percent	200 Percent
1	\$12,060	\$24,120
2	16,240	32,480
3	20,420	40,840

Assumption impact

Assuming the capacity charge population has the same rate of poverty as others in the census tracts could overstate customer poverty rates, particularly in tracts being gentrified.

LOCATIONS

Figure 6 illustrates the geographic distribution of single and multifamily accounts. Figure 7 illustrates the geographic distribution of customers facing extreme poverty.

Figure 6: Geographic Distribution of Single and Multifamily Accounts in 2017

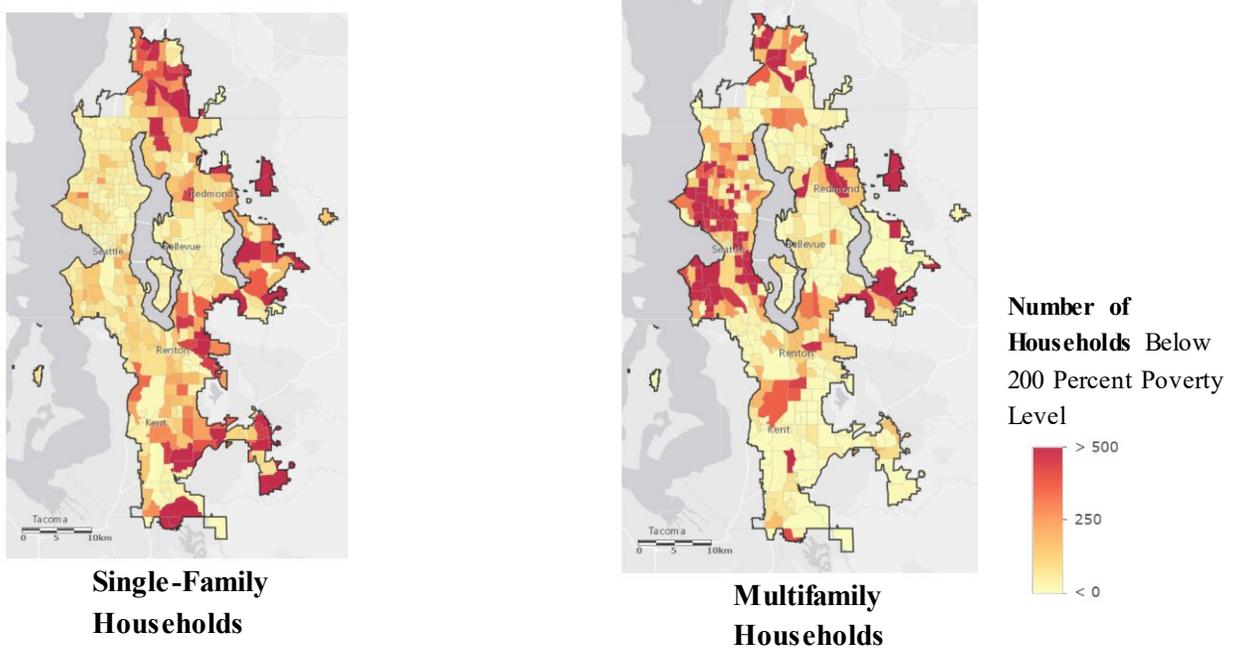
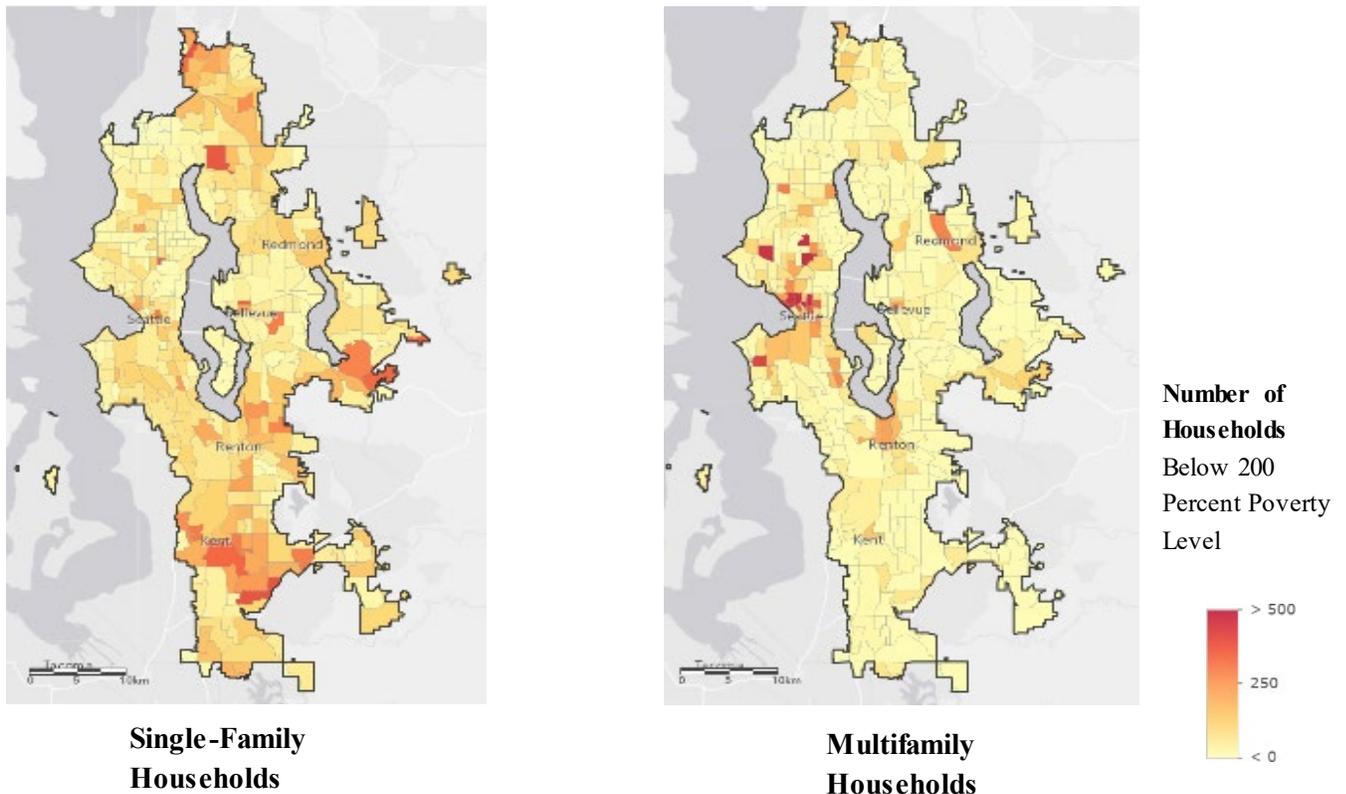


Figure 7: Geographic Distribution of Single and Multifamily Customers with Incomes Below 200 Percent of Federal Poverty



DEDICATED AFFORDABLE HOUSING

An estimate of the number of new dedicated affordable housing units that would be *eligible* for an expanded low-income housing rate class annually was developed based on data and insights from the team of community housing experts (Figure 2).

Figure provides an estimate of the range of annual units projected to go on line annually between 2020 and 2025.

Figure 8: Estimated Range of Annual Affordable Housing Starts

	Best Guess	Low	High
Estimated # of qualifying units annually	760	400	1,000

Assumption Impact

Currently, approximately 100 studio apartments, sized 400 square feet or smaller, qualify annually for the low-income housing rate class, which is assigned 50 percent fewer RCEs than comparable market-rate housing. The number of units in Figure 8 includes units that may already qualify for this rate class. This may result in an over estimation of costs and benefits.

Additional funding opportunities, changes in the economy, and other drivers could change this projection up or down significantly.

Affordability Objectives and Criteria

OBJECTIVES

The project teams worked collaboratively to articulate the primary policy objectives for creating additional capacity charge affordability assistance opportunities (Figure 9).

Figure 9: WTD Customer Assistance Policy Objectives

The teams articulated three main objectives which motivated and guided the effort:

- 1. Assist the low-income customers most in need.**
- 2. Increase opportunities to support customers with temporary hardship.**
- 3. Support affordable housing development.**

The project objectives and selection criteria also form the foundation for building evaluation metrics.

SELECTION CRITERIA

The teams also articulated the set of criteria that can be used to guide selection and evaluation of affordability policy opportunities (Figure 10).

Figure 10: Customer Assistance Policy Selection Criteria

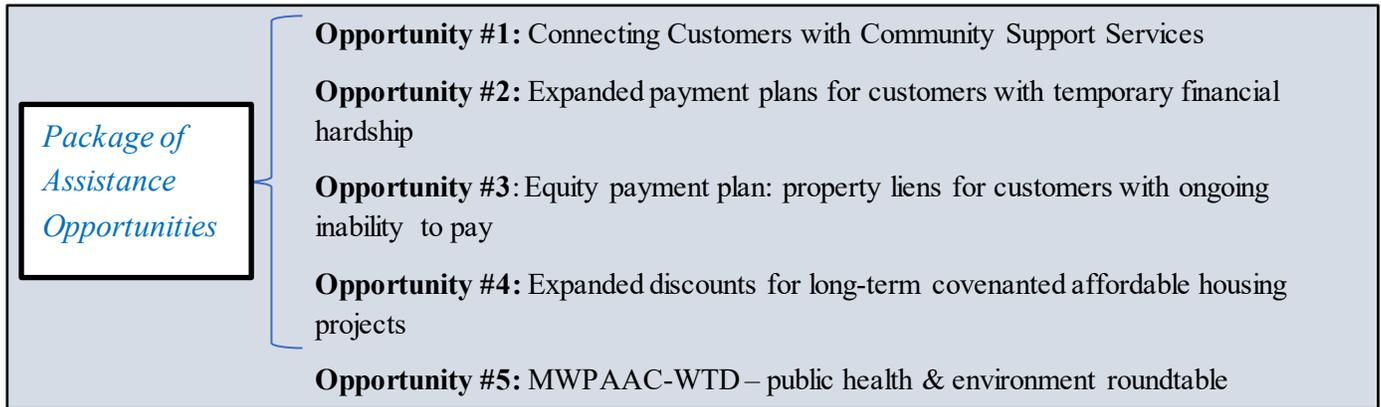
The team articulated a set of criteria they could use to evaluate policy opportunities:

- Provides a focused benefit to one or more of the target customer groups.
- Provides high benefit-to-cost outcomes.
- Has low administrative burden.
- Aligns with other affordability programs and community goals—e.g., equity and social justice, public health.
- Is highly transparent.
- Is easy to understand for WTD and customers.
- Is flexible to meet changing needs over time.

Components of the Package of Assistance Opportunities

Five opportunities met the selection criteria to receive a full analysis. Details for each of the opportunities listed in Figure 11 are presented in this section.

Figure 11: Capacity Charge Assistance Opportunities



OPPORTUNITY # 1: CONNECTING CUSTOMERS WITH COMMUNITY SUPPORT SERVICES

Policy Objective

The objective is to connect capacity charge customers experiencing financial hardship with the full set of support services available in the community.

Policy Description

WTD customer service representatives receiving a call from any customer expressing financial hardship connects the customer with an agency providing free robust support services, including connecting customers with financial services (including education in financial management), and social, medical and mental health services.

Also, residents calling 2-1-1 who are capacity charge customers will learn about WTD bill paying assistance opportunities.

WTD is currently working with Washington 2-1-1 to implement this option in early 2019.

Benefits to Capacity Charge Customers and Affordable Housing

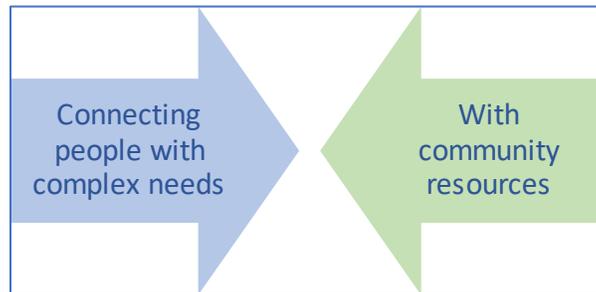
Research finds that one of the best ways utilities and similar agencies can support customers with significant financial challenges is to connect them with robust, culturally appropriate (e.g. speak a common language, understand family roles) support services.

Administrative Cost Estimates

No significant administrative cost burden.

Costs and Rate Impacts

This assistance opportunity results in no rate increase.



OPPORTUNITY #2: EXPANDED PAYMENT PLAN OPPORTUNITIES FOR CUSTOMERS WITH TEMPORARY FINANCIAL HARDSHIP

Policy objective

The objective of Opportunity #2 is to increase the benefits associated with temporary assistance by expanding the current program. In January of 2018 WTD had eight customers with payment plans.

Current payment plan program

Any customer with an overdue balance who falls behind payment for one or more bills (typically a bill represents a quarterly payment) is offered the opportunity work with a WTD customer service representative to create an arrangement to pay overdue balance along with new bills. These typically involve more frequent, monthly payments. After the payment plan is agreed upon, the full overdue balance along with any new charges (e.g. any additional payment amounts) must be paid within six months. The current plan is reactive; it does not allow for a customer to create a payment plan before falling behind on bill payment. Late fees are not charged if the payment arrangement is successfully completed.

Expansion opportunities

A number of policy options were examined to increase access to and benefits from temporary assistance. All options meet selection criteria except as noted. WTD can continue to examine and expand temporary assistance opportunities over time.

Policy Option #1: Increase awareness of current opportunity. One option is to increase customer awareness/access to the current program through advertising and/or outreach. The current program assists customers who have missed one or two quarterly payments and have responded to an offer for assistance. This option would increase customer awareness of the current program so that more customers could request a payment plan proactively, before missing a payment. This option would increase the number of households enrolling in temporary assistance and can be added to any other option.

Policy Option #2: Remove 10 percent late fee. Customers who make a good faith effort to pay off a delinquent bill need not be penalized. Late fees are considered a regressive form of revenue collection. Due to the time and resources required for a customer to establish a payment plan there is little to no concern that the program requires a financial incentive to

prevent overuse or abuse. This option would increase the benefits to households of enrolling in temporary assistance by reducing financial penalties and can be added to any other option.

Policy Option #3: Lengthen the duration of the payment plan. In this option the payment plan is lengthened from six months to twelve months. Instead of splitting the balance owed into six monthly payments, this option would spread the balance owed over an entire year. This option provides an opportunity for customers to remit the balance owed in smaller increments because it is spread out over a longer period of time. This option meets all of the selection criteria.

Policy Option #4: Lengthen time between payment periods. In this option, any household responsible for a capacity charge bill payment with a record of on-time bill payment can request and receive a payment plan that grants a one-year grace period during which payment of that quarterly bill amount is not expected. The full year before payment is due gives customers additional time to recover from the temporary hardship. Research indicates that a payment deferred for a year or more provides significant financial support to households without savings. Once the year has passed, the past payment is spread over four quarterly bills, as illustrated in Figure 12, keeping the bill amount small.

Figure 12: Sample Delayed Payment Plan Repayment Schedule

Quarterly Payment Period	Q1 (Deferred)	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Percent of Bill Paid	0	100 percent	100 percent	100 percent	125 percent	125 percent	125 percent	125 percent

This option faces several selection criteria barriers including, legal concerns that this may require a code change and administrative feasibility concerns due to current billing system constraints.

Option #5: Allow customers to design and request their own payment plan. This option takes advantage of research that indicates that once a customer takes ownership of a payment schedule, are much more likely to meet that schedule. New technology allows customers to log into their account online and develop and request a payment plan tailored to their needs, within pre-established boundaries. This option is not administratively feasible at this time but could continue to be examined as WTD initiates a new billing computer system.

Benefits to Capacity Charge Customers and Affordable Housing

Expanded payment plans benefit customers by providing them with an opportunity to forego a bill payment during a period of financial distress. Additional benefits are provided to customers when bill amounts are split into smaller, more frequent amounts.

Because enrollment is a significant barrier to most low-income households, it is estimated that without the addition of Option #1, enrollment will stay low, around 10 a year. With Option #1, enrollment in the delayed payment plan could grow to 130 to 270 capacity charge households annually.

Costs and Rate Impacts

None of the expanded temporary assistance options result in significant amounts of deferred revenue or have rate impacts.

If Option #1 is implemented and enrollment grows to 130 to 270 customers annually, an estimated \$25,000 to \$50,000 in delayed revenue will be accrued annually. Additional costs, not included in this analysis, include marketing and outreach. Without outreach the program is unlikely to grow into a proactive approach to supporting customers as opposed to a reactive approach to helping customers who have already failed to pay a bill.

If Option #2 is implemented, a loss of late fees (\$150 currently) on an estimated maximum of 270 customers annually, would have a miniscule impact on WTD cash flow.

Options #3, #4 and #5 could increase enrollment and create additional deferred revenues (\$25,000 for every 130 new enrollees) but are also considered to have miniscule impacts on WTD rates.

Administrative Cost Estimates

Because King County WTD already works to establish payment plans with capacity charge customers facing financial hardship, the addition of Options #1, #2 and #3 would result in minimal increases in administrative costs and labor hours. However, processing each application is labor intensive and currently creates administrative burden barriers to the implementation of Options #4 and #5.

Administration needs include:

- 45 minutes per application
- 133 enrollees equal about 100 hours for administration

OPPORTUNITY #3: EQUITY PAYMENT PLAN: EXPANDED PROPERTY LIEN OPPORTUNITIES FOR CUSTOMERS WITH ONGOING INABILITY TO PAY

Policy Objective

The objective of this customer assistance approach is to ensure low-income homeowners, including those who qualify for property tax relief programs (e.g. property tax exemption programs targeted to the elderly, disabled and veterans, and tax deferral programs targeted to all low-income households) do not experience an on-going housing cost burden that could potentially force them out of their homes. This policy would allow households with high housing burden to income ratios to pay for the capacity charge bill out of home equity upon sale of their home. Target classes for this type of assistance include customers enrolled in low-income state property tax exemption and deferral programs and customers transitioning from on-site sanitary systems to sewer.

Policy Description

The equity payment plan allows homeowners to pay the capacity charge when they sell their homes, rather than pay a bill while residing there. This can be done by placing the remainder of the capacity charge bill in lien against the property. Fees and interest that would otherwise be charged in a typical lien process for a delinquent account would be minimized. Research on the property tax programs indicates that customers enrolled in the tax program sell their homes in 7.5 years on average.

This is a proactive policy that will focus on supporting capacity charge customers who qualify for the Washington State Property Tax Exemption for Senior Citizens and Disabled and Property Tax Deferral Program for Homeowners with

Limited Income programs. The state property tax deferral program for low-income homeowners has income eligibility criteria at approximately 60 percent of AMI while the senior, disabled and veteran's property tax exemption programs have a lower income eligibility threshold, approximately 200 percent of federal poverty. Other eligibility requirements, described below, apply.

WTD anticipates creating targeted outreach to all households receiving either property tax deferral or exemptions to ensure this assistance is accessible to target customer groups including low-income homeowners transitioning from on-site sanitary systems to sewer.

Benefits to Capacity Charge Customers

An estimate of about 2,000 households representing 3,800 low-income individuals, many of whom are elderly or disabled, are estimated to be currently enrolled in either the property tax deferral or exemption program and pay the capacity charge.

In addition, we estimate (based on discussions with MWPPAC members) approximately 500 households a year could need financial assistance as part of a targeted program to transition properties with public health and environmental concerns due to on-site sanitary challenges.

Over the ten-year period 2020-30, this assistance policy could reach over 4,000 households, depending upon the number of enrollees. For residents on low fixed incomes, this assistance helps to preserve the affordability of their housing by eliminating an ongoing utility bill from their monthly budgets.

There is no negative impact on a household's credit rating from this type of lien.

Households Enrolled in State Property Tax Policy

All capacity charge households enrolled in Washington State's Property Tax Exemption for Senior Citizens and Disabled Persons would be eligible for participation in the equity payment policy. Eligibility requirements include:

- at least 61 years of age on December 31 of the year before the tax is due:
 - OR unable to work because of a disability;
 - OR a veteran entitled to or receiving compensation from the VA at a total disability rating for a service-connected disability;
- annual household disposable income may not exceed \$40,000;
- renewal applications are required at least once every six years, or with changes that may impact eligibility.

WTD can use publicly available tax program information from the assessor's office to identify capacity charge customers enrolled in the tax exemption to identify customers in need and invite them to enroll in WTD's lien policy.

All capacity charge customers eligible for the Property Tax Deferral Program for Homeowners with Limited Income could also be considered eligible. Eligibility requirements for Limited Income Property Tax Deferral include:

- own a home in Washington for five years;
- occupy as a primary residence;
- have combined disposable income of \$57,000 or less;
- and have enough equity to secure the interest of the State of Washington in the property.

Households Transitioning from Septic to Sewer

The equity payment plan could also reduce the financial burden to customers that qualify for the tax assistance programs who are transitioning from septic to sewer systems. This is especially important for households who have on-site sanitary systems that have been targeted for removal and are being required to connect to sewer.

Costs and Rate Impacts

This assistance, like the other delayed payment options, results in no foregone revenue. On average, WTD expects to receive deferred payments from liens about 7.5 years after initiation of the lien (based on the experience of property tax relief programs). This would result in approximately \$1.46 million in deferred revenue annually. This assistance results in no detectable rate increase.

Annual delayed payments for a 100 percent lien for 2,200 households is \$1.46 million.

This estimate is based on the following assumptions:

- 90 percent of the 2,000 capacity charge customers estimated to be enrolled in a property tax exemption and deferral programs would enroll.
- 500 low-income households transiting from septic to sewer would enroll.
- The average yearly deferral is estimated to be \$650; some bills will be higher or lower based on the year the customer became a capacity charge customer.

Analytical assumption implications

The assumption that capacity charge customers would qualify for property tax deferral and exemption programs at the same rate as others in the census tract may over or under estimate enrollment.

The assumption that only 80 percent of those eligible will enroll (the same assumption used by the state of Washington to estimate enrollment) may over or under estimate actual enrollment figures.

This analysis uses the base assumptions used in modeling property tax enrollment and repayment.

This analysis assumes that WTD will provide significant outreach to customers to inform them and enroll them in this program.

Administrative Cost Estimates

This option results in low administrative burden:

- 30 minutes per application
- 2,200 customers at 30 minutes equals 1,100 hours

OPPORTUNITY #4: EXPANDED DISCOUNTS FOR LONG-TERM COVENANTED AFFORDABLE HOUSING PROJECTS

Policy Objective

The objective of this policy is to decrease the cost of building each affordable housing unit. This is upstream solution supports the effort to increase the quantity of long-term affordable housing in the community. Expanding the supply of affordable housing provides benefits to three beneficiary groups: the owner/operators of affordable housing, the community, (for example by reducing homelessness), and individual low-income renters. This opportunity provides benefits across 50 years.

Policy Description

WTD can directly support the growth of affordable housing supply in the region by reducing the capacity charge fee to developers of affordable housing, thus allowing them to use available funding to construct additional units.

This option would involve revision of the definition of the rate class for low income housing, which receives a reduction in the charge as compared to similar housing units that are market rate. To qualify for the current 50 percent low-income housing discount, the housing must be a unit in a multifamily building, 400 square feet or smaller, and meet a variety of other restrictions. This option would expand the low-income housing definition, focusing on supporting developers that provide the largest community housing benefits.

The expanded eligibility criteria/definition could affect the following eligibility restrictions:

- **Housing structure type:** Remove multifamily designation to allow all housing types, including single-family homes, Detached Additional Dwelling Units (DADUs), Attached Welling Units (ADUs), tiny homes, and mobile units to qualify if they meet the other criteria.
- **Housing unit size:** Remove size limit of 400 square feet to allow homes of all sizes to qualify for the reduced charge.
- **Percentage of building with rent restrictions:** Maintain or increase the percentage of units in the building that are rent restricted. Currently 51 percent of the new building must be rented only to households meeting defined income limits, and this could be increased to as high as 75 percent without concerns.
- **Income threshold:** This could be amended from the current threshold of 80 percent Area Medium Income (AMI) to 60 percent of AMI to direct incentives to housing that serves residents most in need. However, important home ownership programs would qualify if the threshold remains at 80 percent of AMI, without undue concern about abuse (i.e. profits being made by those who receive the discount) according to experts in affordable housing.
- **Covenant or deed restriction:** Maintain the existing requirement that property have a covenant with a government agency that includes eligibility enforcement authority.
- **Minimum duration for the covenant:** Currently it is internal policy to require 50-year low-income restricted covenant. A small set of additional affordable housing programs could qualify if the duration were reduced to forty years.
- **Level of discount:** Increase the level of discount offered from the current fifty percent reduction to as much as eighty percent. A full waiver of the charge is not under consideration currently.

Benefits to Capacity Charge Customers and Affordable Housing

This policy benefits customers and the community in several ways:

- First, it decreases the cost of construction of long-term affordable housing. Local affordable housing agencies estimate that this type of benefit will accrue to approximately 760 affordable units annually.
- The second benefit occurs when affordable housing developers use the money saved from the capacity charge to construct additional affordable housing units. Affordable housing experts estimate that it takes approximately \$204,500 to build an average additional unit. Based on that figure, the value of the discounts under this option would translate into approximately 110 new dedicated affordable housing units over a decade.
- Low-income community members will have increased access to affordable housing and be provided certainty that the affordability of their residence will sustain over the long-term.

The table below (Figure 13) offers a range, informed by the affordable housing experts who provided input on this study, for the number of potential affordable housing units that meet the above criteria that will be built annually over the next 10 years. It also includes an estimate of the additional units that can be constructed using the funds no longer required to pay the capacity charge.

Figure 13: Affordable Housing Starts Meeting Option #5 Criteria and Units Supported by Freed Money

	Best Guess	Low	High
Estimated # eligible affordable housing units constructed annually	760*	400*	1,000*
Estimated additional affordable housing units built (1 unit = \$204,500) annually with savings	11	9	23
Affordable housing units supported annually	771	409	1,023
Estimated # people living in eligible permanent affordable housing (1.9 people/unit)	1,464	771	1,944
Units supported 2020- 2029	7,710	4,090	1,023

*133 studios, some of which may qualify for the existing low-income housing rate class, are included in these estimates

Costs and Rate Impact

An expanded definition of the low-income housing rate class could result in an estimated annual foregone revenue ranging from \$2.25 million with a 50 percent discount to \$3.6 million with an 80 percent discount, for the construction of 760 units (Figure 14).

In the absence of any change in WTD’s overall revenue requirements, or policy change indicating foregone revenue would be supplemented from a different source, the burden to collect foregone revenues from policy changes would be borne by ratepayers. Two scenarios for collection were examined; other options were identified but not examined at this time (see the section *Opportunities to Recover Foregone Revenue*).

One funding scenario would be to increase the capacity charge. Foregone revenue could also be sourced by increasing the sewer rate. The revenue impact estimates below can form the basis for rate impact estimates once a funding strategy has been decided upon.

Figure 14: Annual Foregone Revenue Impact Estimates for a Range of Affordable Housing Starts

		Best Guess	Low	High
Affordable housing units supported annually		760	400	1,000
50 percent discount	Foregone Revenue	\$2.23 million	\$1.175 million	\$2.94 million
	Capacity charge collection	\$1.10	\$ 0.58	\$ 1.45
	Sewer rate collection	\$0.25	\$0.13	\$0.33
80 percent discount	Foregone Revenue	\$3.6 million	\$1.88 million	\$4.7 million
	Capacity charge collection	\$1.80	\$0.95	\$2.37
	Sewer rate collection	\$0.40	\$0.21	\$0.52

Analytical assumption implications

King County estimates it needs approximately 150,000 newly constructed or refurbished affordable housing units to meet current needs. Although the majority of these units will come from refurbishing existing buildings, and therefore not involve the capacity charge, and many others may not meet WTD eligibility requirements for a discount, the number of new units that need to be constructed is significantly larger than the number of units we estimate will actually be built. If additional funding is made available, the number of new units of affordable housing constructed each year could go grow significantly beyond the estimates presented here.

It is also possible that a combination of capacity charge and sewer rates will be used to collect foregone revenue, or that other community sources will be identified.

Administrative Cost Estimates

Administrative costs are expected to rise moderately. It is anticipated that it will take less than 3 hours, on average, to review and approve each application.

OPPORTUNITY #5: MWPAAC-WTD – PUBLIC HEALTH & ENVIRONMENT ROUNDTABLE

Policy Objective

WTD may have opportunities to support the transition of targeted on-site sanitary systems to sewer, with resulting public health and environmental benefits. Local agencies and Public Health of Seattle and King County each have their own policies for identifying/ targeting septic systems that pose a threat to public health or water quality because of their

location or condition. In some cases, property owners with septic systems of concern are required to connect to their local sewer district. In these cases, the costs that the property owner faces are formidable and include the WTD capacity charge.

Policy Description

WTD has the opportunity to convene a group of representatives from potential partner agencies (e.g. WTD, Metropolitan Water Pollution Abatement Advisory Committee members, Public Health of Seattle and King County) to support the transition from on-site sanitary to sewer for targeted low-income households.

The working group could consider:

- Defining a special purpose customer class for properties transitioning to sewer due to public health or environmental benefits.
- Expanding WTD's lien policy to include outreach to targeted customers
- Setting a ceiling on the policy budget due to the large uncertainty around the potential number of enrollees.
- Jointly submitting targeted grant and loan applications.

Benefits to Capacity Charge Customers and Affordable Housing

There is no current estimate of the number of households that may be eligible for participation in any policy that could arise from this collaboration. An estimate of the benefits and costs of providing the equity payment plan (Opportunity #3) to 500 households is included in Option 3 estimates.

BENEFITS AND COSTS

The package of assistance provides benefits to three categories of beneficiaries: individual capacity charge customers, the community as a whole, and the environment. Public benefits, shared by the whole community, increase the value of living in the service area (e.g. reduction in neighborhood homelessness), while benefits to individual customers include increasing the ability of individual customers to pay their capacity charge bill.

Benefits to [individual customers](#):

- Increased access to robust (i.e. not just financial but social, physical and mental health support) community support policies designed to support people in crisis, including financial hardship (Opportunity #1).
- Opportunities for customers with a temporary financial hardship to delay payment, and perhaps prevent the downward spiral into homelessness. (Opportunity #2).
- Opportunities for low-income customers struggling with cash flow (e.g. elderly and the disabled on fixed incomes) to defer payments and pay the capacity charge out of the equity in their homes (Opportunity #3).
- Increased number or quality (e.g. add a playground to the complex) of affordable housing units that an individual builder can construct with available funding (Opportunity #4).

Public benefits to [the community as a whole](#):

- Increase in the number of permanently affordable quality dwelling units available for rent at below market prices (Opportunity #4).
- Increase in the number of low-income residents accessing community support services (Opportunity #1).
- Support for households with equity in their homes but limited cash flow (Opportunity #3).

- Increase in public health by supporting the conversion of targeted on-site sanitary systems to sewer (Opportunity #3, 5).

Benefits to the environment:

- Increase in water quality and eco-system health by supporting the conversion of targeted on-site sanitary systems to sewer (Opportunity #3, 5).

Costs

This package of assistance impacts WTD costs in two ways: it delays revenue collection, and it creates discounts that result in lost revenue.

Delayed Revenue:

- Liens and payment plans could create delays in revenue receipt of between \$1 million and \$2 million annually. The delayed receipt has minimal impact on WTD financial viability due to the ability of WTD to capture this money at a later date and the small percentage of annual revenue represented by the delay (capacity charge generated approximately \$71 million and \$82 million in revenue in 2016 and 2017, respectively). (Opportunities #2 and 3)

Lost Revenue:

- The reduction of charges for new affordable housing would result in an estimated \$1.7 million to \$3.6 million in lost revenue annually, depending on the percent discount offered and the number of new affordable housing constructed. (Opportunity #4)
- Overall, package of assistance would provide benefits to an estimated 4,700 capacity charge households per year and support construction of between nine and twenty-three new restricted affordable housing a year, with an estimated lost revenue of between \$1.7 million and \$3.6 million annually.

Figure 15 provides a simple overview of benefits and costs, Figure 16 illustrates the benefits and costs by individual opportunity, and Figure 17 provides additional insights into total costs and benefits if the opportunities are implemented together.

Figure 15: Package of Assistance Strategies: Estimated Benefits and Costs

Estimated Benefits (All Opportunities)		
Households Assisted Annually	People Assisted Annually	Households Assisted 2020 – 2030
4,700	8,000	49,500
Revenue Changes		
Delayed Revenue Annually (Options 2 and 3)	Foregone Revenue Annually (Option 4)	
\$1 Million– \$2 Million	\$1.7 Million– \$3.6 Million	

Figure 16: Summary of Annual Costs and Benefits

Opportunity	Policy Target	Policy Benefits			Policy Costs		
		Households Assisted Annually	People Assisted Annually	Households Assisted in a decade 2020-2029	Delayed Revenue: Revenue that is received in a future period	Foregone Revenue: Revenue that is never received	Capacity Charge Rate Impact
Opportunity #1: Connecting Customers with Community Support Services	Provide customers with more than just financial support	Will reach all customers.			None	None	None
Opportunity #2: Expanded Payment Plan	Customers facing temporary hardships	130 - 250	252 - 475	1,300 - 2,500	\$25,000 - \$250,000	None	None
Opportunity #3: Equity Payment Plan: Expanded lien policy	Low-income homeowners eligible for property tax relief	2,500	3,800	5,000	\$1.46 million	None	None
Opportunity #4: Expanded Discounts for Long-term Covenanted Affordable Housing Projects - 80 Percent Discount	Long-term affordable housing supply for the neediest	760	1,500	7,600	50 percent	\$2.25 million	1.7 percent \$1.13
					80 percent	\$3.6 million	2.24 percent \$1.81/mo.
Opportunity #5: MWPAAC-WTD – Public Health & Environment Roundtable	Targeted low-income customer properties with public health & environment impacts from sanitary systems	300 - 700	50– 1,500	3,000 – 7,000	None	None	None

Figure 17: Summary of Total Annual Benefit and Cost Estimates

Range		Policy Benefits			Policy Costs			
		Households Assisted Annually	People Assisted Annually	Households Assisted 2020 - 2029	Annual Delayed Revenue	Annual Foregone Revenue	Potential Rate Impact	Admin Burden
Total for Combined Opportunities 1-3		~3,200	6,500	40,000	\$1 million - \$2 million	None	None	Moderate
Opportunity #4: Expanded Discount for Affordable Housing	50 percent	760	1,444	9,500	None	\$2.25 million	1.4 percent \$1.13/mo.	Moderate
	80 percent	760	1,444	9,500	None	\$3.6 million	2.24 percent \$1.81/mo.	
Total Affordability Package		4,000	8,000	49,500	\$1 million - \$2 million	\$2.25 million - \$3.6 million	1.4 percent to 2.24 percent	Moderate

Summary of Other Options Explored

RENTERS

Opportunities to support low-income renters were analyzed and discarded because they did not meet selection criteria. Barriers to a program to support low-income renters included: legal concerns, extensive administrative burden and concerns about the ability and costs of reaching all renters (horizontal equity). However, tenants who pay the capacity charge through their rent could benefit from WTD's connections with community support services.

LOW-INCOME FIRST TIME HOME BUYERS

Program options to support low-income purchasers of their first homes were also examined. These options were discarded due to an inability to meet selection criteria including administrative ease and legal feasibility.

Opportunities to Recover Foregone Revenue

The working group brainstormed several foregone revenue collection opportunities:

- The capacity charge rate
- WTD's monthly sewer rate
- Non-user-fee funding, such as property tax, general fund, or sales tax revenues
- Grants and low-interest loans
- Voluntary donations from customers and/or WTD employees

In-depth examination of funding strategies was outside of the scope of Corona's work on this project.

Next Steps

DEVELOP EVALUATION METRICS

The Corona team will work with the WTD team to develop a monitoring and evaluation process that includes measures of success and establishes a performance review schedule. Program metrics are critical to evaluate and refine WTD's affordability policy changes. The team laid the foundation for effective evaluation by creating project objectives and selection criteria that can also be used to create evaluation metrics. The team also created a baseline understanding which allows for the measurement of change.

DEVELOP AN OUTREACH APPROACH

The success or failure of affordability changes, as measured by the number of enrollees, is largely dependent upon the effectiveness of outreach. We can work closely with WTD to develop and implement a targeted outreach program that increases customer awareness of and participation in expanded affordability opportunities.

DEVELOP IMPLEMENTATION MANUALS

Identify and develop manuals that provide WTD staff with the information needed to implement the programs. This will include, for example, developing customer service scripts, creating application forms, and making suggestions for changes for consideration during the WTD billing system update process.

Appendix A: Methodology Details

CUSTOMER CHARACTERIZATION

The Corona team characterized customers by geo-locating customer addresses and then applying rates of characterizations (e.g. poverty rates) for each census tract to the number of customers in that tract.

The first step was to attach geo-locations to every household in the WTD billing data base. Capacity charge customers with locations with low and medium confidence were removed (e.g. if the customer location geo-coded to Alaska was removed). Accounts that were closed or exempt were also removed from the data. Accounts with liens or intent to lien were included.

Customer billing locations were then associated with units from the 2013 American Housing Survey and the 2016 American Community Survey 1-year Public Use Microdata Samples (PUMS) Population Records and Housing Unit Records data for the state of (<https://factfinder.census.gov>). 123 census tracts were identified as being at least partially included in the WTD service area. Partial areas were included and data pro-rated according to percent included in the service area. The Washington PUMS datasets were filtered to only include the PUMAs that make up the WTD service area. Using the filtered dataset and the open-source statistical modeling software R, estimates for areas of interest (i.e. total number of housing units, number of renter-occupied housing units, number of single-family housing units, etc.) were determined for each PUMA.

Assumptions:

- The portion of households below 200 percent poverty provided for the census tract applies uniformly across capacity charge customer households.
- The distribution of the portion of households below 200 percent poverty across household type provided by the PUMS data, applies uniformly across capacity charge customers.
- That WTD billing data provides an accurate reflection of current households.

AFFORDABLE HOUSING

The Corona Team applied 3 approaches for *projecting* the number of qualifying affordable housing units that will go on line in the next 5 years:

1. Use of historical data of affordable housing starts to project future affordable housing starts.
2. Gathered data from primary builders of affordable housing to build a data-based projection.

Gathered data and input from the Community Subject Area Experts, *Subsidized Housing Agencies* (Figure 2) to build an informed, data-based projection.

Historical data is often used to project future conditions. However, data was only available prior to 2013. As this represents a time when due to economic conditions there was very low investment in affordable housing in the region, using historical data to create future projections was discarded as a useful approach.

Gathered data

Based on data gathered from community affordable housing experts, Figure 18 presents an estimate of the number of additional units that will be built by agencies with covenanted affordable housing eligibility and enforcement authority over the next 5 years.

Figure 18: Affordable Housing Start Estimates*

	Best Guess	Low	High
Estimated # eligible AH units annually	650	140	1,250
Estimated # eligible AH RCE's annually	450	128	1,100

*These estimates include studios

These results rely on the following assumptions:

- For the City of Seattle developments, we used 2017 as a representative year, and assumed the number of developments in 2017 is representative of developments in future years.
- Using Washington State Housing Finance data, we used the number of estimated developments completed in 2017 as representative of the number of future developments.
- The King County Housing Finance Program provided their own estimate for a ‘typical development year’ developed specifically for this analysis.

Summary of the methodology used to develop the data-based projection statistics in Figure 18:

- Total units over five years = 3,571
- Average year (3,521/5) = 650
- Low = 140 (smallest units only)
- High = 1,250 (half in one year)
- Total RCES = 2,253
- Average year (2,253/5) = 450
- Low = 128 (smallest units only)
- High = 1,100 (half in one year)

Additional details are provided in the dashboard.

Review and Input with Community Subject Area Experts, *Subsidized Housing Agencies*

Affordable housing experts who provided input on this study were asked to review the data-based findings above and provide insights into the data projections developed for WTD to use in estimating program costs. Based on this conversation, the data in Figure 19 was developed. Note that the discussion focused on projected number of units, and RCE estimates for WTD’s revenue impacts were developed later.

The data in Figure 19 was used for all analytical purposes as it was determined by community experts to be the best guestimate.

Figure 19: Affordable Housing Starts Meeting Option #5 Criteria Informed Data Use Projections*

	Best Guess	Low	High
Estimated # eligible AH units annually	760	400	1,000
Estimated # eligible AH RCE's annually	488	257	642

*Studios were not separated out in this discussion.

Studios

Studios under 401 square feet already receive a 50 percent discount. It is estimated that 941 studio apartments were included in the five-year estimate. Assuming they go on line at an equal rate over the next 5 years, 188 units will go on line annually. At a 0.64 RCE rate this equals about 113 RCEs per year.

The current discount of 50 percent makes the current studio payment ($\$9,179/\text{RCE} * 0.64 \text{ RCE multifamily unit} * 50 \text{ percent current discount}$) = \$2,753 studio

Additional Units Constructed from Saved CC Payment

Figure 20 provides an estimate of the additional number of units that can be constructed for \$204,500, (the amount indicated by the team of experts needed to build one additional affordable housing unit) and the total number of units supported over time.

Figure 20: Estimate of Affordable Housing Units That Can be Built from Money Freed by a 50 Percent Discount

	Best Guess	Low	High
Estimated # eligible AH units annually	760	400	1,000
Estimated additional AF Units Built (1 AH unit = \$204,500) annually	11	9	23
Units supported annually	771	409	1,023
Estimated # people living in eligible permanent AF housing (1.9 people/unit)	1,464	771	1,944
Units supported 2020- 29	7,710	4,090	1,023

Assumptions:

50 percent discount = \$2.25 million saved / \$204,500 amount to build one unit = 11 additional units.

80 percent discount = \$3.6 million / \$204,500 amount to build one unit = 17 additional units.

Growth

The affordable housing experts who provided input on this study also raised the possibility of additional funding becoming available to meet aspirational needs. Figure 21 provides an estimate of “aspirational” highs for new affordable housing construction.

Figure 21: Affordable Housing – a Very High Estimate for Short-Term Burst of Building

	High	Extremely High – Short term
Estimated # eligible AH units annually	1,000	2,000
Estimated # eligible AH RCE's annually	642	1,500
Estimated additional AF Units Built (1 AH unit = \$204,500) annually	23	46
Units supported annually	1,023	2,046
Estimated # people living in eligible permanent AF housing (1.9 people/unit)	1,944	3,888
Units supported 2020- 30	1,023	2,046

Broad range estimate of affordable housing starts

Figure 22 provides a broad range of potential affordable housing construction. It assumes impacts from studios are already covered in the current rate and removes them from the low estimate only (to create the lowest low). This may not be completely true as a many of the future studios are estimated to be larger than 400 square feet and would therefore not have already qualified for the current discount. Figure 5 also includes the extremely high estimate developed based on aspirational goals.

Figure 22: Affordable Housing Starts – Broad Range of Estimates

	Best Guess	Low	Extremely High
Estimated # eligible AH units annually	760	222	2,000
Estimated # eligible AH RCE's annually	488	144	321
Estimated additional AF Units Built (1 AH unit = \$204,500) annually	11	4	46
Units supported annually	771	226	2,046
Units supported 2020- 30	7,710	4,090	20,460

Appendix B: Additional Customer Characterization Findings

CHARACTERIZATION SUMMARY

An analysis of capacity charge (CC) customer characteristics was conducted. This appendix provides the complete set of findings, including those presented in the body of this report. Summary statistics are presented in Figures 23, 24, and 25.

Figure 23: WTD Capacity Charge (CC) Customers in 2017

Total accounts	62,581
Total housing units	118,614
Total single-family households	54,198
Total multifamily households	64,416
Estimated # of people in single-family capacity charge households	151,754
Estimated # of People in multifamily capacity charge households	122,390
Liens filed to date	2,848

Figure 24: Estimated Ranges of Capacity Charge HOUSEHOLDS Facing Extreme Poverty

Total capacity charge households	25,000 - 33,000
Single-family households	8,100 - 12,500
Multifamily households	14,800 - 24,500
On-site sanitary system to septic households	120/annual
Extreme poverty is defined for this purpose as households living below 200 percent of federal poverty incomes.	

Figure 25: Estimated Ranges of PEOPLE in Capacity Charge HHs Facing Extreme Poverty

Total people in capacity charge households	38,000 - 69,000
People in Single-family CC households	10,000 - 27,000
People in Multifamily CC households	28,000 - 46,500
Extreme poverty is defined for this purpose as households living below 200 percent of federal poverty incomes.	

METHODOLOGY

The Corona team used WTD billing data to create a database of geo-coded customer locations. Customer locations were then matched to census locations. The database of customer locations by census unit was used, along with the assumption that capacity charge customers have the same average characteristics as others in the census unit, to estimate customer characteristics including poverty metrics. Additional details are provided in Appendix A.

HOUSEHOLD TYPES

Figure 26 provides an overview of capacity charge customers by household type. The values in Figure 26 represent the number of capacity charge households that paid a bill every month in 2017. Customers with exempt or closed accounts and those with addresses with low and medium location confidence were excluded.

Figure 26: Number of Capacity Charge Households by Housing Type

Household (HH) Type	All HH	Single-Family HH	Multifamily HH	# of People in Single-Family HH (2.8/HH)	# of People in Multifamily HH (1.9/HH)
# of Capacity Charge HHs in Service Area	118,614	54,198	64,416	151,754	122,390
Percent Capacity Charge by HH and people	100 percent	46 percent	54 percent	55 percent	45 percent

Summary information:

- Less than half (46 percent) of capacity charge households are single-family (Figure 27).
- More than half (55 percent) of the people who live in homes that pay the capacity charge live-in single-family households (Figure 28).
- More single-family households are located in the eastern portion of the service area and more multifamily households are located in the western portion (Figure 29).

Figure 27: Estimate of 2017 Capacity Charge Households

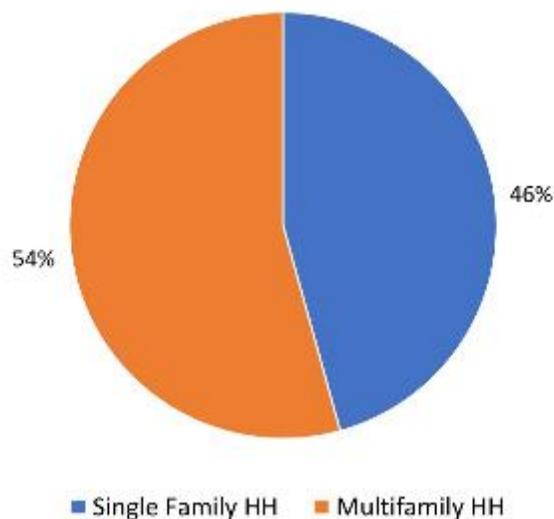


Figure 28: Estimate of the Number of People in 2017 Capacity Charge Households

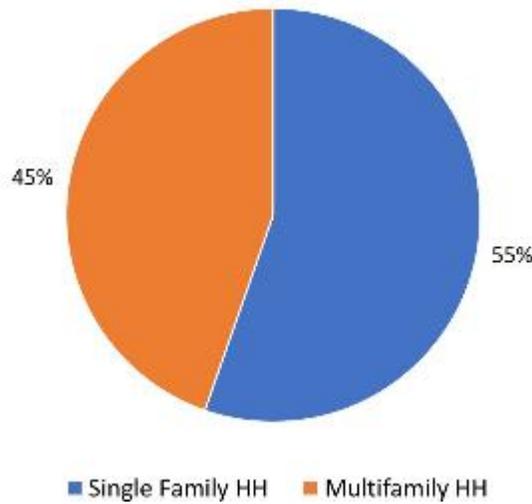
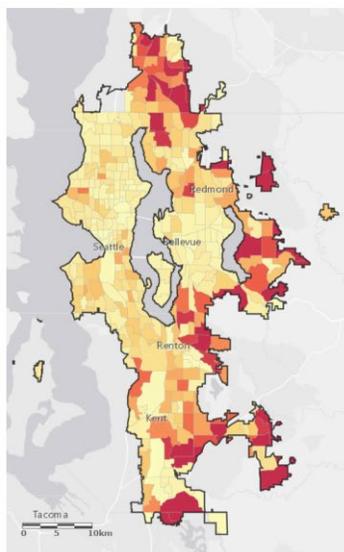
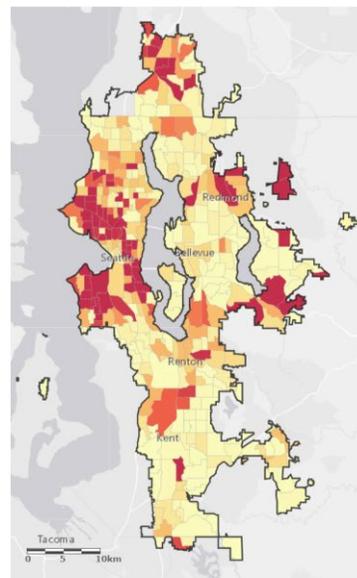


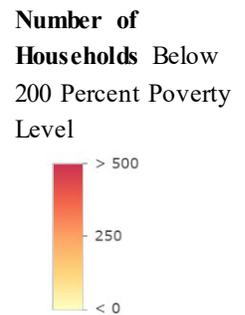
Figure 29: Geographic Locations of Capacity Charge Single and Multifamily Customers



Single-Family Households



Multifamily Households



CHANGES IN CAPACITY CHARGE HOUSEHOLDS OVER TIME

The number of residential capacity charge customers has grown over time (Figure 30: Changes in Single-Family Units over Time, Figure 31: Changes in Number of Multifamily Accounts Over Time, and Figure 32: Changes in Number of Multifamily Units Over Time). Recent changes can be viewed in Figure 33. In each of these maps the top green values represent one dot for each household account and the colored maps use a color scale, the darker the color the larger the number of units in that area.

Figure 30: Changes in Single-Family Units Over Time

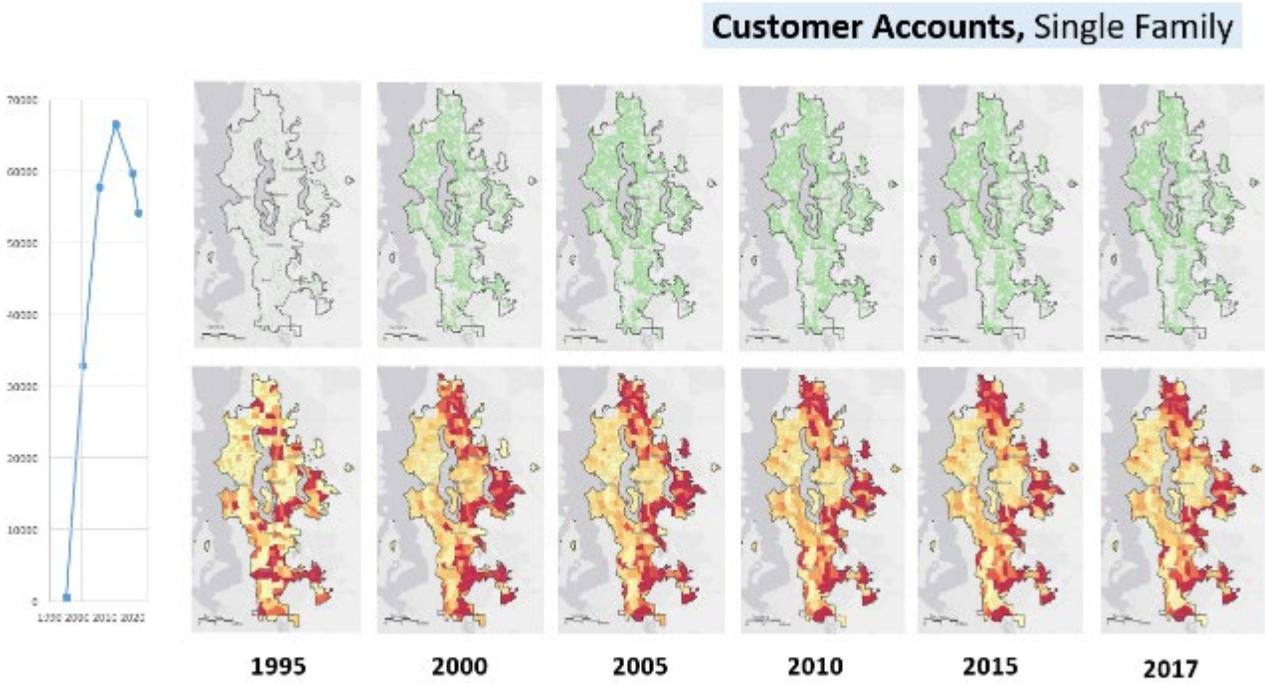


Figure 31: Changes in Number of Multifamily Accounts Over Time

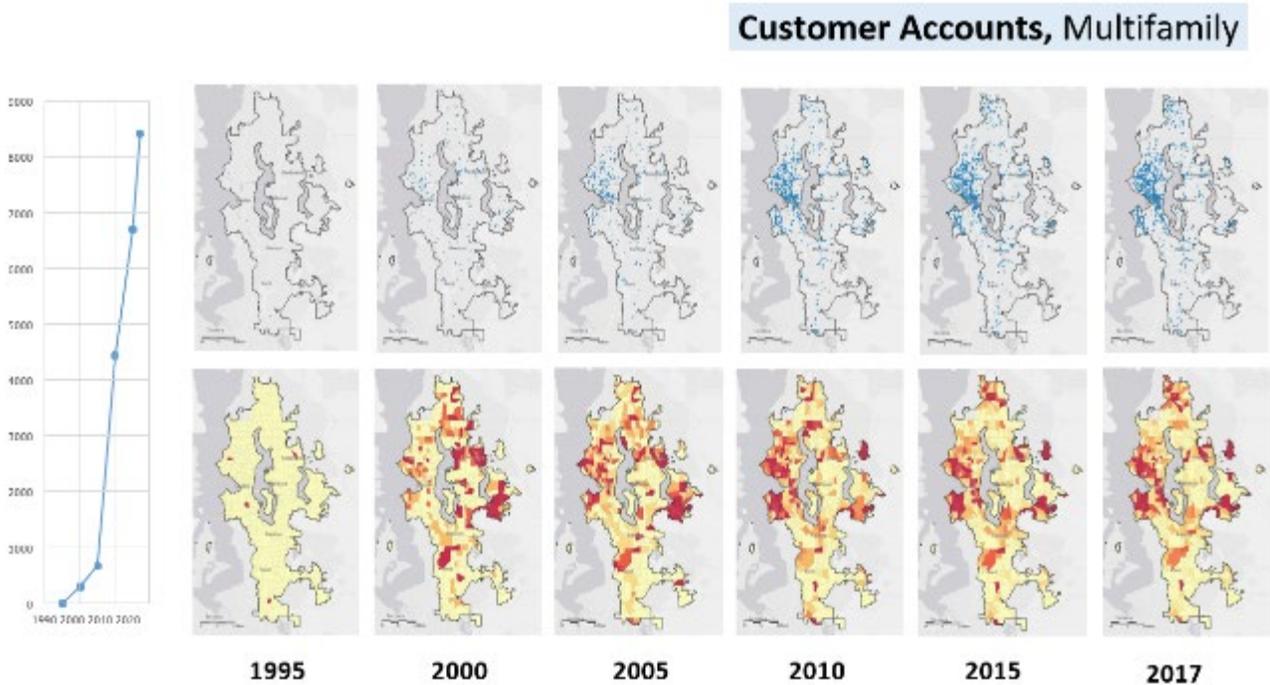


Figure 32: Changes in Number of Multifamily Units Over Time

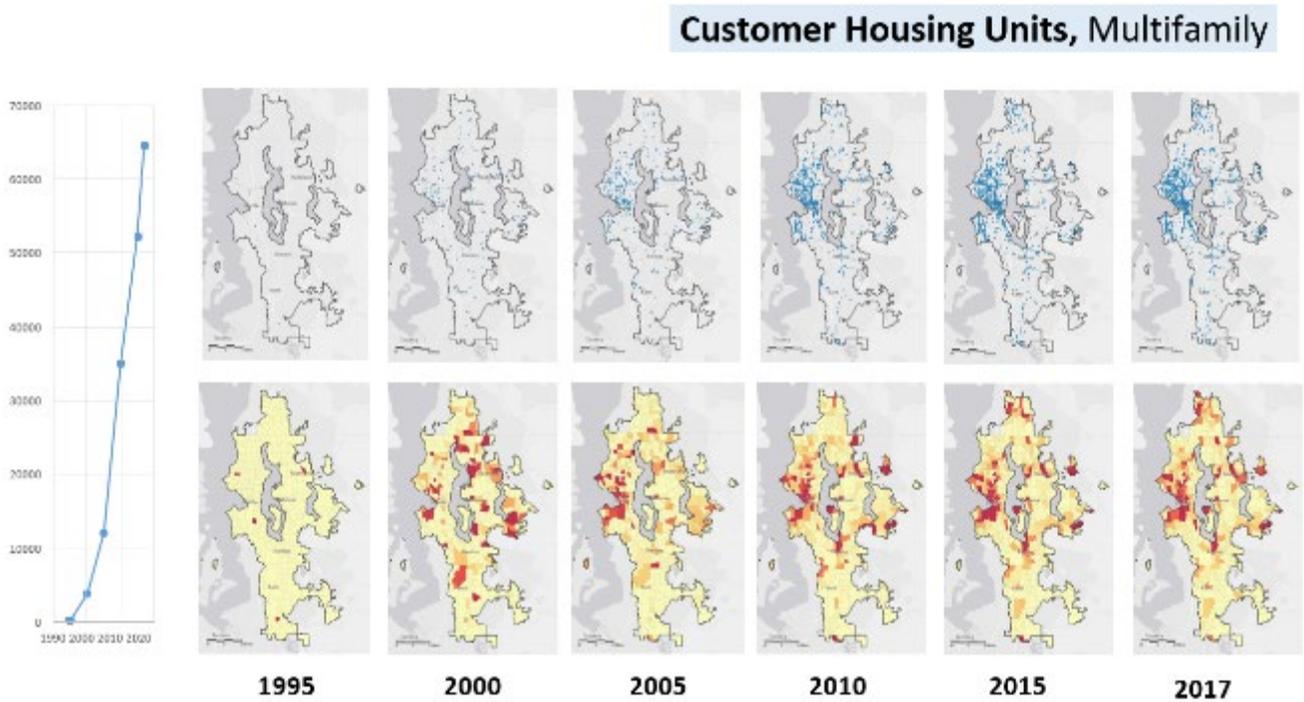
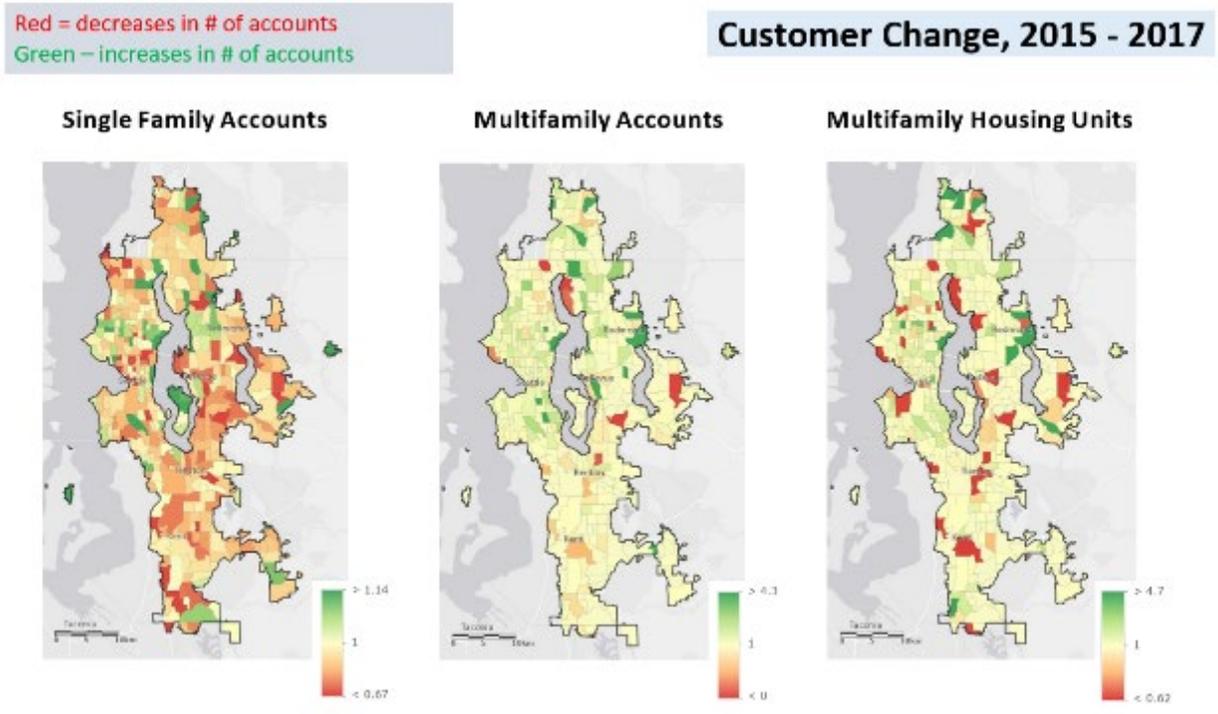
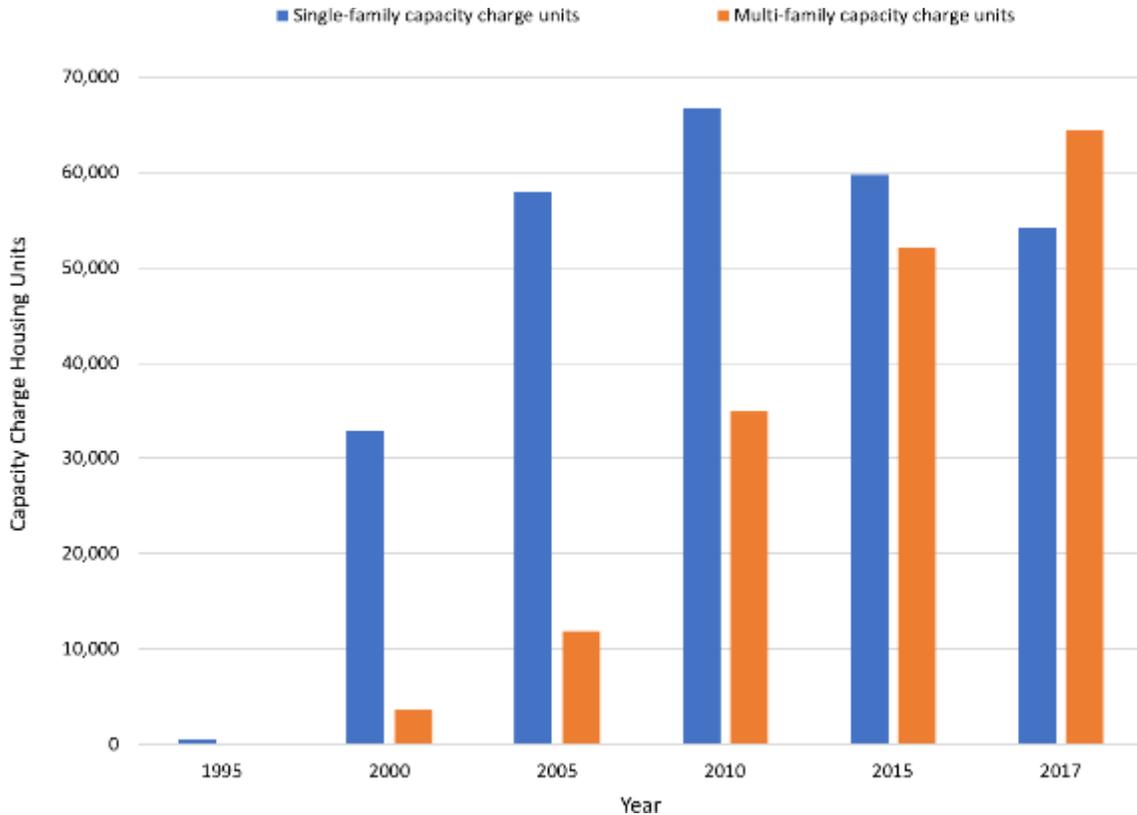


Figure 33: Recent Changes in Number of Capacity Charge Units



The total number of single-family and multifamily capacity charge units for years 1995, 2000, 2005, 2010, 2015, and 2017 are shown in Figure 34. While data are available for 1990, the number of capacity charge units were so low (2 for single-family, 2 for multifamily), they were excluded from the figure.

Figure 34: Single-Family and Multifamily Capacity Charge Customer Housing Units Over Time



Summary characteristics include:

- The number of single-family capacity charge units peaked in 2010 at 66,634 and has declined since then by approximately 19 percent.
- Multifamily capacity charge units have continued to increase over time, with a total of 64,416 units in 2017.

CAPACITY CHARGE CUSTOMER ACCOUNT STATUS

WTD customer billing data was used to analyze the total number of single-family and multifamily capacity charge housing units by account status. A summary of the results is shown in Figure 35.

Figure 35: Summary of WTD: Total, Single-Family and Multifamily Capacity Charge Customers Housing Units by Account Status in 2017

Account Status	Total Single-Family Capacity Charge Customers/Housing Units	Total Multifamily Capacity Charge Housing Units
Closed Account Status	808	711
Payment Plan Account Status	18	0
AR Bankruptcy Account Status	1	0
CC Bankruptcy Account Status	26	0
Lien Filed Account Status	2,684	245
Exempt Account Status	205	0
Hold Account Status	712	1
SEA Account Status	111	1,641
Intent to Lien Account Status	602	633
No Charge Account Status	43	0
Null Account Status	49,084	60,305
Paid Off Account Status	62,647	27,132

Maps in Figures 36 and 37 illustrate the geographic locations for single and multifamily accounts with an intent to lien and where liens have been filed. Once again, the green dots represent each account while the colored map shows the number of accounts using a color scale – the darker the color the more accounts.

Figure 36: Geographic Locations for Number of Single-Family Customer Accounts with Intent to Liens and Lien

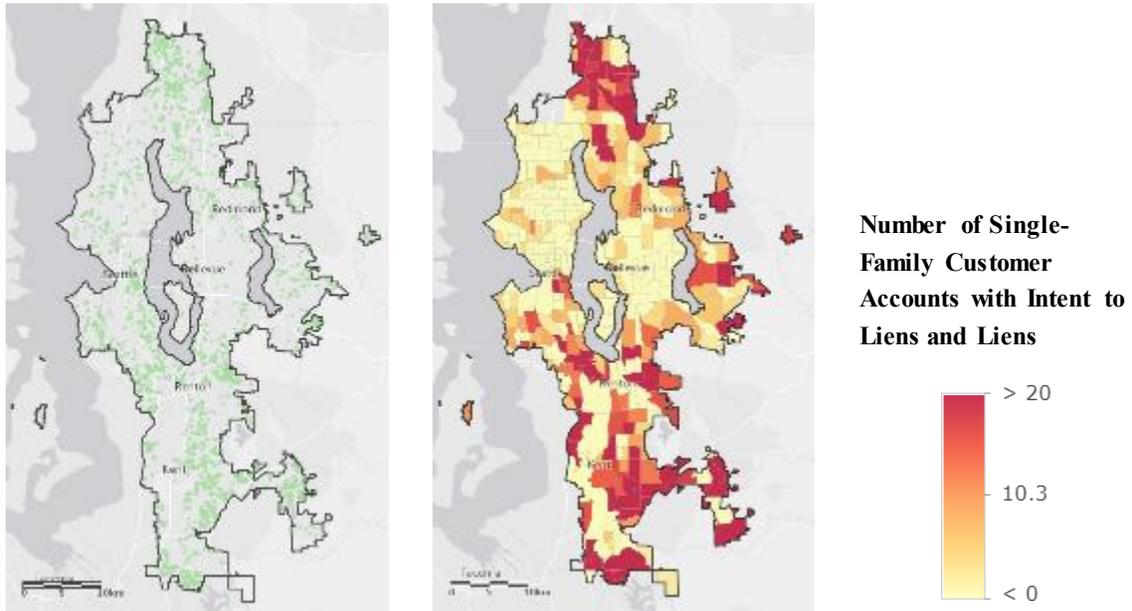
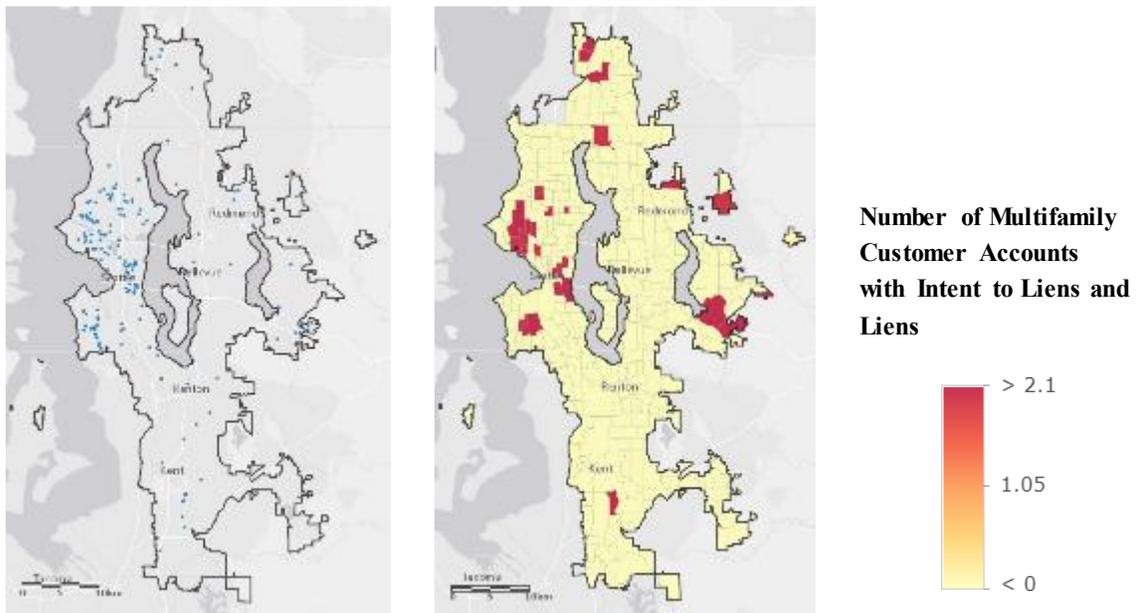


Figure 37: Geographic Locations for Multifamily Customer Accounts with Intent to Liens and Lien



Estimates of Households in Poverty

Figure 38 provides an overview of extreme poverty rates (defined as a household income of 200 percent or less of federal poverty thresholds) for capacity charge customers by household types using 2012-2016 five-year American Community Survey (ACS) census tract data. Measuring against 200 percent of federal poverty is considered one of the most stringent

thresholds for extreme poverty. This measure determines eligibility for many Washington state customer assistance programs (e.g. SNAP, LIFT).

The data in Figure 38 provides estimates of the rate of poverty facing capacity charge customers using two approaches. The first estimate (A) is developed by applying the rate of households below 200 percent of federal poverty guidelines in each county to the number of capacity charge customers in each county. Federal poverty rates are illustrated in Figure 39. The second estimate is calculated by identifying the number of capacity charge households in each census tract (WTD service area has over 400 census tracts) and multiplying the number of customers by the rate of poverty in each census tract. Rates of poverty in WTD service area census tracts range from 5 percent to 77 percent.

Figure 38: Summary of Capacity Charge Customers Living in Poverty

	All CC HHs	CC Single-Family HHs	CC Multifamily HHs
# of capacity charge households in Service Area	118,614	54,198	64,416
A: # of capacity charge households with incomes less than 200 percent poverty - by county poverty rate	27,384	12,466	14,816
B: # of capacity charge households with incomes less than 200 percent poverty - by census tract poverty rate	25,555	9,731	15,824
Refinement level difference	-1,726	-2,735	1,008
A: Sum of the individual <i>county poverty</i> rates (Figure 24) times the number of capacity charge customers in each county			
B: Sum of the individual <i>census tract rates</i> times the number of capacity charge customers in each county			

Figure 39: Federal Poverty Guidelines

Household Size	100 Percent	200 Percent
1	\$12,060	\$24,120
2	16,240	32,480
3	20,420	40,840

In order to develop a breakdown of poverty by household type, the team applied the percent of single-family homes in extreme poverty using the ACS Public Use Microdata Sample (PUMS) data. The PUMS data, which is more recent (2016

versus an average of 2012 to 2016) allows for a more refined estimation of poverty by household type: 15 percent for single-family and 38 percent for multifamily, for the service area. Figure 40 presents estimates poverty using a combination of WTD billing data, census tract data, and PUMS data.

The different approaches/data sources used for estimating the number of capacity charge customers in poverty provides WTD with a range of estimates for the number of capacity charge households and people in households facing extreme poverty (Figures 41 and 42).

Figure 40: Comparison of Capacity Charge Customers in Poverty Estimates: PUMS, County and Census Tract Rates of Poverty

	# of Capacity Charge HHs (WTD 2017 Billing Data)	# of capacity charge households in poverty (ACS PUMS data) Poverty Rates: SF=15 percent, MF = 38 percent	# of capacity charge households in poverty (ACS county data)	# of capacity charge households in poverty (ACS census tract data)
Total WTD capacity charge customers	274,145	69,272	38,228	57,312
Single-Family	151,754	22,764	10,038	27,247
Multifamily	122,390	46,508	28,190	30,066

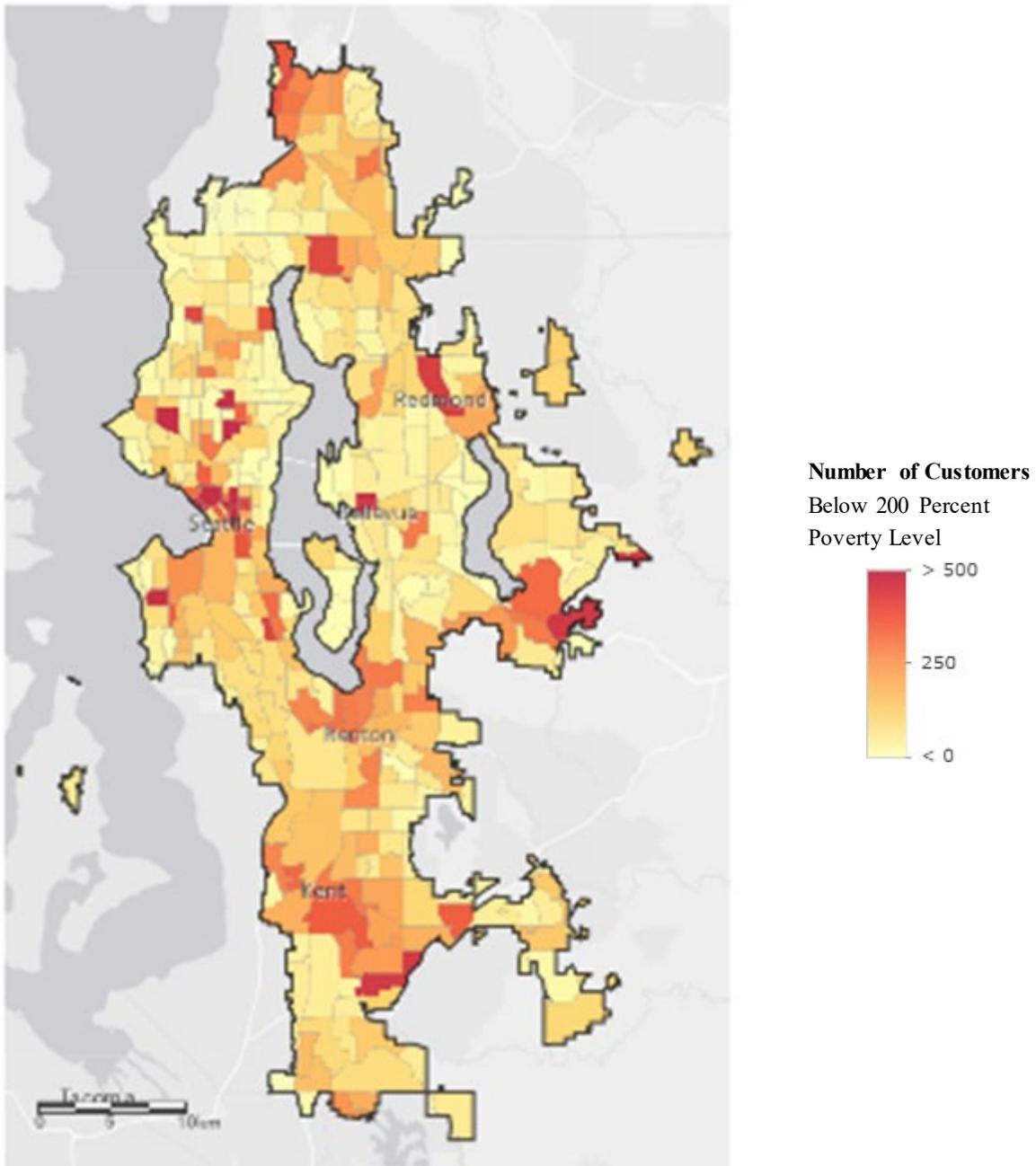
Figure 41: Estimated Ranges of Capacity Charge Households Facing Extreme Poverty

Total capacity charge households	25,000 - 33,000
Single-family households	8,100 - 12,500
Multifamily households	14,800 - 24,500
On-site Sanitary System to Septic households	1,800 total, 120/annual
Extreme poverty is defined for this purpose as households living below 200 percent of federal poverty incomes.	

Figure 42: Estimated Ranges of People in Capacity Charge HHs Facing Extreme Poverty

Total people in capacity charge households	38,000 - 69,000
People in Single-family CC households	10,000 - 27,000
People in Multifamily CC households	28,000 - 46,500
Extreme poverty is defined for this purpose as households living below 200 percent of federal poverty incomes.	

Figure 43: Geographic Location for Customers with Incomes Less Than 200 Percent of the Federal Poverty Line



Figures 44 and 45 provide additional details regarding locations of households in extreme poverty by household type – single and multifamily.

Figure 44: Single-Family Households in Extreme Poverty

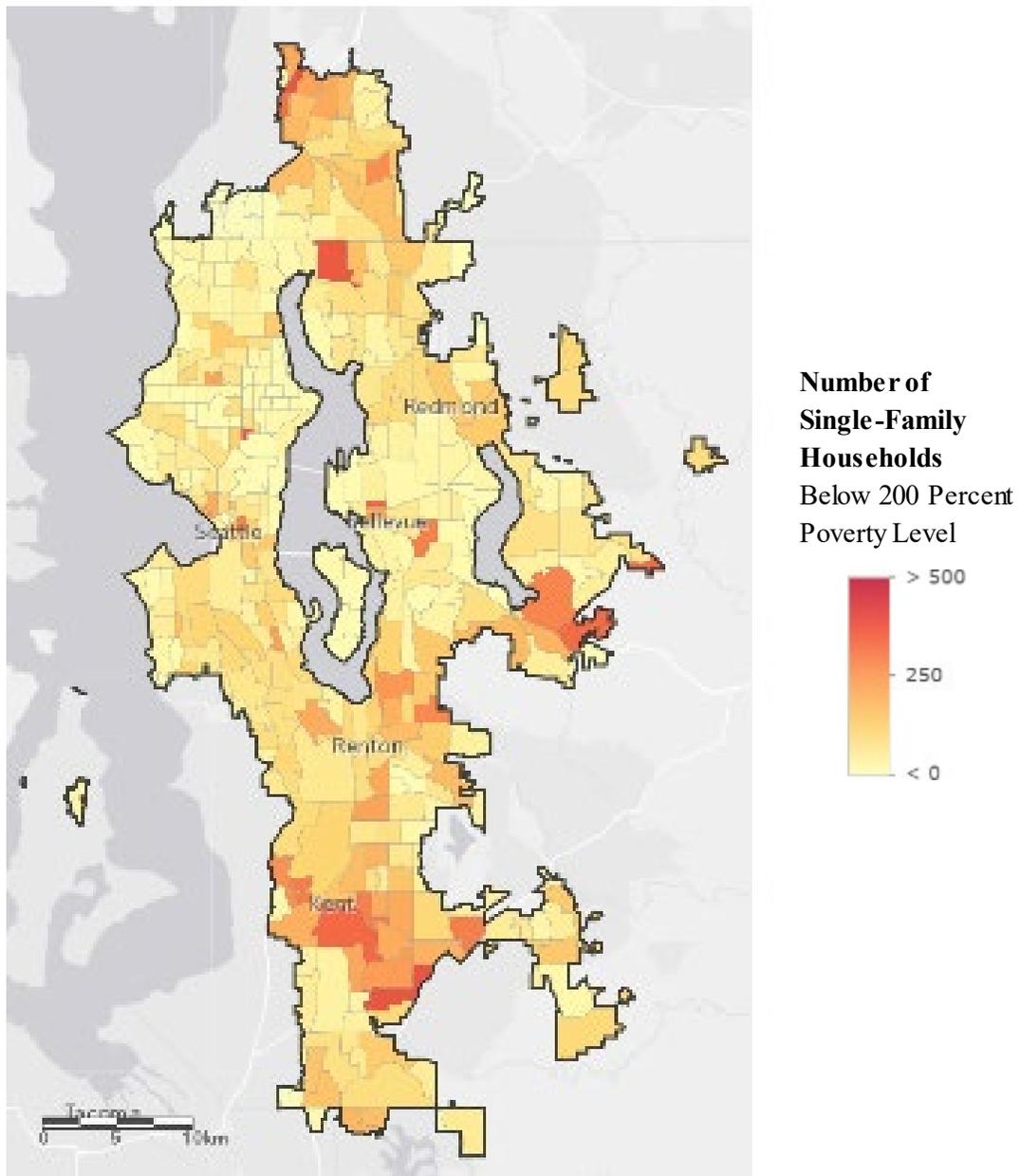


Figure 45: Multifamily Households in Extreme Poverty

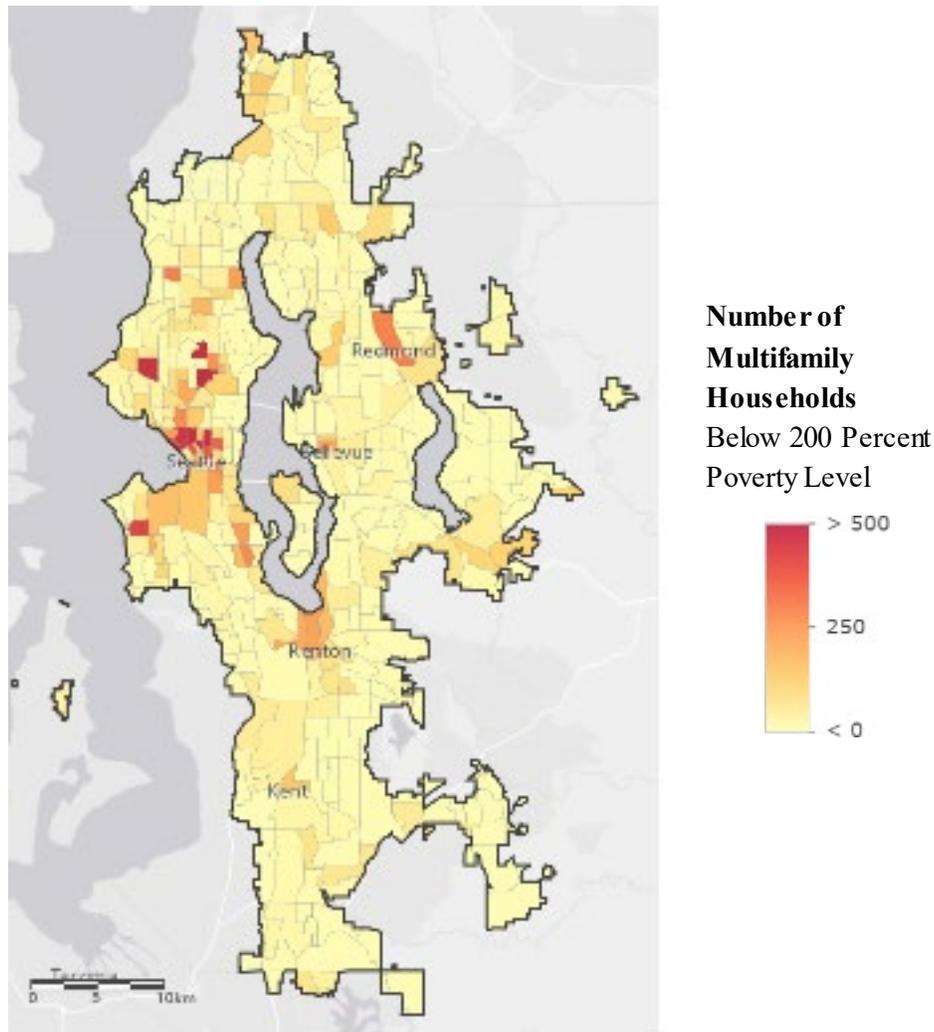


Figure 46 provides a summary of customer characterization data.

Figure 46: Characterization of WTD Service Area Households and Capacity Charge Units Using 2012-2016 5-Year ACS PUMS and Census Tract Data

	PUMS DATA – (2012-2016 5-year)				Census Tract Data – (2012-2016 5-year)/WTD Billing Data			
	No. of Households (HH)	Percent of HH	Median Household Income (MHI) (\$yr.)	# of Households (HH)	Percent of HH	Median Household Income (MHI) (\$yr.)	No. of Capacity Charge HHs	Percent of Capacity Charge Customer base
All Housing Units	603,203	100.00 percent	\$79,945	672,602	100 percent	\$84,676	258,768	100 percent
Single-Family	346,527	57.45 percent	\$106,799	390,081	58.00 percent		166,160	69.72 percent
Multifamily	256,676	42.55 percent	\$54,754	282,521	42.00 percent		92,608	38.86 percent
Owner-occupied	325,568	53.97 percent	\$109,362	366,882	54.55 percent	\$111,541		
Renter-occupied	277,635	46.03 percent	\$55,303	305,719	45.45 percent	\$56,241		
Single-Family Owner-occupied	284,841	47.20 percent	\$114,746	321,625	47.82 percent	-		
Multifamily Owner-occupied	40,727	6.75 percent	\$75,433	45,258	6.73 percent	-		
Single-Family Renter-occupied	61,686	10.23 percent	\$74,983	68,456	10.18 percent	-		
Multifamily Renter-occupied	215,949	35.80 percent	\$50,485	237,264	35.28 percent	-		
Renters - City Limits Seattle	143,835	23.85 percent	\$52,932	157,198	23.37 percent	\$53,351		

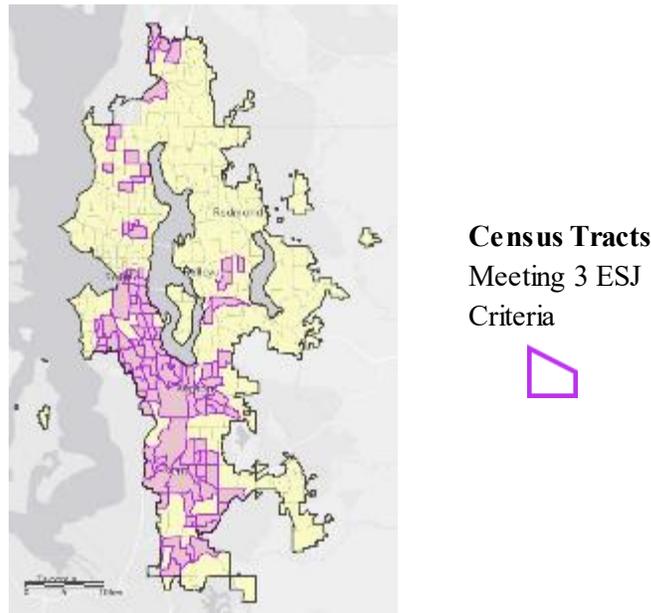
EQUITY AND SOCIAL JUSTICE

King County's Equity and Social Justice (ESJ) Ordinance directs the County to consider equity and social justice impacts in all decision-making to increase fairness and opportunity for all people, particularly for people of color, low-income communities, and people with limited English proficiencies. This key foundational practice is referred to as "using an equity lens." The map in Figure 47 illustrates the census tract boundaries that qualify as high ESJ opportunity areas based on the three equity and social justice criteria outlined in the WTD ESJ policy: deviation from county averages for English proficiency, poverty threshold incomes, and non-white residents.

Summary Characteristics:

- There is a broad distribution of high ESJ opportunity locations within the WTD Service Area (Figure 47)
- Customers with ESJ challenges are not centrally located; no location specific assistance approach is recommended (Figure 48)
- Customers facing poverty are located throughout the service area.

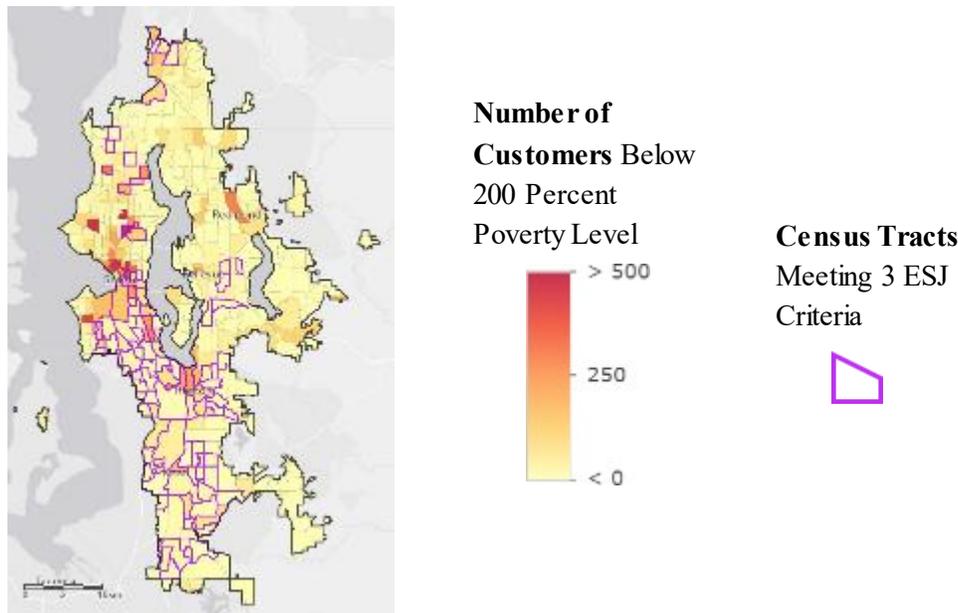
Figure 47: Census Tract Locations with Significant Equity and Social Justice (ESJ) Challenges



The map in Figure 48 illustrates the geographic location for customers with incomes less than 200 percent of the federal poverty metric and, using purple boundaries, the census tracts meeting the 3 WTD ESJ criteria.

Service area census tracts identified as meeting WTD ESJ criteria are not necessarily the locations with the highest number of customers in poverty. We suspect that this is due, in part, to the fact that the capacity charge applies to new construction, changes in use of a parcel, or connections from septic to sewer. Households in poverty may be less likely to live in a property that fits any of those conditions. This means that there are probably fewer capacity charge customers in ESJ tracts than in other tracts in general.

Figure 48: Geographic Location of Customers with Incomes Less Than 200 Percent of the Federal Poverty Metric and Census Tracts Meeting the 3 WTD ESJ Criteria



ONSITE SANITARY SYSTEMS

Approximately 12,000 capacity charge customers are estimated to be customers because they are transitioning from an onsite sanitary system to the sewer system.

WTD 2017 billing data was used to identify current customers who are conversion customers. The billing database has a field that can be marked to indicate the account is an on-site sanitary to sewer household; however, the field was not completed for all customers. Figure 49 illustrates the number of customers in the billing data that are: known sewer conversions (5,546), known to not be a conversion customer (57,697), and customers without a designation in the billing data as to whether they are conversion customers (64,020).

By applying the percentage of current customers that are conversion customers identified for customers with a designation, 10 percent, to the number of customers without a designation (64,020) and summing the known sewer conversion customers (5,546) with the estimated sewer customers we estimate there are 11,948 current capacity charge conversion customers.

WTD billing data indicates that 68 of the known 5,546 sewer conversion households are multifamily. This means that the 5,408 total single-family units represent 97 percent of the known conversion housing units, and the 167 multifamily units represent 3 percent of the conversion housing units. By taking the 11,948 estimated current conversion customers and assuming 97 percent are single-family with 15 percent poverty and 3 percent are multifamily with 38 percent poverty, we estimate that 1,874 households are conversion households in poverty.

Assuming the rate of new septic to sewer transfers is linear (for illustrative, best-guess purposes) and that the current total represents a 15-year steady state, about 120 new capacity charge customers are estimated to be new septic to sewer conversions households in poverty.

Figure 49: Estimate of Septic to Sewer Households (2017)

Total Customers Sewer Conversions (KNOWN)	Total Customers Not Sewer Conversions (KNOWN)	Percent of Sewer Conversion (KNOWN)	Total Customers Unknown if Sewer Conversions	Estimated Total Sewer Conversion	Estimated # of HHs 200 Percent Poverty (15 Percent SF, 38 Percent MF PUMS)	Estimated # of NEW Sewer Conversion HHs in Poverty
5,546	57,697	10 percent	64,020	11,948	1,874	120

RENTERS

According to Census Tract data, 18 percent of all rental units in the WTD service area are current Capacity Charge customers. Figure 50 provides a characterization of rental unit household characteristics.

Figure 50: Characterization of Rental Units and Households

Housing Unit Taxonomy		Total rental units in WTD service area (ACS census tract)	Total rental units in service area estimated to be CC HHs (ACS census tract)	WTD Billing Data
Total Housing Units		323,407 (45 percent of housing units in WTD service area)	57,312	64,416
			(18 percent of WTD service area rental units are also customers)	All Multifamily HHs
Household Characteristics		Total rental units in WTD service area with challenge	Total capacity charge rental units' poverty (ACS census tract)	Total rental units in WTD service area with challenge (PUMS)
Income	Below 200 percent poverty (27 percent)	84,266 (26 percent)	14,432 (25 percent)	78,656 (27 percent of rental units)
	50 percent of MHI = \$42,338	123,636 (40 percent)	21,025 (37 percent)	
	70 percent of MHI = \$59,273	167,926 (55 percent)	28,310 (49 percent)	
Language Difficulty	Households with limited English proficiency	35,649 (12 percent)	5,456 (10 percent)	
Race	White	210,866 (65 percent)	37,913 (66 percent)	
	Black/ African American	21,120 (7 percent)	3,426 (6 percent)	
	American Indian or Alaska Native	2,281 (0.7 percent)	358 (6 percent)	
	Asian	56,904 (18 percent)	10,401 (18 percent)	
	Native Hawaiian/Pacific Islander	2,126 (0.7 percent)	249 (0.4 percent)	
	Some other race	9,744 (3 percent)	1,408 (2 percent)	
	Two or more races	20,367 (6 percent)	3,557 (6 percent)	