



# Water, Sanitary Sewer, Water Resources & Solid Waste Management

## Utility Rate Study

For Year Ending December 31, 2018

Prepared By:

**Finance Division**

## Introduction

This Utility Rate Study was completed to update the financial projections for the water, sanitary sewer, water resources, and solid waste management utilities.

### **Goals of a Utility Enterprise Rate Structure**

Water, sanitary sewer, water resources, and solid waste management utility funds are reported in financial statements as enterprise funds, meaning that the charges for services are designed to cover the costs of operations. The general goals of a utility rate structure are:

- Rates sufficient to cover capital and operating costs of the system
- Provide adequate cash balances for cash-flow and contingencies
- Allocate costs consistently to those that use the system
- Promote conservation by charging higher rates for greater consumption

### **Capital Needs**

The City has completed its Capital Improvement Plan (2020 – 2029) which is incorporated into this rate study to ensure future capital needs are covered by the proposed rate structures. The CIP for the water, sanitary sewer, and water resource utilities is provided in Appendix E.

The City has maintained a comprehensive long-range Capital Improvement Plan for many years focusing on replacement of existing infrastructure and system expansion to accommodate new growth. The City’s fiscal planning has resulted in very little debt for the utility systems. In 2004, bonds (series 2004B) were issued in the amount of \$13,140,000 to fund water treatment plant upgrades. These bonds were refunded in 2012 resulting in savings of over \$257,000. The amount outstanding on the refunding bond is \$1,005,000 as of 12/31/18 and was retired on February 1, 2019.

### **Assumptions**

The following chart summarizes the significant assumptions in the rate study.

	<b>Water Utility</b>	<b>Sanitary Sewer Utility</b>	<b>Water Resources Utility</b>	<b>Solid Waste Management</b>
<b>Consumption</b>	Average consumption over a 3 year period.		N/A	N/A
<b>Revenue</b>	New growth is estimated at 100-250 units per year from 2019-2029.	Consumption is approximately 68% of water consumption based on historic ratios.	New growth is estimated at 100-250 units per year from 2019-2029.	
<b>Operating Expenses</b>	Projections include increases of 3.0% <sup>1</sup> annually to account for new demand and inflation.			
<b>Capital Expenses</b>	Capital expenditures from 2020-2029 are based on the City's Capital Improvement Plan through 2029. A contingency for unforeseen projects are also included in projections for 2025-2029. An inflationary adjustment of 2% is included on placeholder projects.			N/A
<b>Cash</b>	Cash projections are based on 12/31/2018 cash balances.			

<sup>1</sup> Per the American City and County Magazine's published Construction Cost Index

## Water Utility

The water utility fund provides municipal water service to the community. The fund finances the operations, maintenance, and construction of the water systems.

### ***Rate Structure***

The primary revenue sources of the water utility fund are consumption fees, base charges, and demand charges.

***Consumption Fees*** are based on the metered use of water and primarily used to offset the costs of water production, maintenance and improvements to the existing system.

***Base Charges*** are fixed monthly fees for residential and commercial customers and help offset the cost of expenses incurred regardless of the amount of water consumed, such as utility staffing and the billing process. Base charges are applied to all accounts including separately billed irrigation accounts.

***Demand Charges*** are billed to commercial users with meters 1 ½" or greater and are based on meter size. Demand charges were established to offset the cost of increased water demand of commercial users.

### ***Residential***

The Minnesota Legislature requires a conservation rate structure for all metropolitan area public water suppliers, who serve more than 1,000 people. The Department of Natural Resources has provided further guidance that an increasing tiered rate means that there is a significant increase between the tiers to encourage conservation, or at least 25% cost increase between the first two tiers and at least 50% more between the last two. The current and recommended rate structures are in compliance with these guidelines; tier two is 25% and tier three is 72%.

With a three-tiered rate system, a typical resident will pay more for water used for irrigation than water used in daily activities. The purpose of a tiered rate system is:

1. To promote conservation.
2. To allocate costs appropriately, based on metered consumption. Cities construct water systems to meet the capacity of peak watering days in the heat of the summer. A tiered rate structure charges more per gallon for peak use, thereby allocating the cost of over-sizing the system for peak days to peak users.

Residential customers are billed a base charge per month and consumption fees per 1,000 gallons of water used. Some residential customers have a separate meter to measure non-essential water consumption such as irrigation or water used for pools, hot tubs, and hockey rinks and are billed separately from their daily use. However, most residents do not have a separate meter to measure non-essential water consumption and this use is included in the three-tiered rate structure along with their daily water consumption.

### ***Commercial***

Commercial businesses, industrial, and institutional organizations are included in this category. Commercial customers are billed a base charge per month, consumption fees per 1,000 gallons of water used, and demand charges for meters that are 1 ½" or greater in size. Many of these customers have separate irrigation meters which measure seasonal water use.

## **Billing**

### Residential

Consumption fees, including daily activity and non-essential use, account for nearly 76% of the **residential** billings, with the remaining 24% coming from the base charges. Residential consumption fees total approximately \$3.6 million per year, while base charges bring in over \$1 million. The average annual residential consumption over the past three years (2016-2018) was 2,103,181,384 gallons.

### Commercial

Consumption fees, including daily activity and irrigation use, account for nearly 70% of **commercial** billings, base charges account for 2%, and demand charges account for the remaining 28%. Commercial consumption fees total approximately \$1.3 million per year while base and demand charges average approximately \$635,000 annually. The average annual commercial consumption over the past three years (2016-2018) was 757,273,292 gallons.

The following table shows the top 10 commercial water users which account for 23% of the total commercial consumption and 6% of the total residential and commercial consumption.

Company	2018 Consumption in Gallons		
	Business Use	Irrigation	Total
Medivators	60,901,944	1,876,255	62,778,199
Honeywell	17,675,986	671,080	18,347,066
Hennepin County	16,450,034	985,550	17,435,584
Lifetime Fitness Inc	14,669,251	-	14,669,251
Regency Plymouth Ventures	11,969,500	1,192,607	13,162,107
Plymouth Corporate Center	6,851,486	1,842,634	8,694,120
AGA Medical Corp	5,577,332	3,100,829	8,678,161
Prudential Financial	7,324,800	-	7,324,800
Independent School #284	3,779,328	2,863,089	6,642,417
United Health Group	5,606,340	900,000	6,506,340

Like residential users, commercial users pay consumption fees and base charges. Commercial accounts also pay a demand charge for meters that are 1 ½" or greater. For accounts that have multiple meters, the commercial user pays the demand fee associated with the largest meter. The following chart breaks down commercial consumption by size and type of meter.

**Commercial Consumption**  
2018

Meter Size	Meter Count	Total				
		Consumption	Minimum	Maximum	Average	Median
3/4" and 1"	223	26,591,501	1	202,209	10,196	3,243
1 1/2"	319	119,488,861	3	1,304,783	31,444	13,496
2"	154	116,059,494	5	770,851	62,973	30,679
3"	55	83,004,121	3	1,364,033	127,502	61,364
4"	20	134,728,310	59	4,970,647	561,368	230,625
6"	3	19,358,680	170	1,342,671	537,741	541,400
		499,230,967	241	9,955,194	1,331,224	880,807

**Commercial Irrigation Consumption**  
2018

Meter Size	Meter Count	Total				
		Consumption	Minimum	Maximum	Average	Median
3/4" and 1"	127	27,590,714	1	399,110	33,856	27,221
1 1/2"	231	102,352,641	1	616,764	36,937	61,884
2"	65	52,185,635	1	915,508	64,988	102,167
3"	18	18,479,195	1	928,181	85,552	72,262
4"	2	2,373,186	1,804	811,827	98,883	246,728
6"	2	-	-	-	-	-
		202,981,371	1,808	3,671,390	320,216	510,262

Of the total annual commercial consumption, commercial irrigation accounts for 29% compared to regular commercial use of 71%. For commercial usage during the months of June - September, consumption consists of 52% regular use and 48% irrigation. Commercial irrigation during the peak months of June through September accounts for 24% of the total annual commercial usage.

*Irrigation and other non-essential uses*

Over 50% of the total water consumption occurs during four months; June through September.

Non-essential consumption is defined as irrigation or water used in filling pools, hot tubs, hockey rinks or other miscellaneous uses. Non-essential usage is approximately 30% of the overall water consumption. Commercial irrigation contributes 8% and residential non-essential use is estimated to be approximately 22% towards the overall water consumption.

The majority of residential irrigation consumption is not separately metered and is included within the regular residential consumption structure. The second and third tier of this structure is assumed to be primarily non-essential use of water. During the months of June – September, 44% of residential users fall into the second tier of consumption and 14% fall into the third tier. During the months of October-May, 17% of residential users fall into the second tier and less than 1% fall into the third tier.

Of the total irrigation consumption in 2018, the breakdown between commercial and residential users is estimated to be 26% and 74% respectively.

The commercial irrigation rate was created in 2010. The irrigation rate was set at a conservation rate of 25% over the lowest tier and is within the guidelines set by the Department of Natural Resources.

The **current billing structure** with rates per 1,000 gallons is as follows:

		2019 Conservation		Daily Use (includes non-essential use not separately metered)		
		Rates	Rate	Type of Fee		Irrigation-only Meter
Base Charge (Comm & Res)		\$4.35		Flat fee	Flat fee	Flat fee
Residential & Multi-Family	Tier 1	\$1.57		Consumption based fee	up to 6,250 gallons	N/A
	Tier 2	\$1.97	25%		6,251 to 17,500 gallons	up to 17,500 gallons
	Tier 3	\$3.39	72%		> 17,500 gallons	> 17,500 gallons
Commercial	Regular	\$1.87		Consumption based fee	All regular consumption	N/A
	Irrigation	\$2.34	25%	Consumption based fee	N/A	All irrigation consumption

Currently, residential non-essential use is embedded in the daily use structure unless a separate meter was installed. The residential rate structure provides for two tiers for this non-essential use as noted above in the table. Commercial irrigation is set at a flat rate that falls between the second and third tier rates for residential.

One of the main differences between the two structures is that residential irrigation rates are tiered depending on usage above or below 17,500 gallons; whereas the commercial irrigation rate is for all irrigation consumption.

Further, to incent water conservation, a rebate program was offered for irrigation. The rebate program was originally funded primarily by a grant from the Met Council. Funding was exhausted quickly due to the large demand for participation in the program resulting in closure of the program on June 23, 2017. Since the program was designed to be on a first come, first served basis, a long list of users were not accepted into the program.

In the 2017 study, Council increased funding available for the water efficiency rebate program. The 2018 rebate program was 100% city funded. Rebates were offered to incent residential and commercial customers to replace old, inefficient sprinkler spray bodies and irrigation controllers with new WaterSense certified products. Rebates reimbursed owners for 75% of the cost of the device, up to a maximum of \$100 for residential or \$200 for commercial for WaterSense sprinkler spray bodies and \$200 for residential or \$500 for commercial for WaterSense irrigation controllers. The results of the program are as follows:

	Devices Installed	Properties Benefited	Total Rebates
Sprinkler Heads	20	2	\$170
Irrigation Controls	153	153	\$31,652
<b>TOTALS</b>	<b>173</b>	<b>1,695</b>	<b>\$31,782</b>

Upon review of benefiting properties, the annual gallons saved for non-essential water usage in June – September is approximately 40% as a result of the sprinkler spray body and irrigation controller upgrades. Rainfall and timing of installation of new WaterSense devices impacts water usage savings.

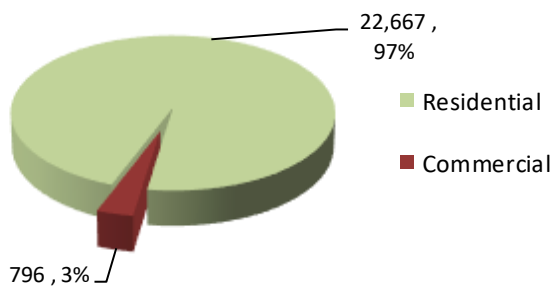
## Total Residential and Commercial

Although the customer base is primarily residential at 97% of the total number of utility customers, approximately 29% of the utility revenue comes from commercial billings. Residential consumption accounted for 75% or 2.1 billion gallons of the City's total annual water consumption. Commercial consumption accounted for 25% or 702 million gallons of the City's total water consumption.

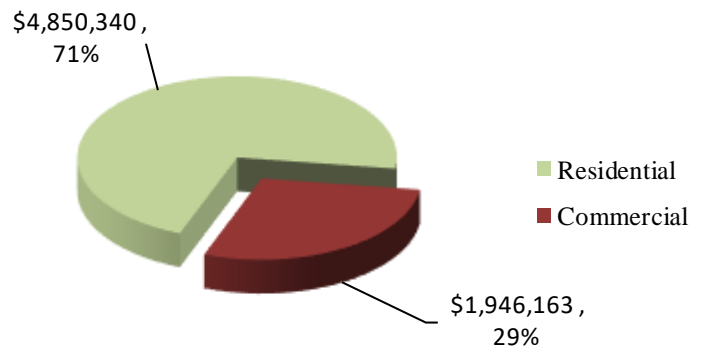
The following charts illustrate the relationship between the total residential and commercial customers:

### 2018 Actual

#### Water Utility Customers (Accounts)



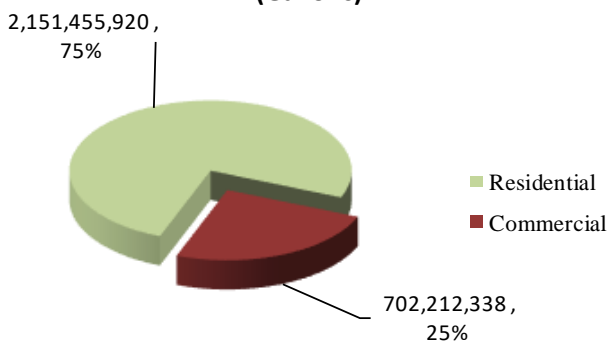
#### Revenue by Customer Base, Consumption & Demand Charges (Revenue)



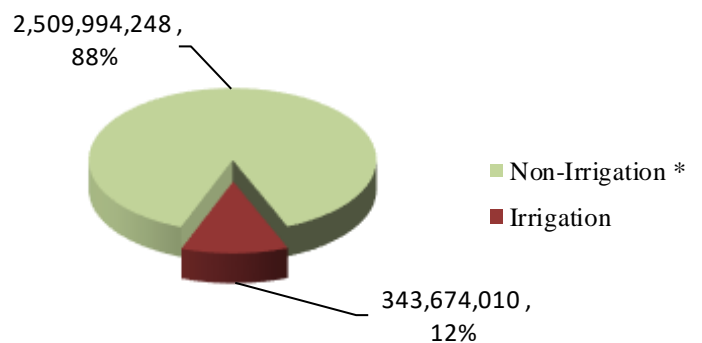
The following charts illustrate the relationship between types of consumption.

### 2018 Actual

#### Consumption by Customer (Gallons)



#### Consumption by Usage (Gallons)



\*Non-irrigation includes single-metered residential irrigation which may under state the ratio.

**Water Rates**

Based on the projections in Appendix C-1, increases are necessary in the water utility. The proposed rates are illustrated in the chart below.

**Proposed Residential & Multi-Family Rates**

<i>in gallons</i>	<i>per 1,000 gallons</i>					
	<b>Current</b> 2019	<b>3.50%</b> 2020	<b>3.50%</b> 2021	<b>3.50%</b> 2022	<b>3.00%</b> 2023	<b>3.00%</b> 2024
0 to 6,250	\$1.57	\$1.62	\$1.68	\$1.74	\$1.79	\$1.84
6,251 to 17,500	1.97	2.04	2.11	2.18	2.25	2.32
>17,501	3.39	3.51	3.63	3.76	3.87	3.99
<i>per month</i>						
Base Charge	\$4.35	\$4.50	\$4.66	\$4.82	\$4.96	\$5.11

**Change in Residential & Multi-Family Rates**

<i>in gallons</i>	<i>per 1,000 gallons</i>					
		2020	2021	2022	2023	2024
0 to 6,250		\$0.05	\$0.06	\$0.06	\$0.05	\$0.05
6,251 to 17,500		0.07	0.07	0.07	0.07	0.07
>17,501		0.12	0.12	0.13	0.11	0.12
<i>per month</i>						
Base Charge		\$0.15	\$0.16	\$0.16	\$0.14	\$0.15

The effect of these rate increases on customers, by various consumption level is as follows:

**Proposed Residential & Multi-Family Charges by Consumption Level**

Consumption Level	Gallons per Month	<b>Current</b> 2019	<i>per customer, per month</i>				
			<b>3.50%</b> 2020	<b>3.50%</b> 2021	<b>3.50%</b> 2022	<b>3.00%</b> 2023	<b>3.00%</b> 2024
Light	2,500	\$8.28	\$8.55	\$8.86	\$9.17	\$9.44	\$9.71
Average	6,250	14.16	14.63	15.16	15.70	16.15	16.61
Above Avg	12,500	26.48	27.38	28.35	29.32	30.21	31.11
Heavy	22,500	53.28	55.13	57.05	59.02	60.81	62.66

*Note: Projections are based on proposed increases to base charges and consumption rates.*

**Change in Residential & Multi-Family Charges by Consumption Level**

Consumption Level	Gallons per Month		<i>per customer, per month</i>				
			2020	2021	2022	2023	2024
Light	2,500		\$0.28	\$0.31	\$0.31	\$0.26	\$0.28
Average	6,250		0.46	0.54	0.54	0.45	0.46
Above Avg	12,500		0.90	0.97	0.97	0.89	0.90
Heavy	22,500		1.85	1.92	1.97	1.79	1.85



**Proposed Commercial Rates**

*per month*

	<b>Current</b>	<b>3.50%</b>	<b>3.50%</b>	<b>3.50%</b>	<b>3.00%</b>	<b>3.00%</b>
	2019	2020	2021	2022	2023	2024
Consumption Fees	\$1.87	\$1.94	\$2.01	\$2.08	\$2.14	\$2.20
Irrigation Fees	2.34	2.42	2.50	2.59	2.67	2.75
Base Charge	4.35	4.50	4.66	4.82	4.96	5.11
<b>Demand Charges</b>						
3/4" and 1" meters	N/A	N/A	N/A	N/A	N/A	N/A
1 1/2" meter	\$54.13	\$56.02	\$57.98	\$60.01	\$61.81	\$63.66
2" meter	81.20	84.04	86.98	90.02	92.72	95.50
3" meter	169.16	175.08	181.21	187.55	193.18	198.98
4" meter	270.67	280.14	289.94	300.09	309.09	318.36
6" meter	541.36	560.31	579.92	600.22	618.23	636.78

**Change in Commercial Rates**

*per month*

		2020	2021	2022	2023	2024
Consumption Fees		\$0.07	\$0.07	\$0.07	\$0.06	\$0.06
Irrigation Fees		0.08	0.08	0.09	0.08	0.08
Base Charge		0.15	0.16	0.16	0.14	0.15
<b>Demand Charges</b>						
3/4" and 1" meters		N/A	N/A	N/A	N/A	N/A
1 1/2" meter		\$1.89	\$1.96	\$2.03	\$1.80	\$1.85
2" meter		2.84	2.94	3.04	2.70	2.78
3" meter		5.92	6.13	6.34	5.63	5.80
4" meter		9.47	9.80	10.15	9.00	9.27
6" meter		18.95	19.61	20.30	18.01	18.55

The effect of these rate increases on customers, including base, consumption and demand charges, if applicable, by average consumption at each meter size is as follows:

**Proposed Commercial Charges by Meter Size**  
*per customer, per month*

Meter Size	Average Gallons per Month	Current 2019	3.50% 2020	3.50% 2021	3.50% 2022	3.00% 2023	3.00% 2024
3/4" and 1" meters	10,200	\$23.42	\$24.29	\$25.16	\$26.04	\$26.79	\$27.55
1 1/2" meter	31,446	117.28	121.53	125.85	130.24	134.06	137.95
2" meter	62,973	203.31	210.71	218.22	225.82	232.44	239.15
3" meter	127,502	411.94	426.93	442.15	457.57	470.99	484.59
4" meter	561,368	1,324.78	1,373.69	1,422.95	1,472.56	1,515.38	1,558.48
6" meter	537,741	873.82	905.86	938.23	970.96	999.31	1,027.95
Irrigation	320,216	753.66	779.42	805.20	834.18	859.94	885.70

*Note: Projections are based on proposed increases to base charges, consumption rates and demand charges.*

**Change in Commercial Charges by Meter Size**  
*per customer, per month*

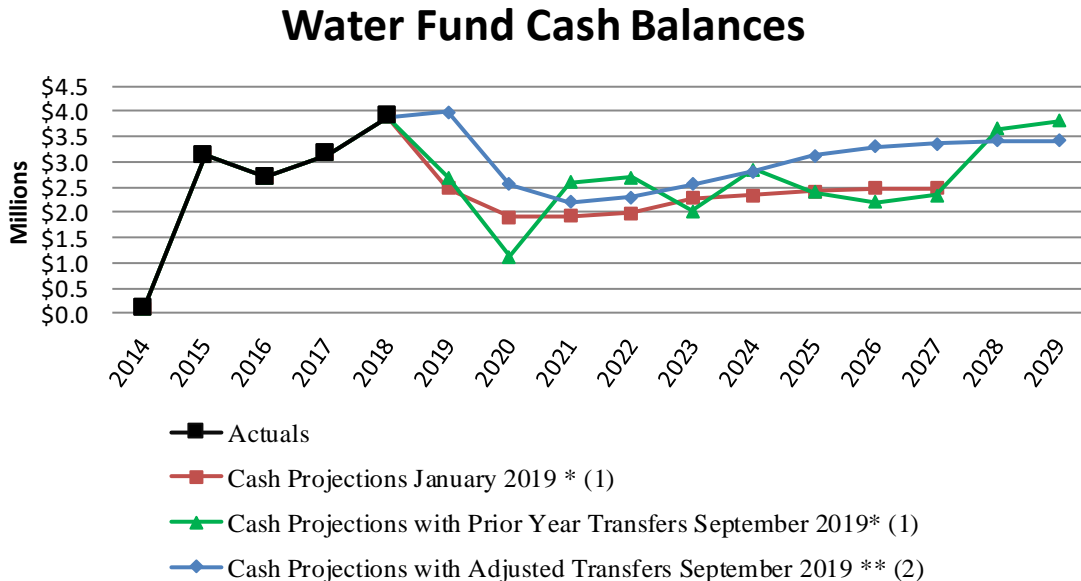
Meter Size	Average Gallons per Month		2020	2021	2022	2023	2024
3/4" and 1" meters	10,200		\$0.86	\$0.87	\$0.87	\$0.75	\$0.76
1 1/2" meter	31,446		4.24	4.32	4.39	3.83	3.89
2" meter	62,973		7.40	7.51	7.61	6.62	6.71
3" meter	127,502		15.00	15.22	15.43	13.42	13.60
4" meter	561,368		48.92	49.26	49.61	42.82	43.10
6" meter	537,741		32.04	32.38	32.73	28.35	28.63
Irrigation	320,216		25.77	25.78	28.98	25.76	25.77

**Summary**

The Water Fund had an estimated cash balance of \$2,911,607 as of 12/31/18. The actual cash balance is \$3,891,288. Rate increases are consistent with the previous study.

To maintain cash balances in the Water Fund at the target reserve (see page 21), the Water Fund receives a cash transfer to or from the Water Sewer Replacement Fund as needed. The 2018 transfer from Water Sewer Replacement fund was \$1,951,595.

The following graph shows the projection for the estimated cash balances with comparisons to the previous study (see Appendix C-1 for comparative tables). Both the red and green lines are identified with a (1) as they are a direct comparative of the original and updated projection without the target reserve adjustment to reflect any variance due to revenue and expenditure adjustments. The blue line, identified by a (2), reflects the updated projection with adjusted transfers to/from the Water Sewer Replacement Fund to maintain target reserve balances and offset any variances from revenue and expenditures. The black line reflects actuals for 2014-2018.



\* Net Transfer to Water Sewer Replacement of \$9,465,000

\*\* Net Transfers to Water Sewer Replacement of \$2,815,000

\*\*\* This study was adjusted to align with the 10 year CIP, therefore two years were added to this graph.

Cash variances are due to fluctuations in net revenues and expenses. The majority of the variance is due to changes in capital needs as identified in the summary below, including unexpected water main rehabilitation at Xenium Lane and cost adjustment to street projects as a result of the State of the Streets.

- 2019 CIP projects decreased \$172,883
- 2020 CIP projects increased \$2,550,000
- 2021 CIP projects increased \$1,377,333
- 2022 CIP projects increased \$650,000
- 2023 CIP projects increased \$697,000
- 2024 CIP projects increased \$646,481
- 2025 CIP projects increased \$1,016,306
- 2026 CIP projects increased \$1,543,406
- 2027 CIP projects increased \$1,746,576

These changes resulted due to the following:

- Newly identified projects
  - Xenium Lane Water Main Rehabilitation for \$2,000,000 in 2020
  - Ridgemount Avenue Rehabilitation for \$500,000 in 2021
  - County Road 9 at TH 169 Bridge Replacement for \$300,000 in 2024
  - Water Storage Facility Improvement for \$200,000 (\$125,000 in 2026 and \$75,000 in 2027)

- Cost adjustments
  - Brockton Lane Reconstruction construction costs were decreased in 2019 by \$208,972
  - Annual Well Refurbishing costs were increased by \$25,000 in 2026 and 2027.
  - Annual Treatment Plant Refurbishing costs were increased by \$50,000 each year from 2024 to 2027.
  - 2000 Wheel Loader with Plow costs were reduced to \$0. This equipment is funded by Central Equipment.
  - Annual Street Reconstruction construction costs increased by \$8,846,000 (\$700,000 in 2020, \$999,000 in 2021, \$1,000,000 in 2022, \$947,000 in 2023, \$1,100,000 in 2024 and 2025, \$1,400,000 in 2026, and \$1,600,000 in 2027).
  - Annual Mill and Overlay construction costs decreased by \$1,843,911 (increased \$56,089 in 2019 and \$100,000 in 2020, and decreased \$100,000 in 2021, \$400,000 in 2022, and \$300,000 in 2023 through 2027).
  - Annual Full Depth Reclamation (FDR) construction costs increased by \$605,000 (decreased \$20,000 in 2019 and increased \$150,000 in 2020, \$25,000 in 2021, \$50,000 in 2022 through 2024 and \$100,000 in 2025 through 2027).
- Timing variances
  - The Juneau Lane from Hampton Hills to 59<sup>th</sup> Avenue project is moved to 2028 with a cost of \$310,000.

## Sanitary Sewer Utility

The City of Plymouth participates in the Metropolitan Council Environmental Services (MCES) sanitary sewer system. The City is responsible for the sewer collection system within the city limits and then pays MCES disposal fees for treatment. Currently, these fees comprise approximately 63% of the sewer utility’s operating expenses, depreciation accounts for 13%, and operational costs controlled by the City are the remaining 24%.

### **Current Sewer Rate Structure**

The primary source of funding for the Sewer Fund is consumption fees.

*Sewer consumption fees* are set at a single-rate structure, which includes a base fee plus a consumption fee for commercial and residential. The base fee helps cover the costs of expenses incurred regardless of consumption, such as the utility billing process and staff, while the consumption fees are primarily to cover the costs of maintenance and improvements to the existing system.

### Senior Discount

Historically, a discounted consumption fee of 10% has been offered to residents who are 62 years of age or older, homesteaded in the property, and the utility account is in the individuals’ name. This program changed in 2014 and does not allow any new enrollment in order to phase out the discount. The primary reason for this change is that the program does not provide a benefit to all Plymouth residents; it targets a small population of the City, does not incent conservation, and adds to administrative costs for the City. As of 12/31/18, 2,098 accounts take advantage of the discount; a reduction of approximately 148 due to residents moving out of their qualifying home in 2018. The total discount received by all customers in 2018 was approximately \$39,479. This is a decrease of approximately \$2,865 from the prior year.

### **Sewer Rates**

Based on the projections in Appendix C-2, increases are needed in the Sewer Fund. With conservation already encouraged with a tiered residential water rate structure, it is not necessary to convert sewer rates to a tiered system. The proposed rates are illustrated in the chart below.

	<b>Proposed Rates (All users)</b>					
	<b>Current</b>	<b>5.50%</b>	<b>5.50%</b>	<b>5.50%</b>	<b>5.50%</b>	<b>5.50%</b>
	2019	2020	2021	2022	2023	2024
per 1,000 gallons	\$4.01	\$4.23	\$4.46	\$4.71	\$4.97	\$5.24
<i>per month</i>						
base charge	\$6.82	\$7.20	\$7.60	\$8.02	\$8.46	\$8.93

	<b>Change in Rates (All users)</b>					
		2020	2021	2022	2023	2024
per 1,000 gallons		\$0.22	\$0.23	\$0.25	\$0.26	\$0.27
<i>per month</i>						
base charge		\$0.38	\$0.40	\$0.42	\$0.44	\$0.47

The impact of the increases is summarized by various consumption levels in the following chart.

**Proposed Charges by Consumption Level (All users)**

*per customer, per month*

Consumption Level	Gallons per Month	Current 2019	5.50%				
			2020	2021	2022	2023	2024
Light	1,700	\$13.64	\$14.39	\$15.18	\$16.03	\$16.91	\$17.84
Average	4,250	23.86	25.18	26.56	28.04	29.58	31.20
Above Avg	8,500	40.91	43.16	45.51	48.06	50.71	53.47

*Note: Projections are based on proposed increases to base charges and consumption rates.*

**Change in Charges by Consumption Level (All users)**

*per customer, per month*

Consumption Level	Gallons per Month		Change in Charges				
			2020	2021	2022	2023	2024
Light	1,700		\$0.75	\$0.79	\$0.85	\$0.88	\$0.93
Average	4,250		1.32	1.38	1.48	1.55	1.62
Above Avg	8,500		2.25	2.36	2.54	2.65	2.77

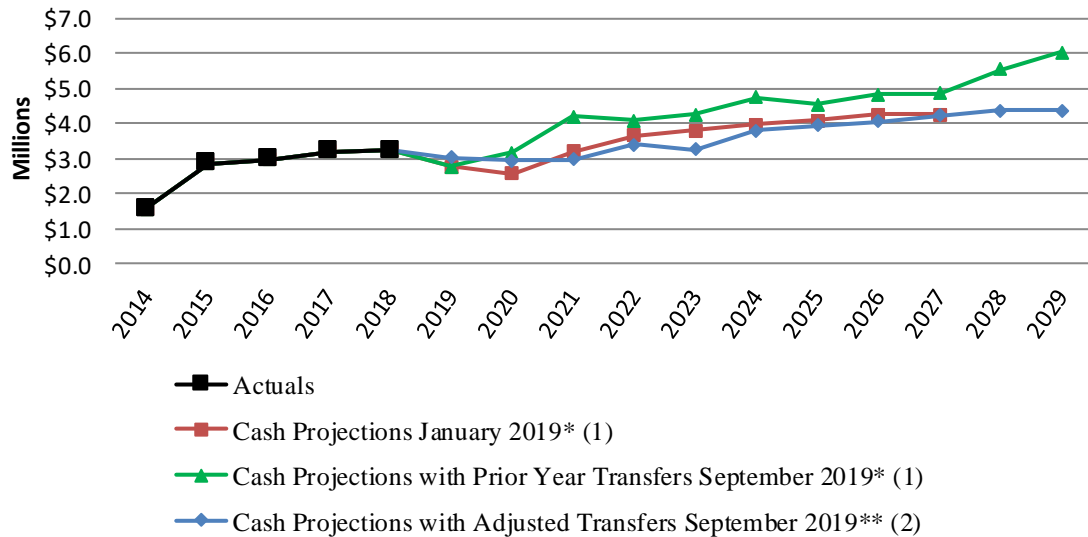
**Summary**

The Sewer Fund had an estimated cash balance of \$2,728,780 as of 12/31/18. The actual cash balance is \$3,241,134. One of the goals of completing a utility study is to ensure appropriate cash balances are available. Rate increases remain consistent with the previous study for 2019-2023.

To maintain cash balances in the Sewer Fund at the target reserve (see page 21), the Sewer Fund receives a cash transfer to or from the Water Sewer Replacement Fund as needed. The 2018 transfer from Water Sewer Replacement fund was \$1,157,036.

The following graph shows the projection for the estimated cash balances with comparisons to the previous study (see Appendix C-2 for comparative tables). Both the red and green lines are identified with a (1) as they are a direct comparative of the original and updated projection without the target reserve adjustment to reflect any variance due to revenue and expenditure adjustments. The blue line, identified by a (2), reflects the updated projection with adjusted transfers to/from the Water Sewer Replacement Fund to maintain target reserve balances and offset any variances from revenue and expenditures. The black line reflects actuals for 2014-2018.

## Sewer Fund Cash Balances



\* Net Transfer from Water Sewer Replacement of \$2,609,000

\*\* Net Transfers to Water Sewer Replacement of \$6,053,000

\*\*\* This study was adjusted to align with the 10 year CIP, therefore two years were added to this graph.

Cash variances are due to fluctuations in net revenues and expenses. The majority of the variance is due to reducing the MetCouncil annual rate increase from 5.5% to 5.0% based on the 2020 rate information and historical trends. Additional variances are due to adjustments to the three-year average consumption as a result of development activity. The remaining variance is due to changes in capital needs as summarized below.

- 2019 CIP projects increased \$7,893
- 2020 CIP projects increased \$100,000
- 2021 CIP projects decreased \$46,667
- 2022 CIP projects decreased \$110,000
- 2023 CIP projects decreased \$85,000
- 2024 CIP projects decreased \$679,835
- 2025 CIP projects increased \$101,134
- 2026 CIP projects increased \$125,680
- 2027 CIP projects increased \$151,167

These changes resulted due to the following:

- Newly identified projects
  - Future Lift Station Improvements for \$900,000 (\$150,000 for 2024 and \$250,000 for 2025 through 2027)
  - County Road 9 at TH 169 Bridge Replacement for \$100,000 in 2024
- Change in scope
  - Line Sanitary Sewer Main constructions costs were increased \$100,000 each year from 2025 through 2027.

- 2000 Wheel Loader with Plow costs were reduced to \$0. This is equipment is not funded by Central Equipment.
- Annual Street Reconstruction construction costs were increased \$105,000 (increased \$90,000 in 2020, \$40,000 in 2021 and 2022, and \$35,000 in 2023 and reduced \$40,000 in 2024 and 2025 and \$20,000 in 2026).
- Annual Mill and Overlay construction costs decreased \$1,272,107 (increased \$17,893 in 2019 and decreased \$10,000 in 2020, \$70,000 in 2021, \$180,000 in 2022, \$50,000 in 2023, and \$220,000 in 2024 through 2027).
- Annual Full Depth Reclamation (FDR) construction costs increased \$260,000 (decreased \$10,000 in 2019 and increased \$30,000 in 2021 through 2024, and \$40,000 in 2025 through 2027).
- Timing variances
  - The Juneau Lane from Hampton Hills to 59<sup>th</sup> Avenue project was shifted from 2020 to 2028.



## Water Sewer Replacement Fund

The Water Sewer Replacement Fund is used to replace and repair existing infrastructure and equipment of the Water and Sewer funds. As cash balances fluctuate in the Water and Sewer funds, cash is transferred to or from the Water Sewer Replacement Fund to meet target reserves. The estimated cash balance as of 12/31/2018 was \$1.2 million. The actual cash balance is \$1.8 million, a decrease of \$3.0 million over 2017.

The decrease was due to net reserve transfers required in 2018 of approximately \$3.5 million to maintain target reserves as a result of large capital projects such as the water tower refurbishing projects. The water tower refurbishing projects were initially projected to be paid over five years, but due to changes in legislation the projects are required to be paid in the year of construction. The remaining amount is interest and market value adjustments.

It is anticipated that the Water Sewer Replacement Fund reserves will be sufficient to cash flow projects without the need to issue debt. However, due to the significant amount of capital needs scheduled in the next ten years, a considerable amount of the cash reserves will be used. Reserves are projected to fluctuate between \$1.0 million and \$3.5 million during that time. Cash balances will be monitored and timing of these projects will be adjusted to ensure sufficient cash balances are available.

The cash flow of the Water Sewer Replacement Fund is combined with that of the Water and Sewer funds (Appendix C-3).

## Water Resources

This fund is used to account for resources used to administer the City’s surface water plan, erosion control, wetland regulations, and environmental programs including planning, projects, and maintenance.

### **Current Water Resources Rate Structure**

The primary source of funding for the Water Resources Fund is surface water fees. The fee helps cover the costs incurred for the utility billing process, staff, and maintenance and improvements to the existing system.

### **Water Resources Rates**

In 2019, *surface water fees* are set at a single-rate structure of \$6.86 per month for residential, \$22.75 per acre per month for multi-family residential, and \$49.17 per acre per month for commercial.

Based on the projections in Appendix C-4, increases are needed to maintain adequate reserves in the water resources utility. The proposed rates are illustrated in the chart below.

<b>Proposed Rates (All users)</b>						
<i>per month</i>						
	<b>Current</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>
	2019	2020	2021	2022	2023	2024
Residential	\$6.86	\$7.34	\$7.85	\$8.40	\$8.99	\$9.62
<i>per acre, per month</i>						
Multi-Family Residential	22.75	24.34	26.04	27.86	29.81	31.90
Commercial	49.17	52.61	56.29	60.23	64.45	68.96

<b>Change in Rates (All users)</b>						
		2020	2021	2022	2023	2024
Residential		\$0.48	\$0.51	\$0.55	\$0.59	\$0.63
Multi-Family Residential		1.59	1.70	1.82	1.95	2.09
Commercial		3.44	3.68	3.94	4.22	4.51

### **Summary**

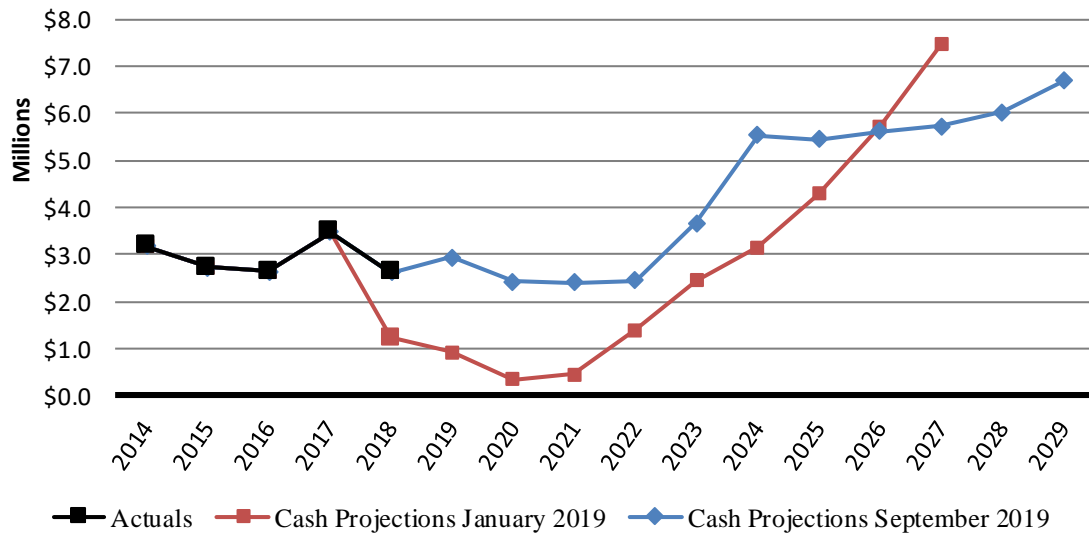
The Water Resources Fund had an estimated cash balance of \$3,589,896 as of 12/31/18. The actual cash balance is \$2,607,042, a decrease of approximately \$869,000 over 12/31/17.

There are nine projects that may be funded by grants, however, reimbursement is uncertain at this time. If the grant funding is not available and if cash reserves are not sufficient, the projects will be delayed until one or the other becomes available. These projects are Mount Olivet Stream Restoration, Plymouth Creek Stream Restoration, 19<sup>th</sup> Avenue and Dunkirk Lane Pond Improvement, Parkers Lake Park Drainage Improvement, Maple Creek Stream Restoration, Bass and Pomerleau Alum Treatment Phase 2, Palmer Creek Estates Stream Restoration, Ponderosa Stream Restoration, and BCWMC Water Quality, Channel and Basin Improvements. These projects are included in the study with the assumption that external funding is available.

Rate increases remain consistent with the previous study.

The following graph shows the projection for the estimated cash balances with comparisons to the previous study (see Appendix C-4 for comparative tables). The red line reflects previous cash projections with construction projects that have grant funding (GF). The green line reflects previous cash projections without construction projects that have grant funding. The blue line reflects current cash projections which include the City's costs of the six projects with partial grant funding. Actuals are shown for 2014-2018.

## Water Resources Fund Cash Balances



\* This study was adjusted to align with the 10 year CIP, therefore two years were added to this graph.

Cash variances are due to fluctuations in net revenues and expenses. The majority of the variance is due to changes in capital needs as identified in the summary below.

- 2019 CIP projects decreased \$192,777
- 2020 CIP projects increased \$30,000
- 2021 CIP projects increased \$229,000
- 2022 CIP projects increased \$988,000
- 2023 CIP projects decreased \$129,000
- 2024 CIP projects decreased \$1,098,407
- 2025 CIP projects increased \$1,310,102
- 2026 CIP projects increased \$1,319,412
- 2027 CIP projects increased \$1,719,123

These changes resulted due to the following:

- Newly identified projects
  - Bass and Pomerleau Alum Treatment Phase 2 for \$37,000 in 2020
  - BCWMC Water Quality, Channel and Basin Improvements for \$225,000 (\$75,000 each year for 2025, 2027 and 2029)
  - Future Water Quality Improvements for \$5,750,000 (\$1,000,000 in 2025 and 2026 and \$1,250,000 in 2027 through 2029)
  - New ½ ton Pickup for \$30,000 in 2020
  - County Road 9 at TH 169 Bridge Replacement for \$100,000 in 2024
  - Ridgmount Avenue Rehabilitation for \$20,000 in 2021
  - Annual Mill and Overlay for \$226,000 (\$58,000 in 2020, \$44,000 in 2021, \$18,000 in 2022, \$26,000 in 2023, and \$20,000 in 2024 through 2027)

- Annual Full Depth Reclamation (FDR) for \$625,000 (\$50,000 in 2020 and 2021, \$75,000 in 2022 through 2024 and \$100,000 in 2025 to 2029).
- Timing variances
  - Chelsea Woods Drainage from Weston Lane to County Road 6 project planning and design was moved to 2021 for \$50,000. Construction was moved to 2022 for \$400,000.
  - Juneau Lane from Hampton Hills to 59<sup>th</sup> Avenue was moved to 2028 and increased to \$100,000.
  - Ivanhoe/Pleasant Hills Drainage Improvement costs of \$50,000 were moved to 2020.
  - Meadow Wood Drainage Improvement costs of \$100,000 were moved to 2020.
  - 4<sup>th</sup> and Zircon Drainage Improvement costs of \$50,000 were moved to 2020.
  - Playfield 10 Development Stormwater Quality Improvements replaces the Elm Creek Drainage Improvements at NWG Trailhead for \$375,000. The project was also shifted to 2022 in 2020
- Cost adjustments
  - Courts/Fields of Nantarre Drainage Improvement construction costs were increased in 2021 by \$25,000.
  - Kingsview Heights Drainage Improvement construction costs were increased in 2022 by \$50,000.
  - Ponderosa Woods Stream Restoration construction costs were decreased in 2024 by \$150,000. The construction is funded by the Watershed District.
  - Maintain Water Quality Ponds was increased by \$50,000 in 2026 and 2027.
  - Drainage Improvements were reduced by \$50,000 in 2024 through 2027.
  - Brockton Lane Reconstruction construction costs were increased by \$7,223 in 2019.
  - Annual Street Reconstruction was increased \$520,000 (\$40,000 in 2020 and 2021, \$65,000 in 2022 and 2023, \$55,000 in 2024, and \$80,000 in 2025 through 2027).

## Solid Waste Management

The Solid Waste Management Fund provides collection services for various recyclable materials. Solid waste expenditures are primarily costs for curbside collection.

### **Current Solid Waste Rate Structure**

The primary source of funding for the Solid Waste Management Fund is recycling fees.

*Solid Waste Management recycling fees* are set at a single-rate structure. The fee helps cover the costs incurred for the utility billing process, staff, and service contract expense.

### **Solid Waste Rates**

Based on the projections in Appendix C-5, increases are needed to maintain adequate reserves in the Solid Waste Management Fund. The proposed rates are illustrated in the chart below.

	<b>Proposed Rates (All users)</b>					
	<b>Current</b>	<b>\$0.35</b>	<b>\$0.35</b>	<b>\$0.40</b>	<b>\$0.40</b>	<b>\$0.40</b>
	2019	2020	2021	2022	2023	2024
City Fee	\$2.75	\$3.10	\$3.45	\$3.85	\$4.25	\$4.65
Republic Services Contract	\$2.91	\$2.98	\$3.05	\$3.13	\$3.21	\$3.29

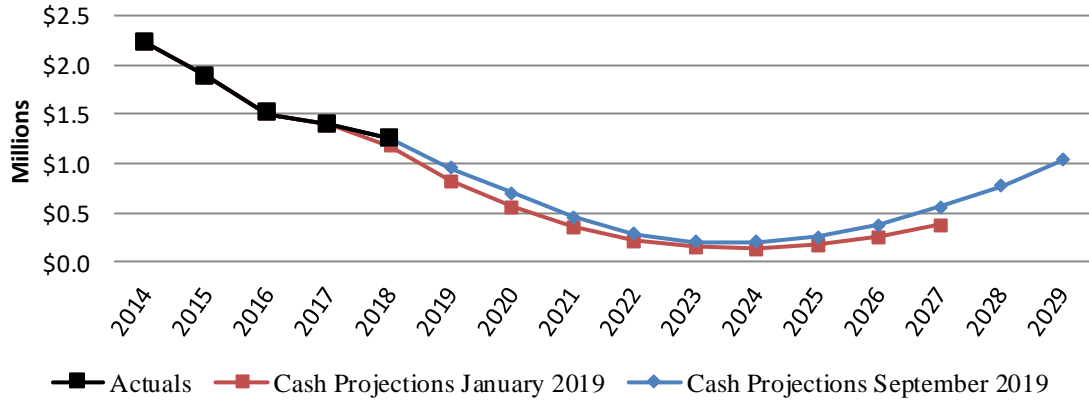
	<b>Change in Rates (All users)</b>				
	2020	2021	2022	2023	2024
City Fee	\$0.35	\$0.35	\$0.40	\$0.40	\$0.40

### **Summary**

The Solid Waste Management Fund had an estimated cash balance of \$1,219,142 as of 12/31/18. The actual cash balance is \$1,242,378, a decrease of \$145,854 over 12/31/17. However, this is an increase of \$23,236 over the previous projection for 2018. The Solid Waste Management program has been subsidized by fund balance throughout the years resulting in depleting cash reserves. Cash balances are anticipated to decrease until 2023 as a result of operations and to maintain cash balances at target reserves. Proposed rates are anticipated to increase \$0.40 in 2020 and thereafter.

The following graph shows the trend for the estimated cash balances with comparisons to the previous study (see Appendix C-5). Actuals are shown for 2014-2018.

## Solid Waste Management Fund Cash Balances



\* This study was adjusted to align with the 10 year CIP, therefore two years were added to this graph.

Cash variances are due to the fluctuation in net revenues and expenses.

The variances in the projected balances are due to:

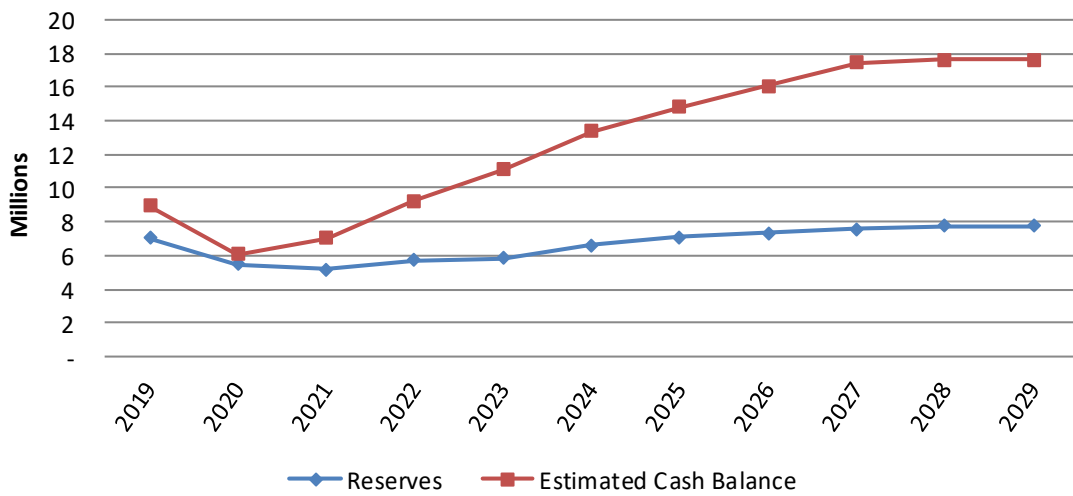
- An increase of approximately \$60,000 in contractual services in 2019 due to the market for grinding and hauling Yard Waste site materials.
- An addition half day was added for drop off day. This resulted in a net increase in costs of \$5,000.

## Target Cash Reserves

One of the goals of completing a utility study is to identify appropriate cash balances. A reserve is used to accommodate fluctuations in revenue and expense due to weather and unforeseen events and to provide funding in the CIP for replacement needs, and for unexpected repairs. A reserve helps minimize the reliance on debt and allows for a more stable rate structure over time.

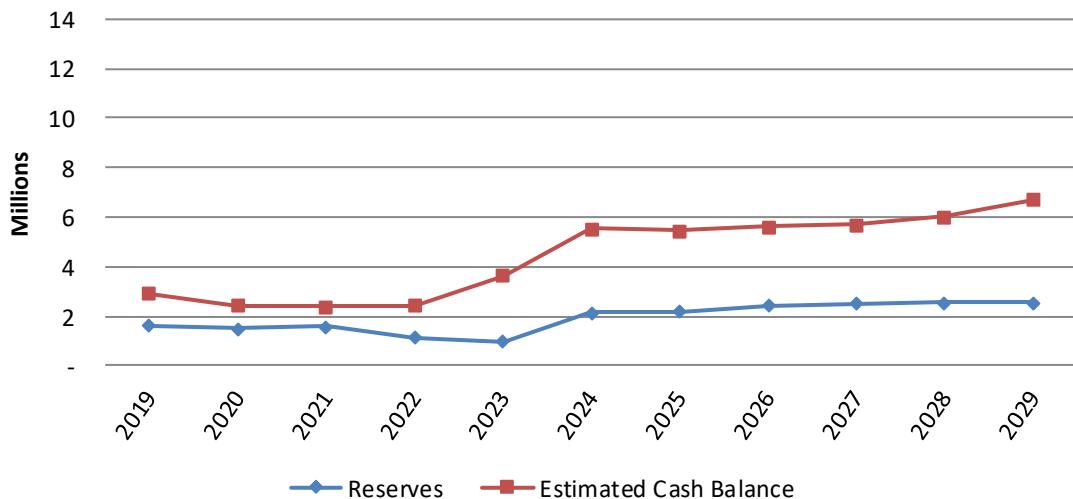
The City’s target reserve is to have an amount equal to three months of operating expenses (without depreciation), 100% of the following year's debt service, and 50% of the following year's capital costs. The following graphs show the trend for the estimated cash balances compared to suggested target reserves for each of the utility funds reviewed in this study.

### Water/Sewer/Water Sewer Replacement Funds Reserves

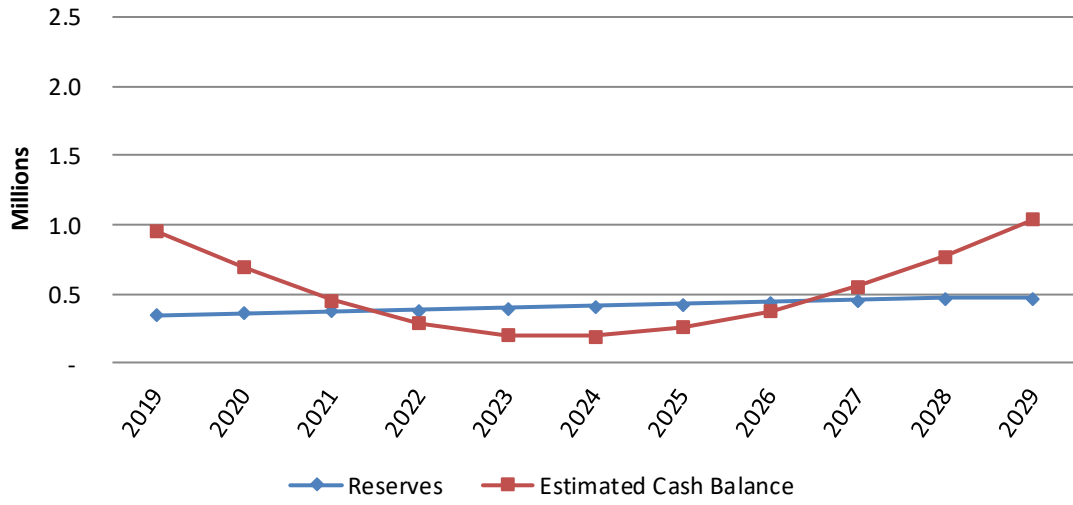


Estimated cash balances are greater than target reserves. Capital repair and replacement policies will be reviewed and rates will be analyzed when this process is complete.

### Water Resources Fund Reserves



# Solid Waste Management Fund Reserves





## Conclusion

The City of Plymouth has managed its utility funds well, and as a result, has been able to fund almost all improvements with cash. The rate study demonstrates that future increases are necessary to support capital needs, maintain positive cash balances, and ensure long-term stability.

The results of this analysis conclude that the recommended rate increases should reduce the need to issue debt. Staff is cautious to increase rates beyond what is recommended as reserves begin to build after five years to support future capital needs. In addition, as the City nears full development, additional reserves may become available from the Utility Trunk Fund.

As the City continues to grow and mature, it becomes more critical to assess infrastructure conditions and capital needs of the water and sewer systems. Staff will evaluate the systems and assess the long-term capital needs that could potentially have a significant impact to utility projections and reserves.

The utility fund balances will be reviewed annually to determine whether the available cash is sufficient to cover upcoming capital and operational expenses, to identify potential shortages early and reevaluate the option to issue new debt. We acknowledge that future trends may vary from assumptions made in this study and therefore recommend regular updates and adjustments as necessary.

<b>Appendix A</b>	<b>Comparisons to Other Cities' Rates</b>
<b>Appendix B</b>	<b>Historical Consumption Trends</b>
<b>Appendix C</b>	<b>Water, Sewer, Water Resources, and Solid Waste Management Utility Projections</b>
<b>Appendix D</b>	<b>Target Reserve Projections</b>
<b>Appendix E</b>	<b>Capital Improvement Plans for Water, Sewer, and Water Resources</b>

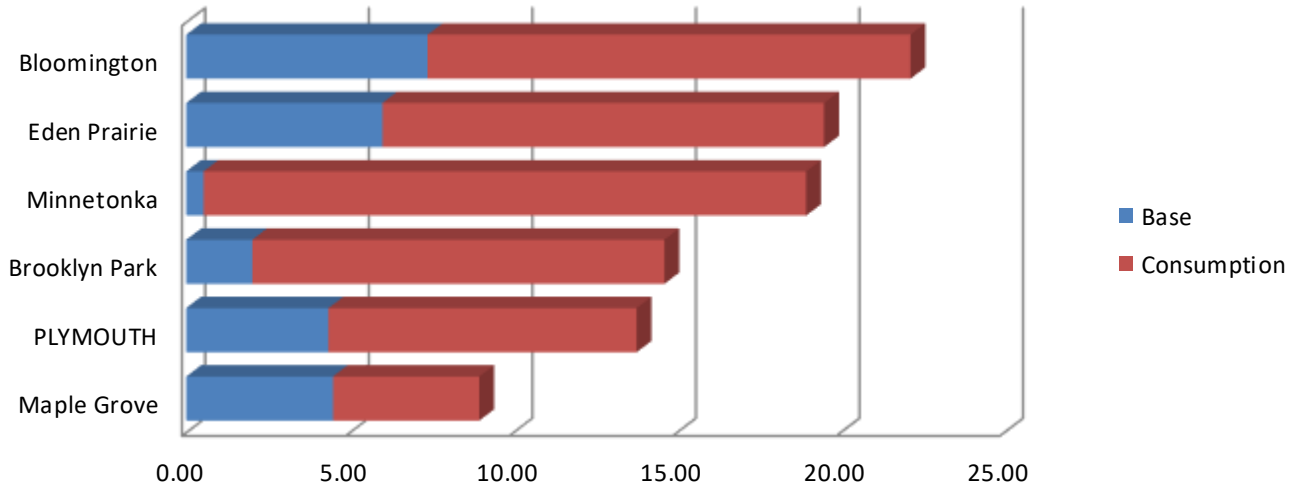
## Appendix A Comparisons to Other Cities' Rates

The graphs below compare monthly water sewer charges for a residential customer based on 2019 rates and 6,000 gallons per month.

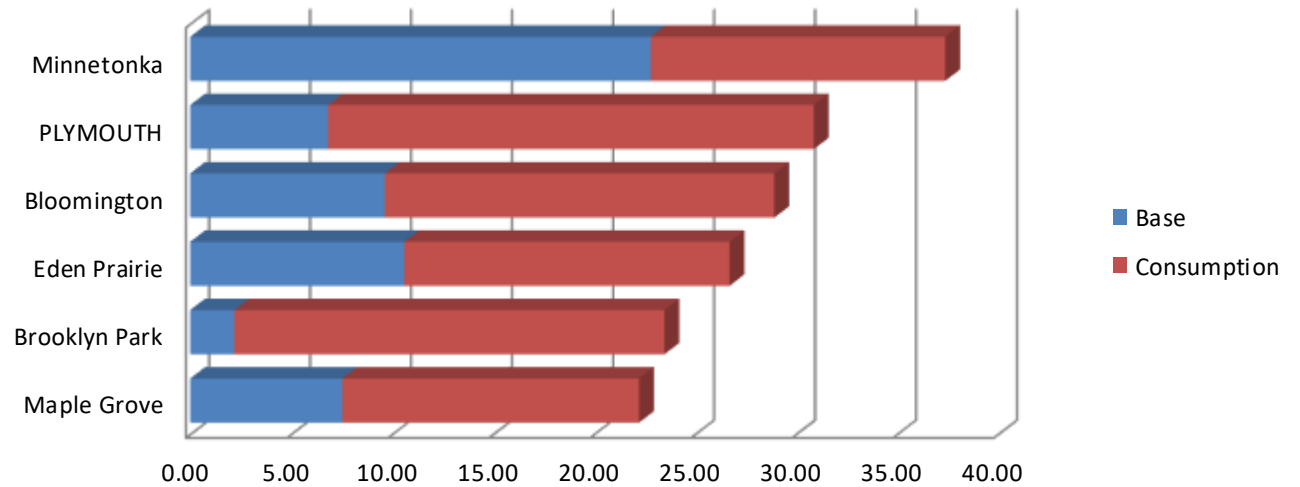
	Base	Consumption	Base	Consumption	Surface Water	Recycling	Total
Minnetonka	0.53	18.42	22.80	14.58	7.08	4.40	67.81
<b>Plymouth</b>	4.35	9.42	6.82	24.06	6.86	2.85	54.36
Bloomington <sup>1</sup>	7.38	14.76	9.64	19.28	7.66	5.79	64.51
Eden Prairie <sup>1</sup>	6.00	13.50	10.60	16.10	5.03	0.00	51.23
Brooklyn Park	2.02	12.60	2.18	21.30	4.79	3.35	46.24
Maple Grove	4.49	4.47	7.53	14.70	0.00	3.00	34.20

<sup>1</sup> Minimum usage for water and sewer of 4,000 gallons/quarter.

### Water Rate Comparison



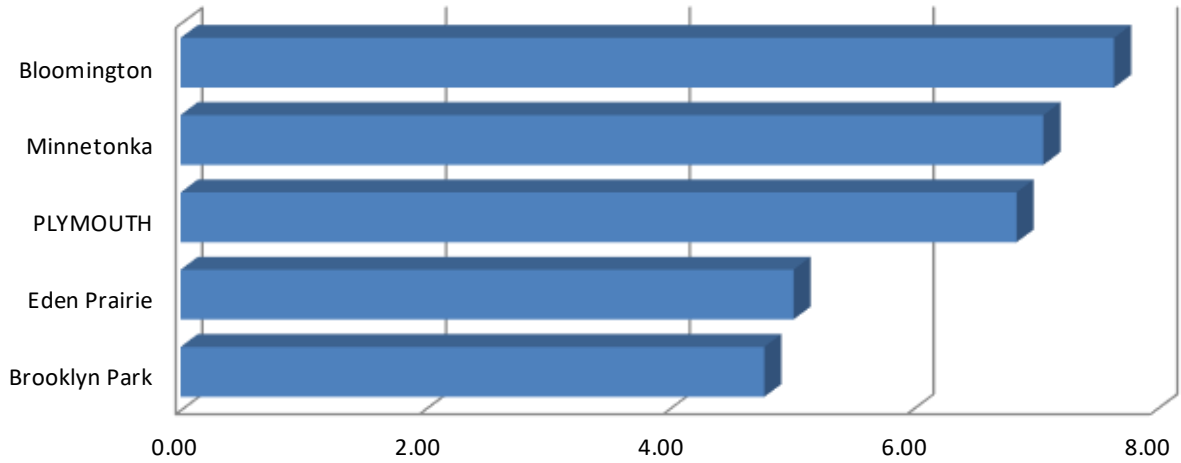
### Sewer Rate Comparison



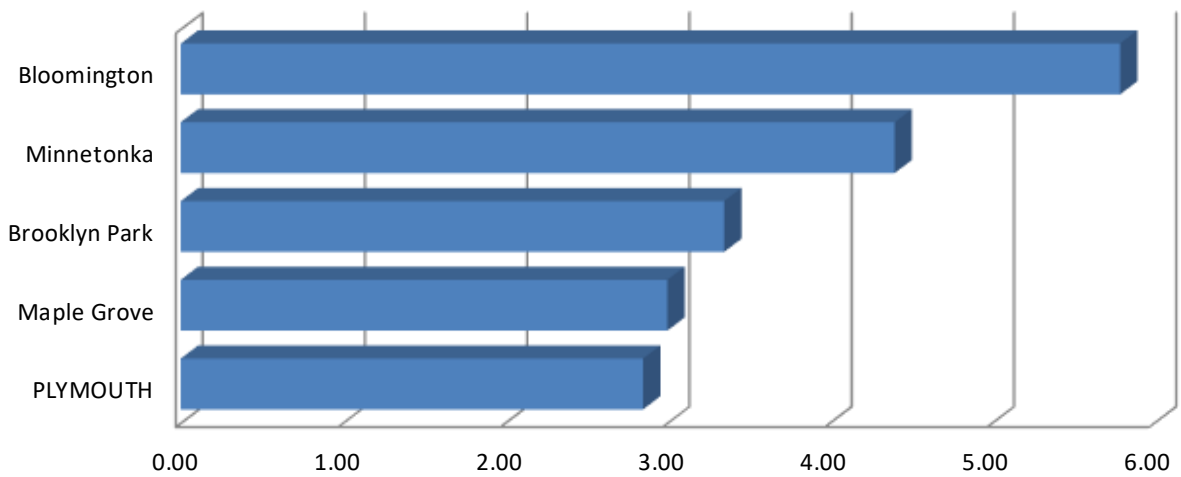
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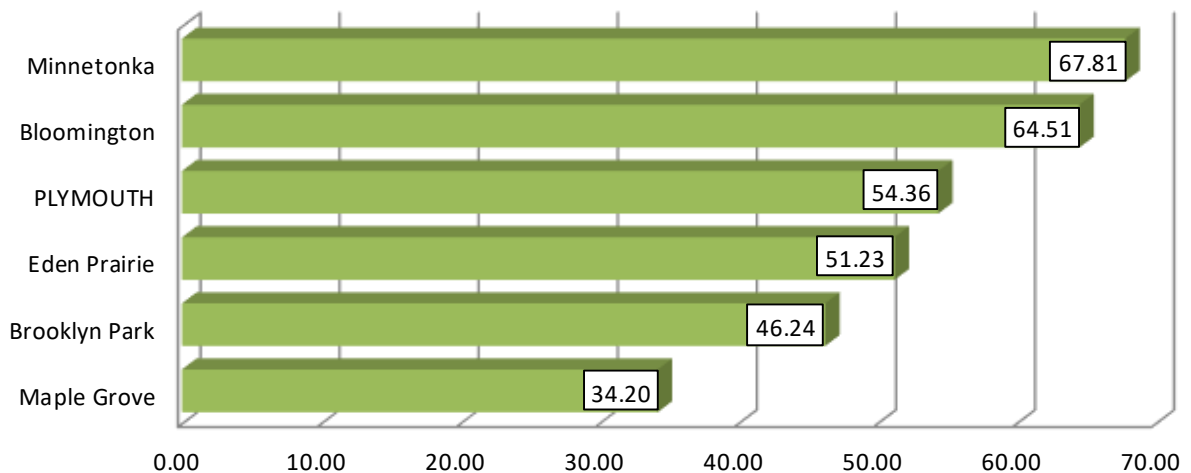
### Water Resources Rate Comparison



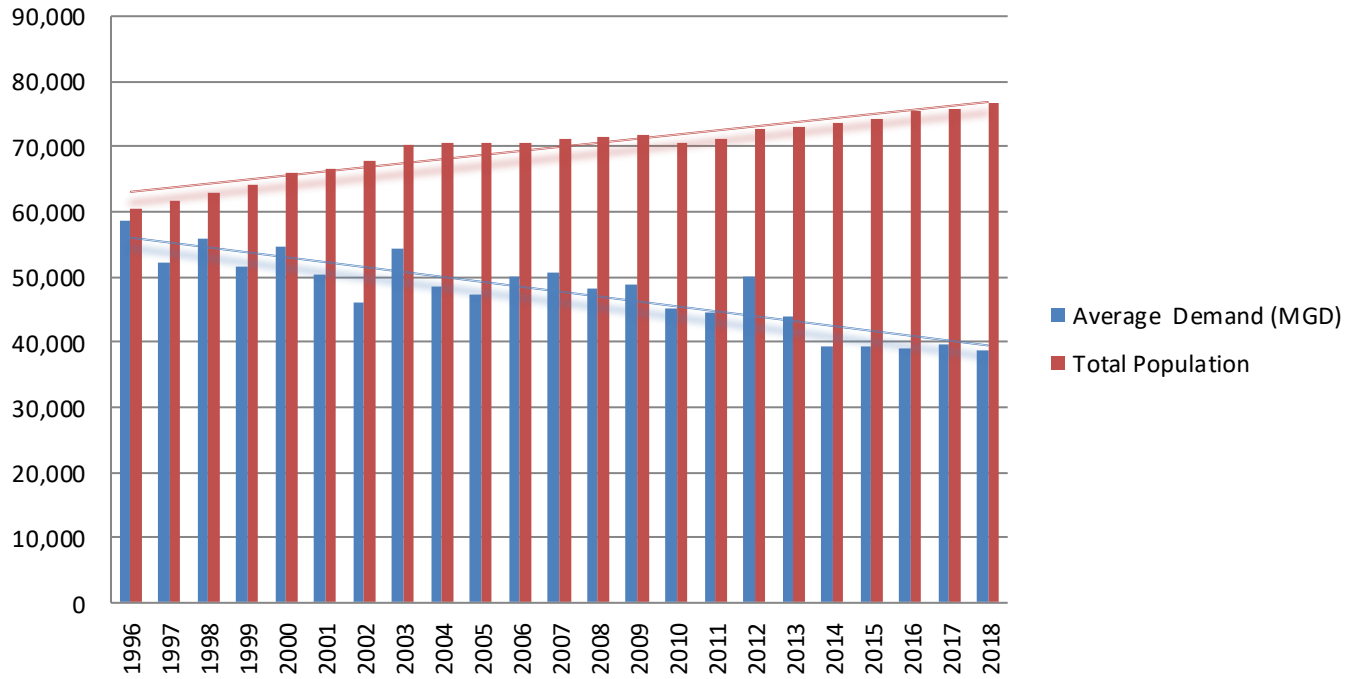
### Recycling Rate Comparison



### Total Bill Comparison

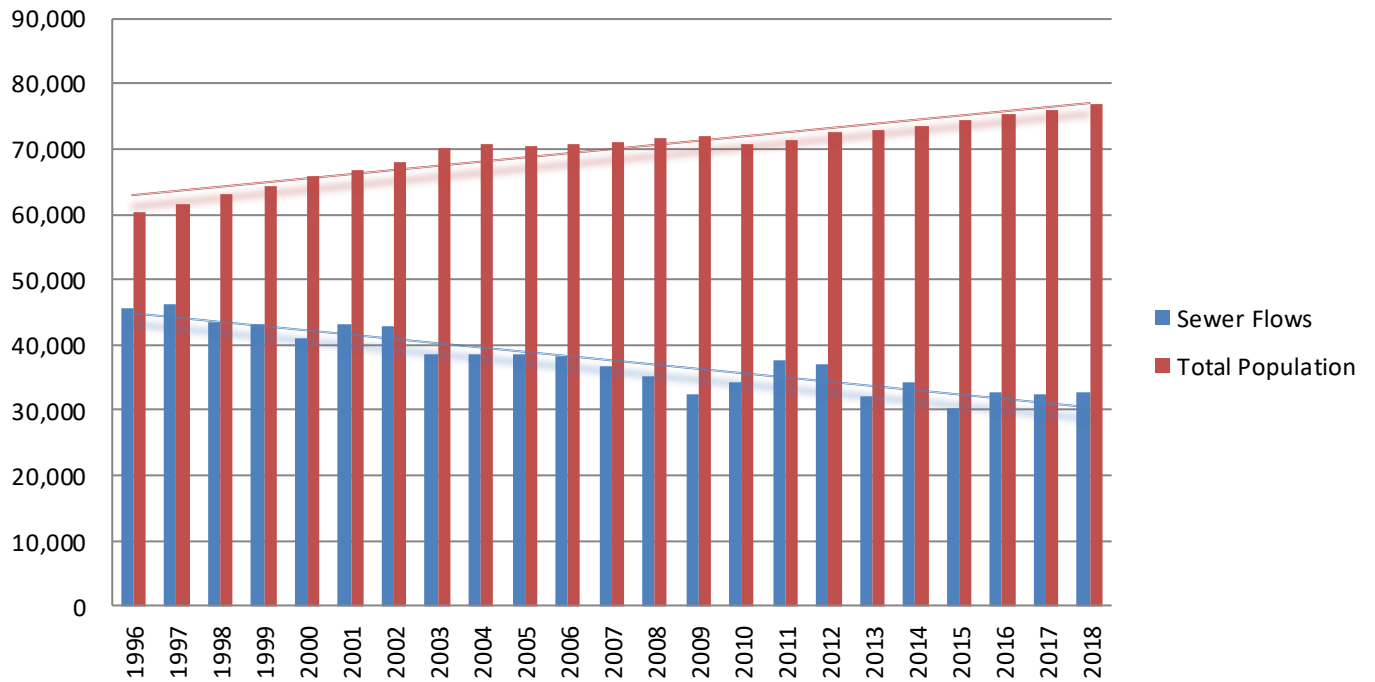


### Annual Per Capita Water Demand (mg)

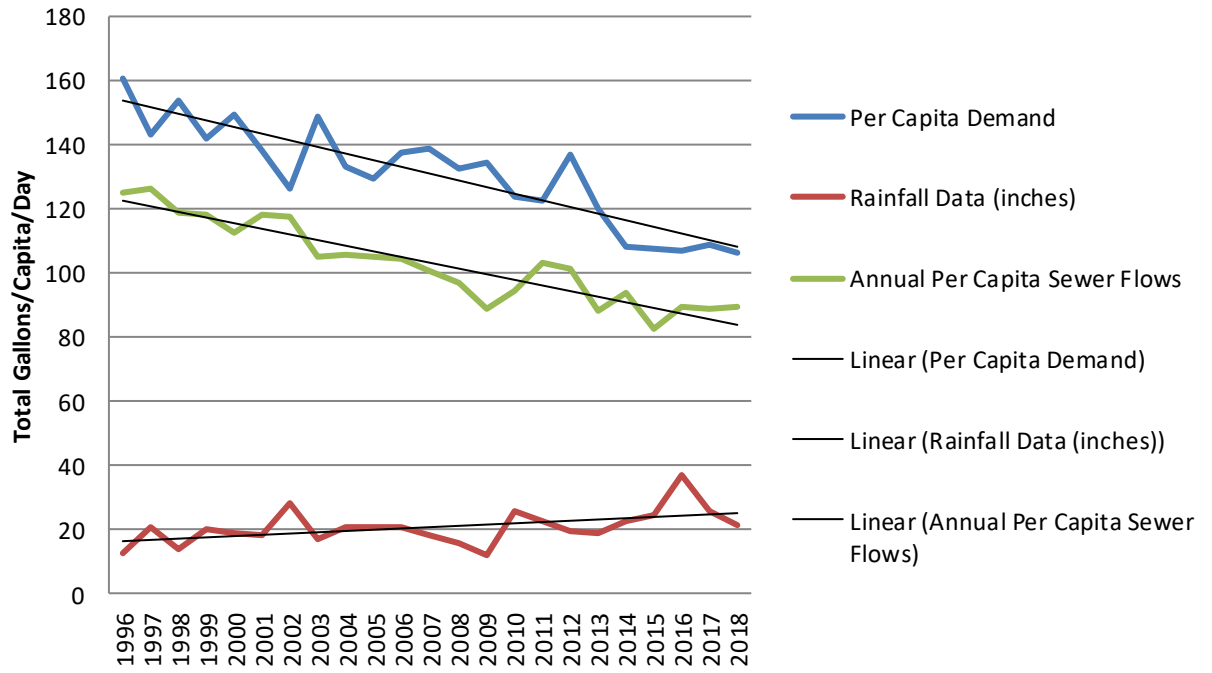


Water demand is declining at an average rate of approximately 2% per year.

### Annual Per Capita Sewer Flows (mg)



## Daily Per Capita Water Demand and Sewer Flows





City of Plymouth  
Water Fund Performance/Projection

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
49 Improvement Project Construction	(708,103)	(229,751)	(530,630)	(527,419)	(851,235)	-	-	-	-	-	-	-	-	-	-	-
50 Information Technology	(10,400)	(10,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51																
52 Total non operating revenue (expenses)	788,549	4,720,447	6,231,869	2,436,450	2,843,700	629,807	897,900	897,900	880,942	882,070	885,393	888,446	892,500	894,544	895,265	896,161
53																
54 Net increase (decrease) in resources	(1,105,026)	2,188,115	4,665,737	2,712,902	2,900,676	393,626	905,605	1,096,669	1,264,251	1,348,843	1,416,107	1,576,323	1,831,534	2,102,929	2,194,074	2,231,502
55																
56 <u>CIP Funding</u>																
57 Current Year Capital	(1,079,421)	(970,823)	(899,298)	(680,445)	(2,755,271)	(3,054,117)	(5,405,000)	(2,500,000)	(1,725,000)	(1,825,000)	(2,275,000)	(2,677,396)	(3,237,717)	(3,474,774)	(3,497,403)	(3,544,270)
58 Bond Proceeds																
59 Bond Principal - 2004B/2012A Issue	(950,000)	(920,000)	(935,000)	(965,000)	(990,000)	(1,005,000)										
60 Total Capital & Related Debt	(2,029,421)	(1,890,823)	(1,834,298)	(1,645,445)	(3,745,271)	(4,059,117)	(5,405,000)	(2,500,000)	(1,725,000)	(1,825,000)	(2,275,000)	(2,677,396)	(3,237,717)	(3,474,774)	(3,497,403)	(3,544,270)
61																
62 <u>Cash</u>																
63 Beginning Cash	Ending Cash	91,036	3,117,354	2,691,728	3,140,112	3,891,288	3,979,270	2,551,780	2,203,370	2,293,584	2,559,420	2,803,641	3,128,007	3,291,495	3,349,232	3,420,899
64 Add net increase (decrease) in resources (56)						393,626	905,605	1,096,669	1,264,251	1,348,843	1,416,107	1,576,323	1,831,534	2,102,929	2,194,074	2,231,502
65 Add back depreciation (28)						2,714,473	2,684,905	2,696,921	2,661,963	2,689,993	2,730,114	2,694,439	2,564,671	2,417,582	2,453,996	2,540,899
66 Less capital contributions (42)						(600,000)	(850,000)	(850,000)	(850,000)	(850,000)	(850,000)	(850,000)	(850,000)	(850,000)	(850,000)	(850,000)
67 Less capital and related debt principal(64)						(4,059,117)	(5,405,000)	(2,500,000)	(1,725,000)	(1,825,000)	(2,275,000)	(2,677,396)	(3,237,717)	(3,474,774)	(3,497,403)	(3,544,270)
68 Ending Cash	91,036	3,117,354	2,691,728	3,140,112	3,891,288	2,340,270	1,314,780	2,995,370	3,554,584	3,657,420	3,580,641	3,547,007	3,436,495	3,487,232	3,649,899	3,799,030
69 Transfer to/from Replacement Fund						1,639,000	1,237,000	(792,000)	(1,261,000)	(1,098,000)	(777,000)	(419,000)	(145,000)	(138,000)	(229,000)	(378,000)
70 Ending Cash	91,036	3,117,354	2,691,728	3,140,112	3,891,288	3,979,270	2,551,780	2,203,370	2,293,584	2,559,420	2,803,641	3,128,007	3,291,495	3,349,232	3,420,899	3,421,030
71																
72																
73 <u>Comparison of net increase (decrease) in resources</u>																
74 Current Projection						393,626	905,605	1,096,669	1,264,251	1,348,843	1,416,107	1,576,323	1,831,534	2,102,929	2,194,074	2,231,502
75 Previous Projection						395,300	(120,698)	47,019	265,318	407,947	500,379	524,370	534,685	640,280	-	-
76																
77 Projection Variance						(1,674)	1,026,303	1,049,650	998,933	940,896	915,728	1,051,953	1,296,849	1,462,649	2,194,074	2,231,502
78																
79 <u>Comparison of transfer (to) from Water Sewer Replacement fund</u>																
80 Current Projection						1,639,000	1,237,000	(792,000)	(1,261,000)	(1,098,000)	(777,000)	(419,000)	(145,000)	(138,000)	(229,000)	(378,000)
81 Previous Projection						342,000	(191,000)	(407,000)	(872,000)	(1,635,000)	(739,000)	(1,154,000)	(1,235,000)	(1,152,000)	-	-
82																
83 Projection Variance						1,297,000	1,428,000	(385,000)	(389,000)	537,000	(38,000)	735,000	1,090,000	1,014,000	(229,000)	(378,000)

City of Plymouth  
Sewer Fund Performance/Projection

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1 Revenue rate assumption	2.00%	5.50%	5.00%	5.00%	5.50%	6.00%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.00%	5.00%	5.00%
2 Investment income yield						1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
3 Expense rate - personnel						3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
4 Expense rate - Met Council <sup>8</sup>						6.20%	2.83%	3.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
5 Expense rate - all other						3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
6																
7 <u>Operating Revenues</u>																
8 Sewer Utility Consumption Charges <sup>1</sup>	5,809,796	6,137,693	6,323,722	6,901,893	7,296,522	7,304,215	7,843,285	8,269,752	8,733,303	9,215,396	9,716,032	10,253,751	10,810,012	11,347,732	11,922,535	12,515,881
9 Sewer Utility Base Charges <sup>1</sup>	1,546,985	1,462,616	1,557,471	1,665,536	1,792,916	1,858,846	2,018,131	2,130,250	2,247,974	2,371,304	2,503,043	2,640,388	2,786,142	2,926,290	3,072,044	3,226,207
10 Penalties <sup>2</sup>	65,827	69,784	68,029	82,928	83,586	65,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
11 Permits	16,016	21,353	17,271	21,205	19,287	-	-	-	-	-	-	-	-	-	-	-
12 Other	11,615	25,782	46,723	30,415	19,282	26,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
13 Additional Consumption Charges- new growth <sup>7</sup>	-	-	-	-	-	-	126,602	186,880	239,646	297,499	345,028	397,225	453,672	512,872	577,340	646,478
14 Additional Base Charges - new growth <sup>7</sup>	-	-	-	-	-	-	43,200	63,840	81,804	101,520	117,876	135,648	155,064	175,392	197,280	220,992
15																
16 Total Operating Revenues	7,450,239	7,717,228	8,013,216	8,701,977	9,211,593	9,254,061	10,125,218	10,744,722	11,396,727	12,079,720	12,775,978	13,521,012	14,298,890	15,056,286	15,863,200	16,703,557
17																
18 <u>Operating Expenses</u>																
19 Personal Services <sup>4</sup>	769,819	871,785	716,000	693,736	741,585	852,237	890,202	926,814	954,618	983,257	1,012,755	1,043,137	1,074,431	1,074,431	1,106,664	1,106,664
20 Materials & Supplies	84,298	129,525	115,841	156,275	52,662	130,000	110,500	110,500	113,815	117,229	120,746	124,369	128,100	128,100	131,943	131,943
21 Employee Development & Meetings	5,028	1,892	5,614	4,705	7,220	8,000	8,000	8,000	8,240	8,487	8,742	9,004	9,274	9,274	9,552	9,552
22 Contractual Services <sup>6</sup>	5,497,604	6,107,141	5,971,633	6,085,427	6,248,042	6,912,230	6,848,330	7,044,600	7,390,138	7,752,752	8,133,290	8,532,642	8,951,742	9,391,572	9,853,160	10,337,587
23 Equipment	5,909	5,257	4,657	1,498	3,089	5,000	5,000	5,000	5,150	5,305	5,464	5,628	5,796	5,796	5,970	5,970
24 Other Expenses	4,273	2,387	3,079	7,920	20,366	8,000	23,610	23,610	24,318	25,048	25,799	26,573	27,370	27,370	28,192	28,192
25 Depreciation	1,099,093	1,168,785	1,221,889	1,256,013	1,304,490	1,364,185	1,380,745	1,400,515	1,421,848	1,453,230	1,477,230	1,511,397	1,543,743	1,562,820	1,483,237	1,517,148
26 Allocations <sup>4</sup>	276,714	283,326	699,565	701,923	737,579	759,066	759,636	781,894	805,351	829,511	854,397	880,029	906,429	906,429	933,622	933,622
27																
28 Total Operating Expenses	7,742,738	8,570,098	8,738,278	8,907,497	9,115,033	10,038,718	10,026,023	10,300,933	10,723,479	11,174,819	11,638,423	12,132,779	12,646,887	13,105,793	13,552,340	14,070,679
29																
30 <i>Net Operations</i>	(292,499)	(852,870)	(725,062)	(205,520)	96,560	(784,657)	99,195	443,789	673,248	904,901	1,137,556	1,388,233	1,652,003	1,950,493	2,310,859	2,632,878
31																
32 <u>Non operating revenues (expenses)</u>																
33 Interest on Investments	53,301	4,960	34,849	46,103	75,078	30,700	55,050	55,050	37,068	42,631	40,763	47,341	49,269	49,269	50,650	52,732
34 Intergovernmental	24,789	21,536	15,315	35,593	25,520	28,644	29,000	29,000	29,870	30,766	31,689	32,640	33,619	33,619	34,628	34,628
35 Capital contributions <sup>3</sup>	1,277,209	403,867	1,853,614	3,021,709	1,905,059	-	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
36 Administrative fee	50,207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37 Transfers In (Out)																
38 Water Sewer Construction	-	(1,068)	-	68,916	(546)	-	-	-	-	-	-	-	-	-	-	-
39 Water Sewer Replacement	-	1,969,184	2,718,768	415,444	1,157,036	-	-	-	-	-	-	-	-	-	-	-
40 Water Resources Construction	-	-	-	-	18,460	-	-	-	-	-	-	-	-	-	-	-
41 General <sup>5</sup>	(58,643)	(58,643)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42 Improvement Project Construction	(216,344)	(132,529)	(141,365)	(305,357)	(328,910)	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Historically, base charges have been included as consumption revenue. These charges will be recorded separately in the future to allow for better analysis. The additional revenue expected as a result of the water meter replacement is now factored in the consumption charges as we have one year of data.

<sup>2</sup> Penalties estimated to remain stable.

<sup>3</sup> Capital contributions have no impact on cash flow, therefore are estimated based on average history.

<sup>4</sup> Allocations increase in 2016 due to a change in methodology. Administrative support personal services costs are now recorded as an allocation instead of direct costs to the department.

<sup>5</sup> Beginning in 2016, General Fund transfer is incorporated in allocations.

<sup>6</sup> Beginning in 2015, all expenses related to preventative sewer main repairs will be expensed directly to the Sewer fund instead of a transfer out to the Capital Project fund. The waste water fee is estimated based on notification of a percentage increase. The actual gallons charged at that rate is unknown at the time of departmental budget entry, thus the increase is calculated on the prior year total charge.

<sup>7</sup> Revenue from new growth displayed in lines 13 and 14 will be shifted to Sewer Utility revenues as current customer counts are used in subsequent years.

<sup>8</sup> MetCouncil rate increase in 2019 was higher than normal. 2020 rate increase was confirmed with MetCouncil.



City of Plymouth  
Sewer Fund Performance/Projection

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
43 Central Equipment	(1,500)				(62,092)											
44 Information Technology		(10,000)														
45																
46 Total non operating revenue (expenses)	1,129,019	2,197,307	4,481,181	3,282,408	2,789,605	59,344	1,384,050	1,384,050	1,366,938	1,373,397	1,372,452	1,379,980	1,382,888	1,382,888	1,385,277	1,387,359
47																
48 Net increase (decrease) in resources	836,520	1,344,437	3,756,119	3,076,888	2,886,165	(725,313)	1,483,245	1,827,839	2,040,187	2,278,298	2,510,008	2,768,214	3,034,891	3,333,381	3,696,137	4,020,237
49																
50 <i>Met Council Detail</i>																
51 MCES Portion of Operating Expenses	5,040,001	5,254,739	5,278,283	5,661,557	5,961,976	6,334,830	6,514,030	6,710,000	7,045,500	7,397,775	7,767,664	8,156,047	8,563,849	8,992,042	9,441,644	9,913,726
52 MCES % of Operating Expenses	65.09%	61.31%	60.40%	63.56%	65.41%	63.10%	64.97%	65.14%	65.70%	66.20%	66.74%	67.22%	67.72%	68.61%	69.67%	70.46%
53																
54 <i>CIP Funding</i>																
55 Current Year Capital	(1,266,589)	(979,761)	(1,480,663)	(1,480,663)	(1,835,861)	(2,152,893)	(1,750,000)	(1,440,000)	(1,280,000)	(1,960,000)	(1,440,000)	(2,263,366)	(2,331,156)	(2,331,156)	(2,400,753)	(2,442,910)
56 Total Capital & Related Debt	(1,266,589)	(979,761)	(1,480,663)	(1,480,663)	(1,835,861)	(2,152,893)	(1,750,000)	(1,440,000)	(1,280,000)	(1,960,000)	(1,440,000)	(2,263,366)	(2,331,156)	(2,331,156)	(2,400,753)	(2,442,910)
57																
58 <i>Cash</i>																
59 Beginning Cash	1,899,468	1,578,784	2,853,505	2,959,241	3,201,984	3,241,134	3,037,113	2,946,103	2,965,457	3,410,491	3,261,019	3,787,257	3,941,502	3,941,502	4,051,980	4,218,546
60 Add net increase (decrease) in resources (45)							(725,313)	1,483,245	1,827,839	2,040,187	2,510,008	2,768,214	3,034,891	3,333,381	3,696,137	4,020,237
61 Add back depreciation (23)							1,364,185	1,380,745	1,400,515	1,421,848	1,453,230	1,477,230	1,511,397	1,543,743	1,562,820	1,517,148
62 Less capital contributions (33)							-	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)	(1,300,000)
63 Less capital and related debt principal (52)							(2,152,893)	(1,750,000)	(1,440,000)	(1,280,000)	(1,960,000)	(1,440,000)	(2,263,366)	(2,331,156)	(2,331,156)	(2,442,910)
64 Ending Cash	1,578,784	2,853,505	2,959,241	3,201,984	3,241,134	1,727,113	2,851,103	3,434,457	3,847,491	3,882,019	4,508,257	4,503,502	4,888,980	5,206,546	5,530,600	6,013,022
65 Transfer to/from Replacement Fund						1,310,000	95,000	(469,000)	(437,000)	(621,000)	(721,000)	(562,000)	(837,000)	(988,000)	(1,170,000)	(1,653,000)
66 Ending Cash	1,578,784	2,853,505	2,959,241	3,201,984	3,241,134	3,037,113	2,946,103	2,965,457	3,410,491	3,261,019	3,787,257	3,941,502	4,051,980	4,218,546	4,360,600	4,360,022
67																
68																
69 <i>Comparison of net increase (decrease) in resources</i>																
70 Current Projection					2,886,165	(725,313)	1,483,245	1,827,839	2,040,187	2,278,298	2,510,008	2,768,214	3,034,891	3,333,381	3,696,137	4,020,237
71 Previous Projection					(448,936)	(705,733)	(252,037)	(22,227)	183,184	404,785	577,042	754,865	971,082	1,159,763	-	-
72																
73 Projection Variance					3,335,101	(19,580)	1,735,282	1,850,066	1,857,003	1,873,513	1,932,966	2,013,349	2,063,809	2,173,618	3,696,137	4,020,237
74																
75 <i>Comparison of transfer (to) from Water Sewer Replacement fund</i>																
76 Current Projection					1,157,036	1,310,000	95,000	(469,000)	(437,000)	(621,000)	(721,000)	(562,000)	(837,000)	(988,000)	(1,170,000)	(1,653,000)
77 Previous Projection					1,630,000	1,049,000	320,000	759,000	250,000	368,000	227,000	28,000	(51,000)	(341,000)	-	-
78																
79 Projection Variance					(472,964)	261,000	(225,000)	(1,228,000)	(687,000)	(989,000)	(948,000)	(590,000)	(786,000)	(647,000)	(1,170,000)	(1,653,000)

**City of Plymouth  
Utility Funds Combined Cash  
Water, Sewer and Water Sewer Replacement Funds**

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>CASH</b>																
1 Ending Cash Balances																
2 Water						3,979,270	2,551,780	2,203,370	2,293,584	2,559,420	2,803,641	3,128,007	3,291,495	3,349,232	3,420,899	3,421,030
3 Sewer						3,037,113	2,946,103	2,965,457	3,410,491	3,261,019	3,787,257	3,941,502	4,051,980	4,218,546	4,360,600	4,360,022
4 Water Sewer Replacement						1,916,683	584,683	1,845,683	3,543,683	5,262,683	6,760,683	7,741,683	8,723,683	9,849,683	9,849,683	9,849,683
5																
6 Total Ending Cash <sup>1</sup>	13,007,778	16,932,570	10,379,035	11,207,779	8,964,874	8,933,066	6,082,566	7,014,510	9,247,758	11,083,122	13,351,581	14,811,192	16,067,158	17,417,462	17,631,182	17,630,735
7																
8 Previous Projection	13,007,778	16,932,570	10,379,035	11,207,779	8,472,942	8,388,158	7,433,269	7,681,699	9,984,921	11,228,373	12,586,111	14,356,876	15,643,408	15,741,656		
9																
10 Projection Variance <sup>2</sup>	-	-	-	-	491,932	544,908	(1,350,703)	(667,189)	(737,163)	(145,251)	765,470	454,316	423,750	1,675,806		

<sup>1</sup> Cash decrease in 2016 due to water meter replacement project. Additional cash fluctuations due to capital projects.

<sup>2</sup> Estimated cash balances are less than the previous projection beginning in 2020. This is due to the fluctuation in capital project as identified in the Water and Sewer sections.

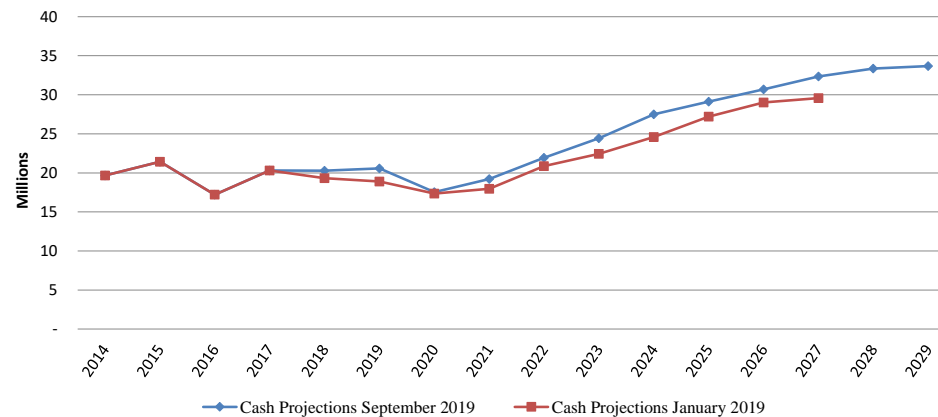
**Water, Sewer, Water Sewer Replacement, and Utility Trunk Funds**

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>CASH</b>																
1 Ending Cash Balances																
2 Utility Funds	13,007,778	16,932,570	10,379,035	11,207,779	8,964,874	8,933,066	6,082,566	7,014,510	9,247,758	11,083,122	13,351,581	14,811,192	16,067,158	17,417,462	17,631,182	17,630,735
3 Utility Trunk <sup>3</sup>	6,646,482	4,485,520	6,827,634	9,087,645	11,307,923	11,632,961	11,463,887	12,198,160	12,681,505	13,360,757	14,145,020	14,320,480	14,627,693	14,919,564	15,741,778	16,045,748
4																
5 Total Ending Cash	19,654,260	21,418,090	17,206,669	20,295,424	20,272,797	20,566,027	17,546,453	19,212,670	21,929,263	24,443,879	27,496,601	29,131,672	30,694,851	32,337,026	33,372,960	33,676,483
6																
7 Previous Projection																
8 Utility Funds	13,007,778	16,932,570	10,379,035	11,207,779	8,472,942	8,388,158	7,433,269	7,681,699	9,984,921	11,228,373	12,586,111	14,356,876	15,643,408	15,741,656		
9 Utility Trunk	6,646,482	4,485,520	6,827,634	9,087,645	10,844,116	10,503,357	9,923,813	10,274,483	10,886,725	11,197,223	11,997,071	12,845,427	13,372,027	13,835,098		
10																
11 Total Previous Projection	19,654,260	21,418,090	17,206,669	20,295,424	19,317,058	18,891,515	17,357,082	17,956,182	20,871,646	22,425,596	24,583,182	27,202,303	29,015,435	29,576,754		
12																
13 Projection Variance <sup>4</sup>	-	-	-	-	955,739	1,674,512	189,371	1,256,488	1,057,617	2,018,283	2,913,419	1,929,369	1,679,416	2,760,272		

<sup>3</sup> Utility Trunk cash increase in 2015 is due to higher than anticipated collections of Area and REC charges. Remaining cash variances are due to shifting or changing special assessments for street projects.

<sup>4</sup> Estimated cash balances are less than the previous projection beginning in 2019. This is due to the fluctuation in capital project as identified in the Water and Sewer sections.

**Utility Fund Cash Balances (including Utility Trunk)**



City of Plymouth  
Water Resources Fund Performance/Projection

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1 Revenue rate assumption	0.0%	6.0%	6.0%	6.0%	6.0%	6.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
2 Investment income yield						1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
3 Expense rate - personnel						3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
4 Expense rate - all other						3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
5																
6 <u>Operating Revenues</u>																
7 Water Resources Utility Charges	2,595,848	2,761,797	2,980,383	3,188,179	3,448,042	3,482,977	3,775,359	4,038,521	4,321,142	4,624,055	4,947,738	5,293,259	5,663,760	6,060,072	6,483,031	6,936,367
8 Penalties <sup>1</sup>	19,199	22,650	24,892	31,059	28,409	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
9 Other	20,037	31,304	40,080	16,345	37,328	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000
10 Additional Revenue - new growth <sup>6</sup>	-	-	-	-	-	-	44,040	65,940	85,680	107,880	126,984	148,176	171,756	197,904	226,800	258,816
11																
12 Total Operating Revenues	2,635,084	2,815,751	3,045,355	3,235,583	3,513,779	3,535,977	3,872,399	4,157,461	4,459,822	4,784,935	5,127,722	5,494,435	5,888,516	6,310,976	6,762,831	7,248,183
13																
14 <u>Operating Expenses</u>																
15 Personal Services <sup>2,7</sup>	655,971	624,499	713,549	729,123	701,758	909,252	962,226	1,003,892	1,034,009	1,065,029	1,096,980	1,129,889	1,163,786	1,198,700	1,234,661	1,271,700
16 Materials & Supplies	127,060	118,808	172,057	64,079	133,518	191,250	166,250	168,750	173,813	179,027	184,398	189,930	195,628	201,496	207,541	213,767
17 Employee Development & Meetings	1,731	832	2,526	1,122	2,512	2,200	3,700	3,700	3,811	3,925	4,043	4,164	4,289	4,418	4,551	4,687
18 Dues & Subscriptions	294,762	303,946	278,894	300,943	312,906	330,000	330,000	330,000	339,900	350,097	360,600	371,418	382,560	394,037	405,858	418,034
19 Contractual Services <sup>4</sup>	380,517	948,352	664,254	366,394	544,348	100,000	512,100	513,000	528,390	544,242	560,569	577,386	594,708	612,549	630,925	649,853
20 Equipment	10,345	9,851	6,366	11,266	14,619	15,000	15,000	15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002
21 Other Expenses	13,350	176,191	1,264	3,050	8,182	4,100	7,900	7,900	8,137	8,381	8,633	8,892	9,158	9,433	9,716	10,007
22 Depreciation	294,322	351,671	396,259	481,429	614,024	752,078	808,750	867,684	931,274	965,074	968,721	1,056,554	1,143,887	1,242,054	1,342,220	1,443,099
23 Allocations <sup>2</sup>	240,721	247,484	346,322	355,170	378,144	390,013	384,503	395,787	407,661	419,890	432,487	445,462	458,826	472,590	486,768	501,371
24																
25 Total Operating Expenses	2,018,779	2,781,634	2,581,491	2,312,576	2,710,011	2,693,893	3,190,429	3,305,713	3,442,444	3,551,579	3,632,821	3,800,577	3,970,231	4,153,188	4,340,688	4,531,521
26																
27 Net Operations	616,305	34,117	463,864	923,007	803,768	842,084	681,970	851,748	1,017,378	1,233,356	1,494,901	1,693,858	1,918,285	2,157,788	2,422,142	2,716,662
28																
29 <u>Non operating revenues (expenses)</u>																
30 Interest on Investments	110,859	44,939	25,119	45,706	79,343	21,000	51,650	51,650	30,080	30,465	45,751	69,180	68,060	70,306	71,397	75,333
31 Intergovernmental	4,317	4,500	264,026	6,500	-	-	-	-	-	-	-	-	-	-	-	-
32 Capital contributions <sup>5</sup>	1,201,598	660,498	2,248,049	3,929,636	1,801,816	700,000	2,000,000	1,600,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000
33 Administrative fee	46,932	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34 Transfers In (Out)																
35 Water Resources Construction	(800)	-	214,913	(54,791)	478,474	-	-	-	-	-	-	-	-	-	-	-
36 Transit	-	-	(18,330)	(56,700)	-	-	-	-	-	-	-	-	-	-	-	-
37 Central Equipment	(53,052)	(23,862)	-	-	(68,262)	-	-	-	-	-	-	-	-	-	-	-
38 General <sup>3</sup>	(17,388)	(17,388)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39 Improvement Project Construction	(291,488)	(155,222)	(204,690)	(55,753)	(1,178,008)	-	-	-	-	-	-	-	-	-	-	-
40 Information Technology	(13,225)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41																
42 Total non operating revenue (expenses)	987,753	513,465	2,529,087	3,814,598	1,113,363	721,000	2,051,650	1,651,650	730,080	730,465	745,751	769,180	768,060	770,306	771,397	775,333
43																
44 Net increase (decrease) in resources	1,604,058	547,582	2,992,951	4,737,605	1,917,131	1,563,084	2,733,620	2,503,398	1,747,459	1,963,821	2,240,652	2,463,039	2,686,345	2,928,094	3,193,539	3,491,995

<sup>1</sup> Penalties estimated to remain stable.

<sup>2</sup> Allocations increase in 2016 due to a change in methodology. Administrative support personal services costs are now recorded as an allocation instead of direct costs to the department.

<sup>3</sup> Beginning in 2016, General Fund transfer is incorporated in allocations.

<sup>4</sup> Beginning in 2015, all expenses related to preventative storm sewer repairs will be expenses directly to the Water Resources Fund instead of the Capital Project Fund.

<sup>5</sup> Capital contributions have no impact on cash flow, therefore are estimated based on average history.

<sup>6</sup> Revenue from new growth displayed in line 7 will be shifted to Water Resources Utility revenues as current customer counts are used in subsequent years.

<sup>7</sup> Added a Senior Engineering Technician and a portion of a Utilities Maintenance Worker, removed a portion of the Water Resources Manager from personal services beginning in 2019.

City of Plymouth  
Water Resources Fund Performance/Projection

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
45 <i>CIP Funding</i>																
46 Current Year Capital	(665,000)	(1,323,486)	(652,338)	(558,919)	(2,364,692)	(1,295,223)	(2,040,000)	(1,794,000)	(1,948,000)	(1,006,000)	(635,000)	(2,909,253)	(2,950,546)	(3,382,879)	(3,520,836)	(3,573,561)
47 Total Capital & Related Debt	(665,000)	(1,323,486)	(652,338)	(558,919)	(2,364,692)	(1,295,223)	(2,040,000)	(1,794,000)	(1,948,000)	(1,006,000)	(635,000)	(2,909,253)	(2,950,546)	(3,382,879)	(3,520,836)	(3,573,561)
48																
49 <i>Cash</i>																
50 Beginning Cash	3,434,353	3,174,289	2,713,799	2,642,736	3,476,493	2,607,042	2,926,981	2,429,351	2,406,434	2,437,166	3,660,061	5,534,434	5,444,774	5,624,460	5,711,728	6,026,651
51 Add net increase (decrease) in resources (47)						1,563,084	2,733,620	2,503,398	1,747,459	1,963,821	2,240,652	2,463,039	2,686,345	2,928,094	3,193,539	3,491,995
52 Add back depreciation (22)						752,078	808,750	867,684	931,274	965,074	968,721	1,056,554	1,143,887	1,242,054	1,342,220	1,443,099
53 Less capital contributions (32)						(700,000)	(2,000,000)	(1,600,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)	(700,000)
54 Less capital and related debt principal(50)						(1,295,223)	(2,040,000)	(1,794,000)	(1,948,000)	(1,006,000)	(635,000)	(2,909,253)	(2,950,546)	(3,382,879)	(3,520,836)	(3,573,561)
55 Ending Cash	3,174,289	2,713,799	2,642,736	3,476,493	2,607,042	2,926,981	2,429,351	2,406,434	2,437,166	3,660,061	5,534,434	5,444,774	5,624,460	5,711,728	6,026,651	6,688,184

City of Plymouth  
Solid Waste Management Fund Performance/Projection

	Actual					Projections										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1 Revenue flat rate assumption	-	0.25	0.25	0.25	0.25	0.25	0.35	0.35	0.40	0.40	0.40	0.35	0.35	0.35	0.30	0.30
2 Investment income yield						1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
3 Expense rate - personnel						3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
4 Expense rate - all other						3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.50%	3.50%	3.50%	3.50%	3.50%
5																
6 <u>Operating Revenues</u>																
7 Solid Waste Utility Charges	423,718	496,541	573,564	652,981	737,135	811,998	923,788	1,028,086	1,147,285	1,266,483	1,385,681	1,489,980	1,594,279	1,698,577	1,787,976	1,877,375
8 Penalties <sup>1</sup>	4,815	5,405	5,662	7,274	6,788	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
9 Licenses - Garbage Hauler	-	4,975	-	4,771	4,856	4,975	4,975	4,975	4,975	4,975	4,975	4,975	4,975	4,975	4,975	4,975
10 Other <sup>3</sup>	69,986	12,285	16,881	101,458	12,670	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
11 Additional Revenue - new growth <sup>6</sup>	-	-	-	-	-	-	18,600	28,980	39,270	51,000	61,380	72,000	83,460	95,760	108,000	120,960
12																
13 Total Operating Revenues	498,519	519,206	596,107	766,484	761,449	836,473	966,863	1,081,541	1,211,030	1,341,958	1,471,536	1,586,455	1,702,214	1,818,812	1,920,451	2,022,810
14																
15 <u>Operating Expenses</u>																
16 Personal Services <sup>4,7</sup>	100,194	183,796	148,891	122,859	87,154	171,469	173,848	212,894	219,281	225,859	232,635	239,614	246,802	254,207	261,833	269,688
17 Materials & Supplies	9,999	4,425	2,263	9,354	1,809	5,550	5,550	7,050	7,262	7,479	7,704	7,973	8,252	8,541	8,797	9,061
18 Employee Development & Meetings	392	399	25	25	37	450	450	450	464	477	492	509	527	545	562	578
19 Dues & Subscriptions	450	562	10	10	300	400	400	400	412	424	437	452	468	485	502	519
20 Contractual Services <sup>2</sup>	797,953	855,220	848,410	881,901	928,896	1,031,600	1,122,300	1,158,900	1,193,667	1,229,477	1,266,361	1,310,684	1,356,558	1,404,037	1,453,179	1,504,040
21 Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22 Other Expenses	1,447	1,919	1,932	2,637	3,996	3,000	4,500	4,500	4,635	4,774	4,917	5,089	5,268	5,452	5,643	5,840
23 Depreciation	2,438	3,289	4,821	4,893	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683
24 Allocations <sup>4</sup>	8,558	8,747	68,086	65,577	67,158	69,151	69,082	71,146	73,280	75,479	77,743	80,464	83,280	86,195	89,212	92,334
25																
26 Total Operating Expenses	921,431	1,058,357	1,074,438	1,087,256	1,095,033	1,287,303	1,381,813	1,461,023	1,504,683	1,549,653	1,595,972	1,650,469	1,706,839	1,765,145	1,825,410	1,887,744
27																
28 Net Operations	(422,912)	(539,151)	(478,331)	(320,772)	(333,584)	(450,830)	(414,950)	(379,482)	(293,654)	(207,695)	(124,436)	(64,014)	(4,625)	53,667	95,041	135,065
29																
30 <u>Non operating revenues (expenses)</u>																
31 Interest on Investments	75,306	30,901	18,006	22,384	24,811	20,300	20,050	20,050	5,696	3,588	2,527	2,494	3,217	4,690	6,911	9,676
32 Intergovernmental	197,233	226,782	222,251	205,779	178,141	135,837	131,674	113,602	113,602	113,602	113,602	113,602	113,602	113,602	113,602	113,602
33 Capital contributions	-	54,886	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34 Transfers In (Out)																
35 General <sup>5</sup>	(17,929)	(17,929)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36 General Capital Projects		(60,016)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37																
38 Total non operating revenue (expenses)	254,610	234,624	240,257	228,163	202,952	156,137	151,724	133,652	119,298	117,190	116,129	116,096	116,819	118,292	120,513	123,278
39																
40 Net increase (decrease) in resources	(168,302)	(304,527)	(238,074)	(92,609)	(130,632)	(294,693)	(263,226)	(245,830)	(174,356)	(90,506)	(8,307)	52,082	112,193	171,959	215,554	258,343
41																
42 <u>Cash</u>																
43 Beginning Cash	2,397,737	2,220,051	1,877,841	1,503,770	1,388,232	1,242,378	953,368	695,825	455,678	287,005	202,183	199,559	257,324	375,201	552,843	774,079
44 Add net increase (decrease) in resources (40)						(294,693)	(263,226)	(245,830)	(174,356)	(90,506)	(8,307)	52,082	112,193	171,959	215,554	258,343
45 Add back depreciation (22)						5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683	5,683
46 Ending Cash	2,220,051	1,877,841	1,503,770	1,388,232	1,242,378	953,368	695,825	455,678	287,005	202,183	199,559	257,324	375,201	552,843	774,079	1,038,106

<sup>1</sup> Penalties estimated to remain stable.

<sup>2</sup> A new contract is being negotiated with Republic Services. The cost per household is not available for 2019 and beyond, therefore the contractual services is estimated.

<sup>3</sup> The market for recyclables has declined beginning in 2015, therefore revenue sharing is conservatively eliminated.

<sup>4</sup> Allocations increase in 2016 due to a change in methodology. Administrative support personal services costs are now recorded as an allocation instead of direct costs to the department.

<sup>5</sup> Beginning in 2016, General Fund transfer is incorporated in allocations.

<sup>6</sup> Revenue from new growth displayed in line 7 will be shifted to Solid Waste Utility revenues as current customer counts are used in subsequent years.

<sup>7</sup> Water Resources Manager is overseeing the Solid Waste program. 25% of personal services are budgeted here beginning in 2019.

City of Plymouth  
Reserves

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>1 Water</b>											
2 Ending Cash Balance	3,979,270	2,551,780	2,203,370	2,293,584	2,559,420	2,803,641	3,128,007	3,291,495	3,349,232	3,420,899	3,421,030
3 Target Reserves	3,978,906	2,551,095	2,202,628	2,292,831	2,559,241	2,803,092	3,127,184	3,290,962	3,348,884	3,420,323	3,420,323
4 Excess (Shortfall)	364	685	742	752	179	550	824	533	348	576	707
5											
<b>6 Sewer</b>											
7 Ending Cash Balance	3,037,113	2,946,103	2,965,457	3,410,491	3,261,019	3,787,257	3,941,502	4,051,980	4,218,546	4,360,600	4,360,022
8 Target Reserves	3,036,320	2,945,105	2,965,408	3,410,397	3,260,298	3,787,028	3,941,364	4,051,321	4,217,652	4,359,838	4,359,838
9 Excess (Shortfall)	794	999	49	94	721	229	138	658	894	763	184
10											
<b>11 Water Sewer Replacement</b>											
12 Ending Cash Balance	1,916,683	584,683	1,845,683	3,543,683	5,262,683	6,760,683	7,741,683	8,723,683	9,849,683	9,849,683	9,849,683
13											
14 Total Ending Cash Balance <sup>1</sup>	8,933,066	6,082,566	7,014,510	9,247,758	11,083,122	13,351,581	14,811,192	16,067,158	17,417,462	17,631,182	17,630,735
15											
16											
<b>17 Water Resources</b>											
18 Ending Cash Balance <sup>2</sup>	2,926,981	2,429,351	2,406,434	2,437,166	3,660,061	5,534,434	5,444,774	5,624,460	5,711,728	6,026,651	6,688,184
19 Target Reserves	1,615,420	1,506,507	1,601,792	1,149,626	983,525	2,140,632	2,181,859	2,419,223	2,510,035	2,558,886	2,558,886
20 Excess (Shortfall)	1,311,561	922,844	804,641	1,287,540	2,676,536	3,393,802	3,262,915	3,205,237	3,201,693	3,467,765	4,129,298
21											
22											
<b>23 Solid Waste Management</b>											
24 Ending Cash Balance	953,368	695,825	455,678	287,005	202,183	199,559	257,324	375,201	552,843	774,079	1,038,106
25 Target Reserves	344,033	363,835	374,750	385,993	397,572	411,197	425,289	439,866	454,932	470,515	470,515
26 Excess (Shortfall)	609,336	331,990	80,928	(98,987)	(195,390)	(211,638)	(167,965)	(64,665)	97,911	303,564	567,590

<sup>1</sup> As the water and sewer systems continue to age, it is critical to assess infrastructure conditions and capital needs. Target reserves are being maintained at a higher level as staff is proposing to hire an outside firm to evaluate the systems and long-term capital needs. Cash projections and target reserves will be evaluated and adjusted to match the evaluation results.

<sup>2</sup> Ending cash balance includes estimated external funding for projects noted in Appendix E-3. Reimbursement is uncertain at this time.

**City of Plymouth  
Water Utility  
Capital Improvement Plan**

Inflation Rate	2.00%
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PROJECT DESCRIPTION	PROJECT #	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<i>Funding Provided by Water Fund</i>												
Refurbish Central Water Tower	WA-19-0001	1,400,000										
Xenium Lane Water Main Rehabilitation	WA-20-0001		2,000,000									
Annual Well Refurbishing <sup>2</sup>	WA-XX-9001	280,000	280,000	300,000	300,000	300,000	300,000	300,000	325,000	325,000	325,000	325,000
Annual Treatment Plant Refurbishing	WA-XX-9003	125,000	125,000	125,000	125,000	125,000	175,000	175,000	175,000	175,000	175,000	225,000
Water Storage Facility Improvements	WA-XX-9004								125,000	75,000		
Brockton Lane Reconstruction	ST-19-0005	26,028										
Juneau Lane from Hampton Hills to 59th Ave	ST-20-0001										310,000	
County Road 9 at TH 169 Bridge Replacement	ST-20-0002						300,000					
Ridgemount Ave Rehabilitation	ST-21-0002			500,000								
Annual Street Reconstruction <sup>1, 2</sup>	ST-XX-9001	552,000	2,200,000	1,100,000	1,100,000	1,100,000	1,200,000	1,200,000	1,500,000	1,700,000	1,400,000	1,700,000
Annual Mill & Overlay <sup>2</sup>	ST-XX-9002	556,089	600,000	400,000	100,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Annual Full Depth Reclamation (FDR) <sup>2</sup>	ST-XX-9005		200,000	75,000	100,000	100,000	100,000	150,000	150,000	150,000	175,000	175,000
Camera System Upgrades	IT-17-0008	115,000										
Future Project Contingency								400,000	400,000	400,000	400,000	400,000
<b>Total Water Fund</b>		<b>3,054,117</b>	<b>5,405,000</b>	<b>2,500,000</b>	<b>1,725,000</b>	<b>1,825,000</b>	<b>2,275,000</b>	<b>2,425,000</b>	<b>2,875,000</b>	<b>3,025,000</b>	<b>2,985,000</b>	<b>3,025,000</b>
							<b>Inflated Total</b>	<b>2,677,396</b>	<b>3,237,717</b>	<b>3,474,774</b>	<b>3,497,403</b>	<b>3,544,270</b>

Note: A 2% inflation factor is included on placeholder projects, based on the American City and County Magazine's published Construction Cost Index.

<sup>1</sup>A history of watermain issues is known in the 2019 and 2020 street reconstruction areas. There is no history of issues in the 2021-2023 areas.

<sup>2</sup>Project area is adjusted to be within CIP based on bid estimates.

**City of Plymouth  
Sanitary Sewer Utility  
Capital Improvement Plan**

Inflation Rate	2.00%
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PROJECT DESCRIPTION	PROJECT #	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<i>Funding Provided by Sewer Fund</i>												
Autumn Hills Lift Station	SS-16-0001				100,000	500,000						
Refurbish Bass Lake Plaza Lift Station	SS-18-0001	700,000										
Ferndale North Lift Station Generator	SS-19-0001	45,000										
Kingswood Farms Lift Station Generator	SS-19-0002	45,000										
Mission Farm Lift Station Generator	SS-19-0003	75,000										
Mission Farm Lift Station Bypass	SS-20-0001		350,000									
Lancaster Lift Station Pump Replacement	SS-21-0001			150,000								
Bass Lake Lift Station Pump Replacement	SS-23-0001					250,000						
Line Sanitary Sewer Main - annual <sup>2</sup>	SS-XX-9001	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000
Future Lift Station Improvements	SS-XX-9003						150,000	250,000	250,000	250,000	250,000	250,000
Juneau Lane from Hampton Hills to 59th Ave	ST-20-0001										10,000	
County Road 9 at TH 169 Bridge Replacements	ST-20-0002						100,000					
Annual Street Reconstruction <sup>1, 2</sup>	ST-XX-9001	10,000	100,000	50,000	50,000	50,000	60,000	60,000	80,000	100,000	75,000	100,000
Annual Mill & Overlay <sup>1, 2</sup>	ST-XX-9002	277,893	250,000	190,000	80,000	110,000	80,000	80,000	80,000	80,000	90,000	90,000
Annual Full Depth Reclamation (FDR) <sup>1, 2</sup>	ST-XX-9005		50,000	50,000	50,000	50,000	50,000	60,000	60,000	60,000	60,000	60,000
Future Project Contingency								500,000	500,000	500,000	500,000	500,000
<b>Total Sewer Fund</b>		<b>2,152,893</b>	<b>1,750,000</b>	<b>1,440,000</b>	<b>1,280,000</b>	<b>1,960,000</b>	<b>1,440,000</b>	<b>2,050,000</b>	<b>2,070,000</b>	<b>2,090,000</b>	<b>2,085,000</b>	<b>2,100,000</b>
							<b>Inflated Total</b>	<b>2,263,366</b>	<b>2,331,156</b>	<b>2,400,753</b>	<b>2,442,910</b>	<b>2,460,485</b>

Note: A 2% inflation factor is included on placeholder projects, based on the American City and County Magazine's published Construction Cost Index.

<sup>1</sup>Project cost is dependent of the size of the project area.

<sup>2</sup>Project area is adjusted to be within CIP based on bid estimates.



**City of Plymouth  
Water Resources  
Capital Improvement Plan**

Inflation Rate 2.00%

PROJECT DESCRIPTION	PROJECT #	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<i>Funding Provided by Water Resources Fund</i>												
Chelsea Woods Drainage - Weston Ln to CR 6 <sup>4</sup>	WR-15-0004			50,000	400,000							
Weston Lane Storm Sewer Lift Station Rehab.	WR-16-0001	75,000		475,000								
Wild Wings Western Wetland Improvements	WR-17-0001		100,000	100,000								
Harbor Place Erosion Repair	WR-17-0003		200,000									
St. Mary's Addition Drainage Improvement	WR-18-0001	125,000										
Mengelkochs First Addition Drainage Improvement	WR-18-0002	20,000	50,000									
Plum Tree East Drainage Improvement	WR-18-0003	20,000	250,000									
Schiebers Addition Erosion Repair	WR-18-0004	20,000	150,000									
Elm Creek Stream Restoration - HWY 55 to WHS <sup>1,4</sup>	WR-18-0005	598,000										
Ivanhoe/Pleasant Hills Drainage Improvement	WR-18-0007	50,000	50,000									
Meadow Wood Drainage Improvement	WR-18-0009	150,000	100,000									
4th and Zircon Drainage Improvement	WR-18-0010	60,000	50,000									
19th Avenue/Dunkirk Lane Pond Improvement <sup>1</sup>	WR-19-0001	75,000	250,000									
Northwest Greenway-Trailhead Playfield 10 Development Stormwater Quality Improvement <sup>3</sup>	WR-22-0002				375,000							
Maple Creek Stream Restoration <sup>1</sup>	WR-20-0001		50,000	400,000								
Plymouth Marketplace Drainage Improvement	WR-20-0002		20,000	80,000								
County Road 9/Larch Lane Drainage Improvement	WR-20-0005		75,000	100,000								
Courts/Fields of Nantarre Drainage Improvement	WR-20-0006		20,000	100,000								
Street Sweeper	WR-20-0007		350,000									
The Bass and Pomerleau Alum Treatment - Phase 2	WT-20-0008		37,000									
Palmer Creek Estates Stream Restoration <sup>1</sup>	WR-21-0002			75,000	350,000							
Ponderosa Woods Stream Restoration	WR-21-0003					75,000						
Kingsview Heights Drainage Improvement	WR-21-0004			25,000	175,000							
Schmidt Lake Woods Drainage Improvement	WR-21-0005			50,000	200,000							
Bass Lake Estates 2nd Add Stream Restoration	WR-22-0001				100,000	400,000						
Maintain Water Quality Ponds <sup>2</sup>	WR-XX-0001	75,000	100,000	100,000	100,000	150,000	150,000	150,000	200,000	200,000	200,000	250,000
Unspecified Drainage Improvements <sup>2</sup>	WR-XX-9002			75,000	75,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
BCWMC Water Quality, Channel, and Basin Improvements <sup>2</sup>	WR-XX-9003							75,000		75,000		75,000
Future Water Quality Improvements <sup>2</sup>	WR-XX-9004							1,000,000	1,000,000	1,250,000	1,250,000	1,250,000
New 1/2 ton Pickup	CE-20-400X		30,000									
Brockton Lane Reconstruction	ST-19-0005	17,223										
Juneau Lane from Hampton Hills to 59th Ave	ST-20-0001										100,000	
County Road 9 at TH 169 Bridge Replacement	ST-20-0002						100,000					
Ridgemount Ave Rehabilitation	ST-21-0002			20,000								
Annual Street Reconstruction <sup>2</sup>	ST-XX-9001	10,000	50,000	50,000	80,000	80,000	90,000	90,000	100,000	100,000	100,000	120,000
Annual Mill and Overlay <sup>2</sup>	ST-XX-9002		58,000	44,000	18,000	26,000	20,000	20,000	20,000	20,000	30,000	30,000
Annual Full Depth Reclamation (FDR) <sup>2</sup>	ST-XX-9005		50,000	50,000	75,000	75,000	75,000	100,000	100,000	100,000	125,000	125,000
Future Project Contingency								1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Total Water Resources Fund		1,295,223	2,040,000	1,794,000	1,948,000	1,006,000	635,000	2,635,000	2,620,000	2,945,000	3,005,000	3,050,000
<b>Inflated Total</b>								<b>2,909,253</b>	<b>2,950,546</b>	<b>3,382,879</b>	<b>3,520,836</b>	<b>3,573,561</b>

Note: A 2% inflation factor is included on placeholder projects, based on the American City and County Magazine's published Construction Cost Index.

<sup>1</sup>Projects may be funded by an external source, however, reimbursement is uncertain at this time. Cash balances are projected in Appendix C-4 assuming that external funding is available.

<sup>2</sup>Project area is adjusted to be within CIP based on bid estimates.

<sup>3</sup>Project will coincide with the Playfield Land Development project.

<sup>4</sup>Project shifted from what was presented in the 2019-2023 CIP.