

# **UTILITY ADVISORY BOARD AGENDA**

Thursday, February 8, 2018 – 5:15 p.m.  
Mendenhall Wastewater Treatment Plant  
2009 Radcliffe Rd

**I. CALL TO ORDER**

**II. APPROVAL OF AGENDA**

**III. APPROVAL OF MINUTES**

January 11, 2018 Draft UAB Meeting Minutes  
January 19, 2018 Draft UAB Work Session Meeting Minutes

**IV. PUBLIC PARTICIPATION**

**V. ACTION ITEMS**

**VI. INFORMATION ITEMS**

- A. Rate Increase Continued Discussion
  - i. 2014 Annual Board Report
  - ii. 2016 Annual Board Report

**VII. NON-AGENDA ITEMS**

**VIII. ADJOURNMENT – Next Meeting, March 8<sup>th</sup>**



# UTILITY ADVISORY BOARD

## DRAFT MINUTES

Thursday, January 11, 2017 – 5:15 p.m.  
Mendenhall Wastewater Treatment Plant  
2009 Radcliffe Road

**Board Members Present:** Leon Vance – Chair; Geoff Larson – Vice-Chair; Grant Ritter;  
Bryan Farrell; Janet Hall Schempf (telephonically); Andrew Campbell;  
Kevin Buckland

**Board Members Absent:** None

**Staff Present:** Roger Healy; Autumn Sapp; Holly Kveum

### I. CALL TO ORDER

The meeting was called to order at 5:18p.m. by Chair Vance.

### II. APPROVAL OF AGENDA

Chair Vance amended the agenda to include the introduction of a new board member, Kevin Buckland.

### III. APPROVAL OF MINUTES

November 9, 2017 Draft UAB Meeting Minutes- approved with a minor amendment.

### IV. PUBLIC PARTICIPATION

None.

### V. ACTION ITEMS

None.

### VI. INFORMATION ITEMS

A. Utilities Operational Update- Mr. Healy gave the board an update of the on-goings of the Utilities. He reviewed the sale of the Water Utility building and the subsequent move to the Valley Street Shop, and discussed the progress of the biosolids and headworks projects. Mr. Healy relayed the continued

pumping efforts of Maier Drive to the board, and that the Collections team had a new hire to aide in the labor burden. Mr. Healy also discussed recruitment plans for the Utilities Superintendent, and then gave a recap of the recent Finance Committee meeting. The board and staff then discussed the Water Utility move, and the potential new location of the Household Hazardous Waste facility.

- B. Rate Increase Continued Discussion- Mr. Healy began the discussion with answering questions that were requested at the last meeting: can the CBJ open a line of credit and can staff provide historic information of CIP expenditures. Mr. Healy reported the Director of the CBJ Finance Department answered the first question in that the CBJ operates under a central treasury, and essentially, if any entity goes under, the CBJ would “bail it out”. However, this is mitigated through rates. Mr. Healy noted that he was still waiting to receive the historic CIP information that was requested, but noted that when the board does receive this information that it may still not present a clear picture, as various monies were received from projects through state or federal funding. Mr. Healy informed the board that the Finance Committee had changed the funding of the 1% sales tax, which benefited wastewater by providing more funds in the first fiscal year and that staff had updated the dashboard accordingly. Mr. Healy then gave a recap of the last discussion on rates and CIP forecasting to update Mr. Buckland before opening the dashboard for the board’s requested funding scenarios. Mr. Larson asked and Mr. Healy confirmed the capital reserve in the file is the recommended level of funds that should be available. The board and staff then began discussing CIP forecasting. Mr. Campbell asked if a percentage of infrastructure costs was already built into the estimates shown and Mr. Healy answered that the numbers up to FY24 were based solely on rate study numbers, which did include a list of projects. Mr. Buckland inquired when the board was hoping to have an FY20 proposal for the Assembly to review, Mr. Healy answered ideally May of 2019. Vice- Chair Larson then provided some background information about the rate increases and the temporary sales tax, reiterating that current Assembly members would not obligate future Assembly members. The board discussed the background of the rate study and where the most information could be found, and suggested an updated study where additional user groups that could be identified and charged depending on their burden to the system. Mr. Buckland inquired about the discrepancy between past CAFRs and the rate model, and requested to be walked through the 2017 CAFR to fully understand what the balances shown represent. Ms. Sapp mentioned that a meeting with the Controller would be appropriate for that request. The board then discussed different revenue streams, economic imparities, rate inequalities, and simulated different rate increases throughout FY24-FY29 in the dashboard. Mr. Campbell noted that it was essential for the board to be unanimous with what is brought forward to the reviewing bodies. Vice-Chair

Larson requested to make a motion at the next meeting with a recommendation for a rate increase, and in the board's annual report to include additional language about the financial situation the Utilities are facing, and recommend a rate model be solicited to address the equalization issues. Mr. Buckland asked the board why rate increases seemed to be requested in five-year increments, and the board provided some background information about the public participation component of the effort, and that the increases were not set in stone; future Assembly members could vote to further adjust rates. Mr. Buckland noted that there seemed to be a fixation on percentages, and emphasized that the equalization issue is what should be addressed. The board then discussed the meeting schedule, and decided a recommendation would be needed for the Assembly to review in April. Mr. Campbell asked staff to continue to look into the costs of infrastructure as an argument, and then the board discussed asset values, depreciation, and IT management options. Staff asked if a worksession with the Controller's office would be helpful before the next scheduled meeting; several board members agreed and asked staff to inquire as to their availability and coordinate a meeting.

**VII. NON-AGENDA ITEMS**

None.

**VIII. ADJOURNMENT**

The meeting adjourned at 7:22pm.



# UTILITY ADVISORY BOARD- WORK SESSION AGENDA

Friday, January 19, 2018 – 3:00 p.m.  
City Hall, Room 224  
155 S. Seward Street

**Board Members Present:** Leon Vance – Chair; Geoff Larson – Vice-Chair;  
Kevin Buckland

**Staff Present:** Autumn Sapp; Sam Muse; Rose Evans; Holly Kveum

## **I. CALL TO ORDER**

The worksession was called to order at 3:09pm by Chair Vance.

## **II. APPROVAL OF AGENDA**

None.

## **III. APPROVAL OF MINUTES**

None.

## **IV. PUBLIC PARTICIPATION**

None.

## **V. INFORMATION ITEMS**

None.

## **VI. WORKSESSION ON FINANCIAL INFORMATION**

The group began the work session by introducing themselves. Ms. Sapp informed the group that she had a list of questions from Mr. Buckland and proposed using the first question to start to the discussion: provide a walkthrough of the spreadsheet and primary overview of the dashboard and how it compares to the recent CAFR. Mr. Muse gave an overview of the background of the dashboard. The dashboard is intended to compare the rate study to actuals, and was created by Mr. Muse as a tool for both the Controller's Office and Utilities Management. Mr. Muse went on to discuss the different liabilities the Utilities face, including pensions how they impact the fund balance, and showed how they are displayed in the FY17 CAFR, noting that pensions

specifically are listed as unrestricted rather than a drain on current resources. Ms. Sapp asked Mr. Muse how the capital reserve amount was established, Mr. Muse said that was determined by the Finance Director, but was unsure of why the current amount on the wastewater dashboard was set so high. Vice-Chair Larson noted that the amount was set by the consultants during the last rate study and provides coverage for an undisclosed number of days to maintain operations. Mr. Muse stated he still felt like that number includes CIP expenditures and would have to verify. Mr. Buckland added that the dashboard and the most recent CAFR numbers seemed fairly close and Mr. Muse agreed, noting that he had not hard coded the FY17 numbers at this point, but the dashboard had shown to be a good forecasting tool. Mr. Buckland requested to continue to discuss the dashboard. The group continued to review the dashboard in comparison to the FY17 CAFR, reviewing various appropriations from different funding sources, and the different transfer tracking that is involved in order balance the accounts. The group then reviewed the various debt services that have been paid, and what is still to be completed, and revenue bonds interest rates versus DEC loans. Mr. Buckland noted that the 20 million loan from DEC for the biosolids was not included in the FY17 CAFR; Mr. Muse confirmed that was correct, and those funds won't be reported until the dryer is operational. Ms. Sapp added that currently there are not any CIPs listed that would require DEC funding as staff is anticipating this to be a dry resource with the budget forecast. Mr. Muse then showed a report that listed all the water and wastewater assets the Controller's office has on file; Mr. Larson asked staff to provide this document at the next UAB meeting as a tool to make assumptions on net present value, and Mr. Muse gave a brief overview of how grant funded assets are amortized. Mr. Buckland asked staff to confirm the temporary sales tax is voted on every five years. Mr. Muse answered yes, and said it's typical for the funds to be given to CIP projects for maintenance, but this year the assembly chose to give some funding to water and wastewater operations. Mr. Muse noted there are many players in the dashboard, but generally the tool is not of more than \$1-200k, and reemphasized that it is a projecting tool only. Mr. Buckland state he wanted to tighten up the numbers on the annual report before it was released to the Assembly for review.

**VII. NON-AGENDA ITEMS**

None.

**VIII. ADJOURNMENT**

The work session adjourned at 4:29pm.





**To:** Mayor Sanford & CBJ Assembly – Committee of the Whole

**From:** CBJ Utility Advisory Board

**Date:** July 1, 2014

**Re:** FY 14 Annual Report of Utility Advisory Board

This memorandum constitutes the CBJ Utility Advisory Board's (UAB's) annual report for Fiscal Year 2014 (FY 14).

### **Background**

The Water and Wastewater Utilities did not increase customer rates between 1991 and 2003. As a result of this long period with no rate increases, a precarious financial position developed for the Utilities. A rate study completed in 2003 made two recommendations: an immediate rate increase of 19% for water and 39% for wastewater and additional specific rate increases over the next 10 years.

The Assembly approved the 19% and 39% increases, and due to the public outcry from this "rate shock," the Mayor empanelled an Ad Hoc Utility Advisory Board (UAB) in February 2004. Made up of seven members of the public, the group was tasked with advising the mayor and Assembly on Water and Wastewater Utility issues, including rates, and about creating a permanent Advisory Board. The Ad Hoc UAB presented their report in December 2004, recommending, among other things, establishment of a permanent Utility Advisory Board.

The Utility Advisory Board was created by CBJ Resolution 2299 in February 2005, with seven members of the public, six of whom served on the Ad Hoc UAB. Since its establishment, the UAB has advised the Mayor and Assembly on Utility issues in accordance with the original resolution.

The UAB considers infrastructure, operations, and the funding needs of the Water and Wastewater Utilities.

Over the past year, the UAB studied a number of topics and made specific recommendations, as described below:

### **1. Met with the utility rate study consultants**

The UAB met with the consultants in July 2013 to discuss two major topics. The first was to identify capital needs as well as operating costs over the next 10 years and the rates needed to support those costs. The second was to determine if the current rate structure is equitable. In addition, this rate study process would include a public outreach section with public meetings and a web site so the public could be apprised of study activities, results, and recommendations.

In December, the consultants met with the Committee of the Whole and held two public meetings to explain the anticipated needs of the utilities going forward over the 10-year period. The consultant discussed the aging infrastructure and revenue required to bring the system up to date. The estimated cost for facility upgrades was estimated to be \$73 million over for the next 10 years with a detailed list of projects presented. In order to fund the improvements, the consultants recommended implementing a 9.5% increase each year for the first 5 years, followed by a 5% increase each year for the last 5 years. This assumes \$30 million coming from outside sources, which could include 1% Sales tax monies, Marine Passenger Fees, DEC Loans/Grants, or other sources.

UAB members participated in these public meetings and reviewed the capital and operating assumptions. At the April UAB meeting, the board voted to recommend implementing the findings of the rate study in regards to the rate increases (please see the formal vote in the April 2014 minutes). The following statement is the official stand of the UAB regarding the rate study:

*The estimated cost for facility upgrades is \$73 million (2014 dollars) over for the next 10 years. The consultants recommended implementing a 9.5% increase each year for the first 5 years, followed by a 5% increase each year for the next 5 years, generating \$43 million in revenue (2014 dollars). The remaining \$30 million (2014 dollars) would be required from outside sources, which could include 1% Sales tax monies, Marine Passenger Fees, DEC Loans/Grants, or other. The UAB concurs with this recommendation.*

In February, the consultants discussed the cost of service study with a recommendation to change the current rate structure. UAB members participated in public meetings and a presentation to the Committee of the Whole.

During the May UAB meeting, the board voted to recommend an across-the-board rate increase as well as continued work on the cost of service approach.

## **2. Discussed the need for fire protection funding**

The UAB reaffirmed the need for continued increased contributions for the maintenance of the fire system from the general fund. The 2003 rate study recommended that a total of \$500,000 be allocated from the general fund to the Water Utility for maintenance of hydrants and large distribution lines. The amount was recommended to be increased by \$50,000 each year until a total of \$1,000,000 was reached. Due to budget constraints, the amount paid to the Water Utility has not exceeded \$350,000. The UAB recommends that the amount once again be increased by \$50,000 per year until the desired level of funding is reached.

## **3. Water Updates – University of Alaska Southeast (UAS) water system**

The staff briefed the UAB on the water system at UAS. The staff disconnected the CBJ and UAS systems at the Lee Street pump station so that the two systems are connected only at the main valve station at UAS; CBJ now provides all water to UAS.

## **4. Last Chance Basin (LCB) Well Design**

The staff briefed the UAB on the redesign of LCB. The concept will drill two new wells to allow rotation of the wells and relaxation on usage. The final project would have seven newly drilled wells, five of which will be located near the five current wells; this configuration will allow the existing well head infrastructure to be used on the five new wells. A new standby generator will be installed creating a more reliable emergency power source.

## **5. Frozen pipes**

Staff reported on a rash of frozen pipes. Staff explained that CBJ is out of the pipe thawing business, but staff work with both residents and plumbers to resolve issues where staff can assist.

## **6. Salmon Creek maintenance issues**

Staff advised the board that AEL&P is planned to complete some maintenance and electric panel upgrades to their Salmon Creek facility in May. Because AEL&P would shut down the main water supply from the dam at that time, Water staff worked closely with CBJ Engineering to configure piping to allow uninterrupted access to the CBJ's wet well through DIPAC's line.

## **7. Salmon Creek disinfection**

Staff updated the board when CBJ Engineering decided ultraviolet disinfection is not feasible for the secondary disinfection process at Salmon Creek. Membrane filtration is now being considered. This option would allow for disinfection to occur when turbidity issues arise, rather than taking the Salmon Creek water source offline at these times. Mr. Ritter provided staff with information on a small skid-mount UV system that might be useful for Salmon Creek. Mr. Ritter also expressed concerns about the amount of research that has been done on this issue, considering that DEC requires the Salmon Creek facility to have a secondary disinfection system in place by October 2015. Staff stated that this project is top priority right now for CBJ Engineering. Mr. Ritter also had concerns about CIP funds that have been used or not used, such as the Last Chance Basin Hydrogeo project. Staff indicated he would provide a complete update on all of Water's CIP's at the next UAB meeting.

## **8. Status of wastewater permits**

The UAB inquired on the status of the wastewater permits for all 3 plants. Staff explained all permit applications are being submitted in accordance with permit requirements.

Staff responded to a UAB question on the status of the DMRs and staff reported that all DMRs have been properly reported on a timely basis.

The UAB inquired about the capacity of the plants and if they're running at capacity. Staff responded that the plants normally run "at capacity."

The UAB noted that the monthly staff reports indicated fuel had been spilled into the wastewater system. Staff advised the UAB that they identified one spill as originating from the Tlingit and Haida warehouse at the airport shopping center. A burglar had broken into the warehouse and a line from a fuel tank to a monitor heater was severed. The Mendenhall Plant handled the spill with no permit violations.

Staff updated the UAB on the ongoing wastewater water treatment audit being performed by CH2MHill at the Mendenhall Plant. The CH2MHill employee is assisting with plant optimization, staff training, and the creation of standard operating procedures (SOPs).

## **9. Heavy rain events**

UAB asked staff about heavy rain events and how the wastewater system operated during high flows. Staff advised that the treatment plants responded well to the high flows and that there was only one incident when the “pulse” of wastewater actually caused a manhole to release water into the street. The necessary reporting document was forwarded to the State.

## **10. Biosolids management**

The UAB is interested in biosolids management, including shipping biosolids out of Juneau in a manner that does not present liability to CBJ. Staff reported to the UAB that newly built water-tight biosolids shipping containers were purchased and delivered. The process is working well after a startup period, which included establishing processes for loading and transporting the containers.





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## MEMORANDUM

**DATE:** 9 March 2017

**TO:** Assembly of the Whole

**FROM:** Utility Advisory Board

**SUBJECT:** UAB Annual Report to the Assembly for FY16

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This memo constitutes the CBJ Utility Advisory Board's (UAB's) annual report for Fiscal Year 2016 (FY16).

Attached you will find the FY16 Utilities Division Annual Report prepared by Utilities staff. The report is a summary of the division's activities and fiscal health. The UAB would like to point-out a few items mentioned in the report.

The UAB believes that the most critical information is contained in the tables and graphs on pages 2 and 3. Note that both the Wastewater Utility and Water Utility were able to keep operating expenses lower than budgeted amounts for Fiscal Years 2013 through 2016. Nevertheless, without additional revenue sources:

- The Wastewater Utility is projected to exhaust its fund balance reserves by FY20, and the Water Utility is projected to do so by FY24.
- The Wastewater Utility fund balance has already dropped below the Utility Rate Study recommended level (365 days of operating capital) and the Water Utility will do so by FY21.
- The Wastewater Utility fund balance has already fallen to the lowest levels in recent history and the Water Utility will do so in FY21.

Having evaluated the FY16 information, the UAB has set the following goals for the upcoming fiscal year:

- Working with staff and the Assembly to identify and implement measures, primarily related to revenue, to prevent depletion of the fund balances to untenable levels.
- Working with staff to assist in the implementation of the biosolids treatment project of the Wastewater Utility.
- Working with staff to determine whether the rate model requires any adjustment, based on new information or changed conditions.

The UAB has the following recommendations for the Assembly:

- Maintain scheduled rate adjustments
- Evaluate feasibility of other revenue sources







**ENGINEERING & PUBLIC WORKS DEPARTMENT**

**Utilities Division**

2009 Radcliffe Road, Juneau, AK 99801

907.586.0393 <phone> 907.789.1681 <fax>

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**MEMORANDUM**

**DATE:** 9 March 2017

**TO:** Leon Vance - Utility Advisory Board Chair

**FROM:** Samantha Stoughtenger, PE, MSE - Utilities Superintendent  
Autumn Sapp - Engineering & PW Business Manager

**SUBJECT:** CBJ Utilities FY16 Annual Summary Report

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During fiscal year 2016 (FY16), the CBJ Utilities (Water – W, Wastewater Treatment – WWT, and Wastewater Collections – WWC) produced and distributed 1.1 billion gallons of drinking water, and collected and treated 1.2 billion gallons of wastewater. The Utilities continue to morph into a responsive, fast-paced business that provides outstanding customer service while protecting the health and welfare of the environment. Financially, the organization continues to take a holistic approach to operations, spending funds wisely, and performing more in-house repairs. Organizationally, the Utilities continue to operate at lean levels as the 2015 merger changes continue to be implemented and appropriate levels of staffing assessed.

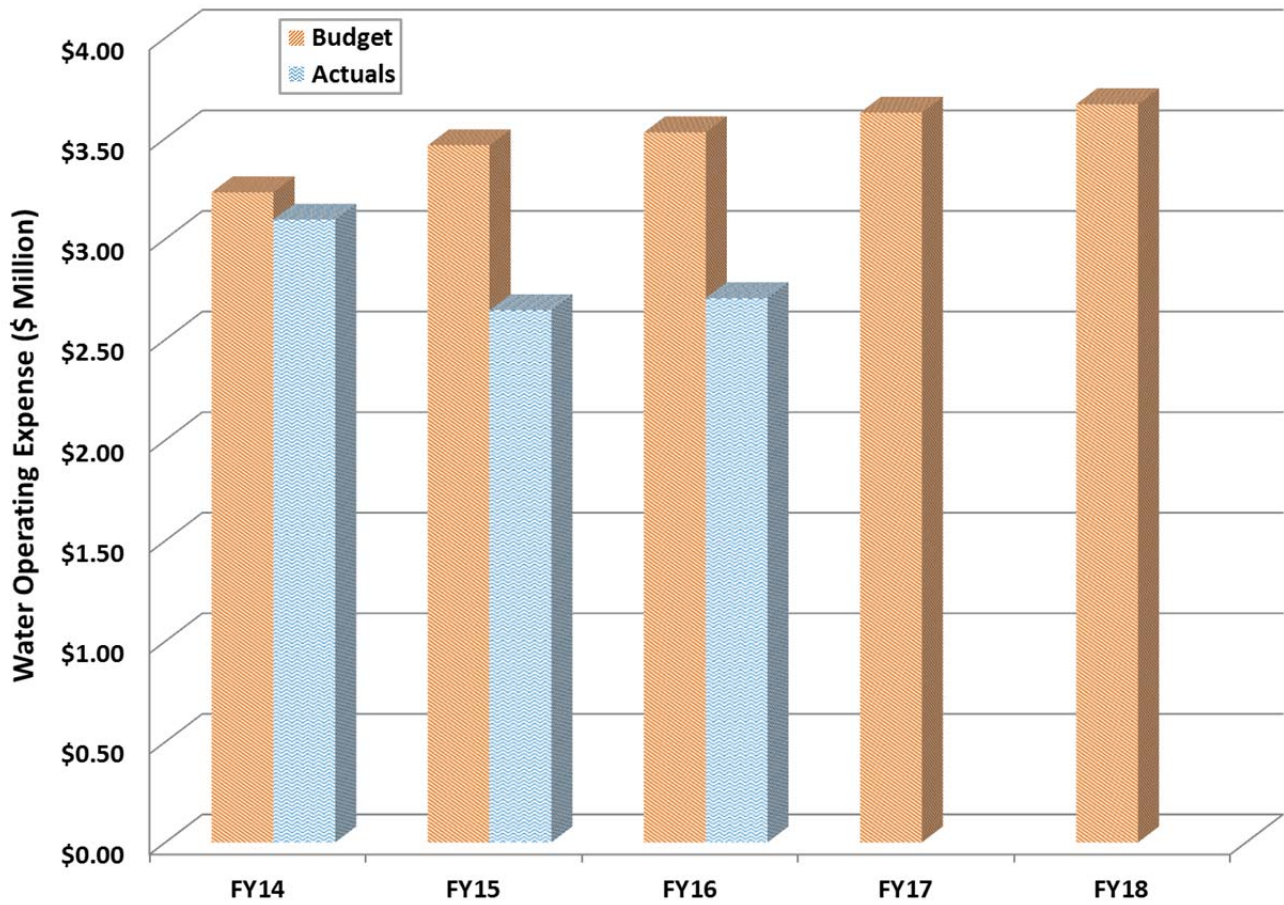
Utilities Management thought it would be helpful to the UAB, Assembly, and community at large to see a summary of annual activities and projects undertaken by the Division; as such, you will find the following sections of material:

- I. Financial Balance Sheet
- II. Operational Performance
- III. Operations and Maintenance Summary
- IV. Efficiency Improvements
- V. Notable In-House Operations Projects
- VI. CIPs under Analysis or Design
- VII. Major CIPs under Construction
- VIII. Major Asset Inventory

**I. FINANCIAL BALANCE SHEET**

The financial status of the Water Utility and Wastewater Utility has been summarized below based on the most current information available for the close of FY16. Additionally, the annual expenditures and approved operating budgets have been shown for each utility.

**Water Utility**

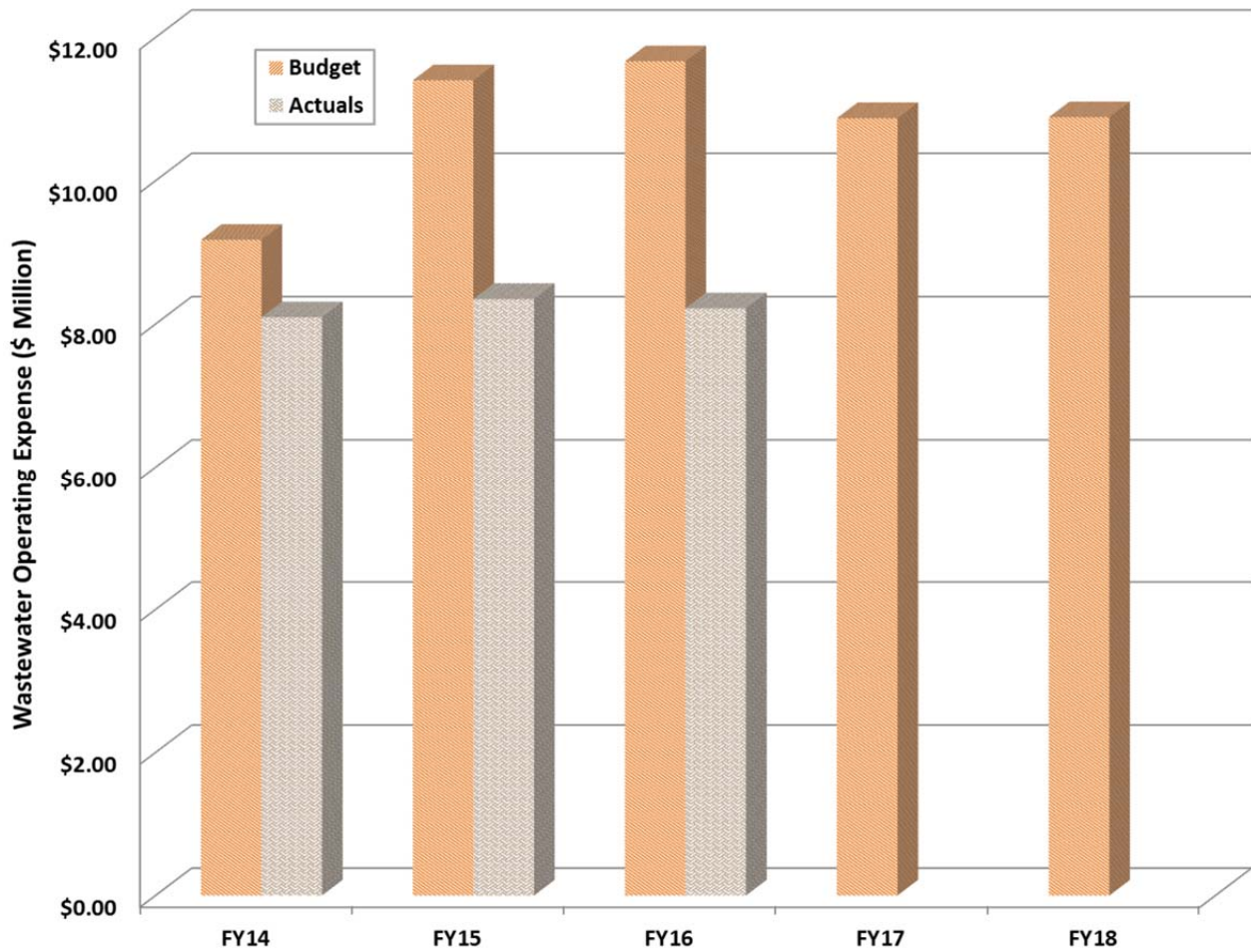


**REVENUE**

**EXPENSE**

	Starting Fund Balance	Water Utility Revenues	Bonds	DEC Grants	DEC Loans	Sales Tax	Passenger Fees	Rate Increase (% / year)	CIP Spending	Debt Service	Operating Costs	Ending Fund Balance
<b>FY14</b>		4,266,924		50,000	200,000				850,000	162,531	3,095,804	3,444,685
<b>FY15</b>	3,444,685	4,530,440		3,000,000	7,800,000	465,000	1,200,000	6.5	12,785,000	183,409	2,645,424	4,796,625
<b>FY16</b>	4,796,625	4,966,182		3,000,000		1,527,000		6.5	5,857,000	173,816	2,705,091	5,745,100
<b>FY17</b>	5,745,100	4,968,400			(5,270,000)			6.5	(4,380,000)	174,300	3,236,900	6,412,307
<b>FY18</b>	6,412,307	5,274,700						6.5	2,500,000	454,700	3,584,800	5,147,513
<b>FY19</b>	5,147,513	6,121,143						6.5	1,600,000	916,693	3,684,249	5,067,721
<b>FY20</b>	5,067,721	6,174,331	1,770,830						3,746,602	1,148,641	3,783,743	4,333,896
<b>FY21</b>	4,333,896	6,225,013	195,793						2,148,801	1,362,329	3,886,519	3,357,053
<b>FY22</b>	3,357,053	6,278,512							1,754,872	1,411,317	3,992,706	2,476,670
<b>FY23</b>	2,476,670	6,336,968	488,992						3,574,059	1,597,020	4,102,438	29,113
<b>FY24</b>	29,113	6,385,004							1,557,628	1,596,007	4,215,860	(955,379)

## Wastewater Utility



## REVENUE

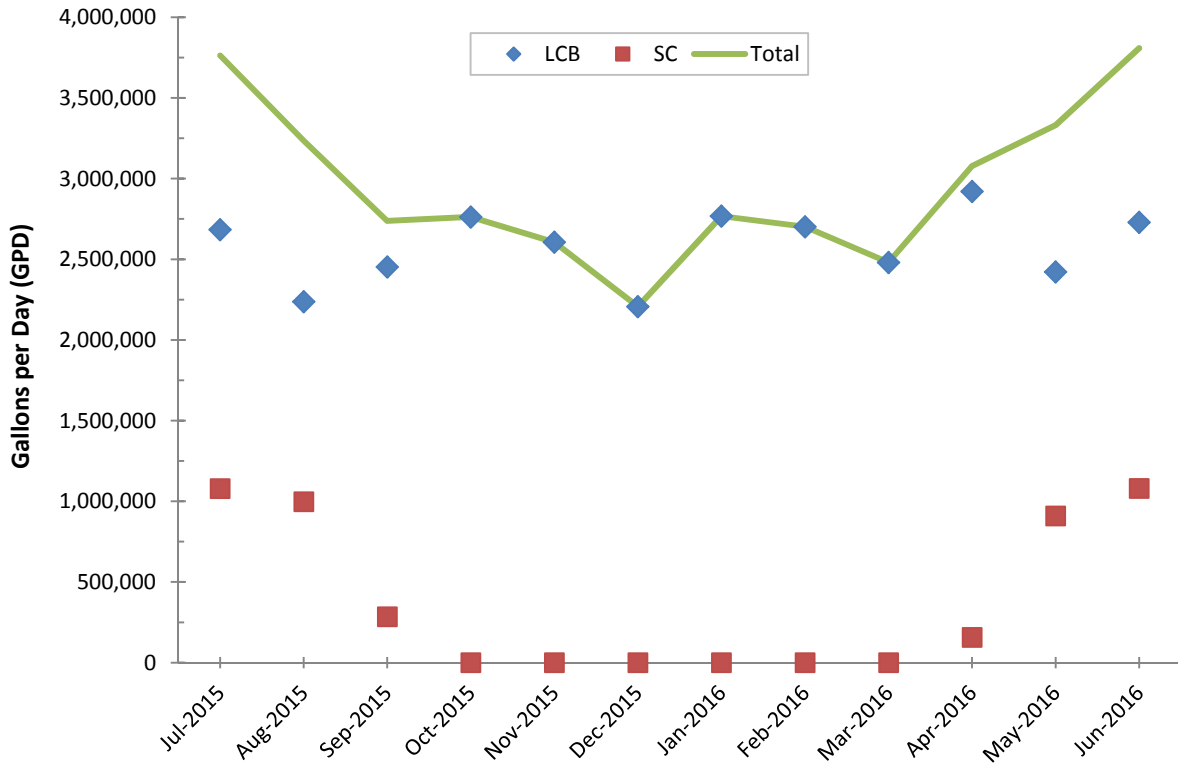
## EXPENSE

	<i>Starting Fund Balance</i>	<i>WW Utility Revenues</i>	<i>DEC Loans</i>	<i>Rate Increase (% / year)</i>	<i>CIP Spending</i>	<i>Debt Service</i>	<i>Operating Costs</i>	<i>Ending Fund Balance</i>
<b>FY14</b>		9,572,483	1,150,000		1,500,000	587,305	8,214,378	8,265,804
<b>FY15</b>	8,265,804	10,088,393	23,400	8.0	23,400	645,387	8,333,707	9,538,168
<b>FY16</b>	9,538,168	11,417,877	10,000,000	8.0	13,940,000	581,582	8,218,974	8,361,200
<b>FY17</b>	8,361,200	11,191,700	10,000,000	8.0	10,550,000	573,300	10,413,700	8,015,908
<b>FY18</b>	8,015,908	12,042,900		8.0	4,815,000	513,100	10,539,700	4,191,016
<b>FY19</b>	4,191,016	13,977,368		8.0	5,845,000	600,662	10,396,803	1,325,927
<b>FY20</b>	1,325,927	13,982,226			3,225,000	2,192,645	10,664,247	(773,739)
<b>FY21</b>	(773,739)	14,025,874			2,815,000	2,151,840	10,940,014	(2,654,719)
<b>FY22</b>	(2,654,719)	14,074,796			2,500,000	2,144,315	11,224,424	(4,448,662)
<b>FY23</b>	(4,448,662)	14,142,859			3,400,000	2,136,791	11,517,799	(7,360,393)
<b>FY24</b>	(7,360,393)	14,216,575			3,300,000	2,025,266	11,813,437	(10,282,521)

## II. OPERATIONAL PERFORMANCE

### Drinking Water Production and Treatment

In FY16, the CBJ Water Utility met all of the community's water demands with no permit violations in treatment or testing. With construction of the membrane filtration system at Salmon Creek, the City's water supply was provided solely by the Last Chance Basin (LCB) wells from October 2015 to March 2016. The total water produced for FY16 was 1,108,747,000 gallons as shown in the figure below.



CBJ drinking water production by facility and in-total for FY16

### Wastewater Treatment

The CBJ Utilities wastewater treatment plants are regulated under the Alaska Pollutant Discharge Elimination System (APDES). Each facility's influent and effluent are sampled several times per week for reporting to the Alaska Department of Environmental Conservation (ADEC). Plant performance is determined primarily by the percent removal of biochemical oxygen demand (BOD) and total suspended solids (TSS) from the influent to the discharged effluent. FY16 plant performance data and system violations are listed below for each wastewater treatment facility.

### Mendenhall Wastewater Treatment Plant (MTP)

MTP has a rated design capacity of 4.90 MGD (million gallons/day) as the maximum daily limit. All FY16 APDES permit violations were elevated fecal coliform related to UV disinfection system inefficiencies.

Date	Average Monthly Flow (MGD)	BOD Removal (%)	TSS Removal (%)	Violations
<b>Permit Limit</b>	<b>Report</b>	<b>85</b>	<b>85</b>	--
Jul 2015	2.21	96	95	0
Aug 2015	2.70	95	96	1 <sup>a</sup>
Sep 2015	2.87	95	91	0
Oct 2015	2.70	92	91	1 <sup>a</sup>
Nov 2015	2.70	95	92	2 <sup>a</sup>
Dec 2015	2.12	94	92	4 <sup>a</sup>
Jan 2016	2.15	94	94	0
Feb 2016	2.14	94	92	0
Mar 2016	1.84	93	93	0
Apr 2016	2.06	93	91	0
May 2016	2.31	95	93	0
Jun 2016	1.97	96	94	0
<b>Summary</b>	<b>Av. = 2.31</b>	<b>Av. = 94.3</b>	<b>Av. = 92.8</b>	<b>Total = 8</b>

a. Fecal coliform

### Juneau-Douglas Wastewater Treatment Plant (JDTP)

JDTP has a rated design plant capacity of 6.0 MGD as the maximum daily limit and 2.76 MGD as the maximum monthly average. FY16 APDES permit violations for JDTP included BOD, TSS, and pH effluent exceedances. BOD and TSS violations were due to hydraulic surges into the plant. The pH violations were a result of nitrification in the clarifier basins.

Date	Average Monthly Flow (MGD)	BOD Removal (%)	TSS Removal (%)	Violations
<b>Permit Limit</b>	<b>2.76</b>	<b>85</b>	<b>85</b>	--
Jul 2015	1.30	96	92	3 <sup>a</sup>
Aug 2015	1.30	96	88	4 <sup>b</sup>
Sep 2015	1.60	99	98	0
Oct 2015	1.20	99	99	0
Nov 2015	1.32	98	99	0
Dec 2015	0.84	98	98	0
Jan 2016	2.76	98	98	0
Feb 2016	0.78	99	99	0
Mar 2016	0.69	98	97	0
Apr 2016	0.78	98	98	3 <sup>c</sup>
May 2016	1.00	98	98	0
Jun 2016	1.00	99	98	0
<b>Summary</b>	<b>Av. = 1.21</b>	<b>Av. = 98.0</b>	<b>Av. = 96.8</b>	<b>Total = 10</b>

a. BOD; TSS; TSS

b. TSS (all)

c. pH (all)

### Auke Bay Wastewater Treatment Plant (ABTP)

ABTP has a rated design plant capacity of 0.16 MGD as the maximum daily limit. The plant ran very well with no reportable APDES violations in FY16.

Date	Average Monthly Flow (MGD)	BOD Removal (%)	TSS Removal (%)	Violations
<b>Permit Limit</b>	<b>Report</b>	<b>85</b>	<b>85</b>	<b>--</b>
Jul 2015	0.08	96	97	0
Aug 2015	0.07	95	96	0
Sep 2015	0.08	96	96	0
Oct 2015	0.07	94	98	0
Nov 2015	0.08	95	98	0
Dec 2015	0.06	98	99	0
Jan 2016	0.06	97	98	0
Feb 2016	0.06	97	98	0
Mar 2016	0.05	97	99	0
Apr 2016	0.06	95	98	0
May 2016	0.06	97	94	0
Jun 2016	0.06	97	98	0
<b>Summary</b>	<b>Av. = 0.07</b>	<b>Av. = 96.2</b>	<b>Av. = 97.7</b>	<b>Total = 0</b>

### III. OPERATIONS AND MAINTENANCE SUMMARY

The following is a summary of the routine operational and maintenance activities, and typical service calls performed by staff throughout the Utilities for FY16.

Utilities Section	Activity	Total
<b>Wastewater Treatment</b>	Preventative Maintenance Work Orders	2,492
	Source Control Sampling Events	317
<b>Wastewater Collections</b>	Lift Station Site Visits	13,329
	Service Calls	126
	Locates	317
	Lateral Camera Inspections	53
	CCTV Inspections	89
	Adjustment/Paving Manholes	38
	<b>Water</b>	Service Calls
	Locates	295
<b>Utility Billing</b>	Service Calls	3,581
	Bills Generated	100,837
<b>Meters</b>	Meter Installs	47
	Meter Services and Repairs	139
	Non-Payment Door Hangers	399
	Non-Payment Shutoffs	49
	On/Off Requests	205
	High Usage Investigations	438
	Leak Investigations	21

#### **IV. EFFICIENCY IMPROVEMENTS**

The CBJ Utilities have undertaken many efficiency improvements over the past few years. Some are global to the entire division, such as borrowing resources or equipment from other divisions/departments instead of renting, or good maintenance and upkeep of equipment/vehicles extending its useful life. The following is a list of division-wide improvements undertaken in FY16.

##### **Water**

- Hired laborers to perform routine tasks which allowed the licensed operators to focus more on system tasks and issues
- Teamed with WWC staff to share resources, specifically the vacor truck, to quickly remove excess water and debris from waterline dig jobs

##### **Wastewater Treatment**

- MTP
  - Decanted supernatant from waste sludge tank to make a thicker sludge; this reduced polymer use and runtime of the belt filter press
  - Reduced dissolved oxygen set points to optimize blower runtime
  - Turned off lights in unused areas of the facility
- JDTP
  - Replaced impellers in aeration basin resulting in better oxygen transfer rate at lower motor speeds and lower energy usage overall
  - Installed LED lighting to replace old lights in clarifier and aeration basin buildings
  - Used smaller vehicle for completing errands
- ABTP
  - Began installation of new bleach system for chlorine disinfection to eliminate excessive bleach bottle waste and require less manpower to operate

##### **Wastewater Collections**

- Replaced strip heaters in all Flygt control panels with thermostatically controlled heaters
- Installed thermostats in all Hydronix Lift Stations for better control of settings
- Switched much of exterior lighting to LED lighting area-wide
- Installed Smart Start motor starters in two lift stations
- Revised Standard Details to use 480 volt feeds for all new/reconstructed lift stations
- Revised Standard Details to install clean outs at the property line on all projects
- Implemented systematic cleaning of all mainlines to ensure optimum performance and reduce service calls
- Identified areas with recurring blockages and odor complaints for more frequent cleaning
- Implemented Lucity asset management program for more efficient inventory tracking
- Began using fiberglass inverts in manholes for increased efficiency

##### **Utilities Business Unit (UBU)**

- UBU transferred from Lemon Creek to downtown Marine View building allowing for more responsive customer service
- Created a process for septage disposal customers to report usage and receive monthly bills

- Created and continue to develop an electronic process to review water meter usage anomalies to identify leaks, meter reading errors, and increased employee efficiency
- Created a hydrant meter rental tracking process which reduces errors and identifies which meters and are rented to whom
- Began parts inventory and tracking to eliminate duplicate purchases and increase employee efficiency to locate an item
- Began processing all account receivable billings for water and wastewater

### **General Administration**

- Worked with ACS to audit and reconfigure phone numbers and calling tree to be more customer-friendly
- Began revising Utility websites regularly to provide updated and accurate information and to be more user-friendly
- Centralized the Utilities historical files and archives for better availability to staff
- Developed invoice tracking tools to better assess the fiscal health of the organization

## **V. NOTABLE IN-HOUSE OPERATIONS PROJECTS**

### **Out-the-Road Water Main Break**

In June 2016, the 16” ductile iron water main near Pt. Lena Loop Road suffered a major break due to external pipe corrosion. The team isolated the break, notified the affected customers who were without water, and called in Admiralty Construction to assist with the repair.



**Water main line break and repair near Pt. Lena Loop Road**

### **JDTP Basin Improvements**

While construction of the catwalk, platforms, and handrail at JDTP was performed by a Contractor (see Section VI), CBJ WWT staff undertook the task of cleaning and preparing the basins for repair. WWT Maintenance staff replaced the aerator support columns, surface impellers and aerator motors, and interior lighting. All work occurred during the limited 54-day construction window and greatly improved JDTP’s overall operational efficiency and treatment function. Throughout the course of this project, the WWT Maintenance team continued daily maintenance of the other two treatment plants while JDTP WWT operators continued effective operation of JDTP with no permit violations.





Left to right: JDTP surface impeller condition prior to replacement; new interior LED lighting

### **Valley Court Force Main Break**

In March 2016, the Valley Court sewer force main at the intersection of Tongsgard Court and Glacier Highway sprung a leak in the early morning, sending wastewater out onto the roadway. This is the same force main scheduled for replacement in FY17 (see Section VI). The WW Collections team mobilized quickly to locate the leak and dig down on the main, completing the repair in roughly 4 hours. The hole was backfilled and resurfaced by early afternoon. This vicinity sees high usage from AEL&P, construction vehicles, and Capitol Disposal landfill clients; therefore the team worked expeditiously to maintain traffic while repairing the break.



Valley Court mainline leak located and repair sleeve installed

## **VI. CIPs UNDER ANALYSIS OR DESIGN**

### **Wastewater Treatment Biosolids**

**Project Estimate:** \$16,000,000

**Equipment Vendor:** Kruger (Veolia Water Systems)

**Consultant:** DOWL, Jensen Yorba Lott, Inc., Brown and Caldwell, Electrical Power Systems

The CBJ used the Request for Proposal (RFP) process to solicit for a biosolids dryer and site design consultant. Kruger was the selected dryer manufacturer; the contract was executed in April 2016, and shop drawings are under review for the dryer unit and associated equipment. The dryer will be sited at the MTP, requiring some site and building design by the consultant (DOWL). Improvements include

construction of a new building, pipe work, odor control, and site grading; the project plans to reuse the existing ABF building foundation.

**Wastewater Treatment Headworks**

**Project Estimate:** \$5,300,000

**Consultant:** DOWL, Jensen Yorba Lott, Inc., Electrical Power Systems

The CBJ selected DOWL in August 2015 through the RFP consultant solicitation process to evaluate needed headworks improvements to the MTP and JDTP. DOWL investigated the existing plant conditions and evaluated future system needs, ultimately recommending perforated plate screening and washing compactor units at both facilities. Installation of the new screens requires reconfiguration of some piping and relocation of the existing grit classifier at the MTP, and construction of new channels at the JDTP. 95% design plans have been submitted and the construction phase of the project is anticipated to be bid by October 2016. CBJ Utilities applied for an ADEC Municipal Matching Grant valued at \$1M to assist in financing this project.



Left to right: MTP existing screening (equipment to be upgraded); JDTP existing influent channel (to be abandoned)

**JDTP Treatment Building Roofs**

**Project Estimate:** \$2,400,000

**Consultant:** Jensen Yorba Lott, Inc., PND Engineers, Murray Associates

Roof structures for the aerator basins, digester, and clarifier buildings original to the JDTP are showing their 40+ year old age (i.e., heavily corroded and leaking). To maintain the integrity of the treatment buildings and equipment contained within, the roof structures are being redesigned for replacement in FY19/20. After thorough investigation, Jensen Yorba Lott, Inc. (JYL) developed repair and replacement options. The existing roofs will be demolished and replaced with a new steel roof structure, galvanized steel beams and deck with an insulated membrane. JYL has begun schematic design.



Left to right: exposed exterior fasteners on JDTP digester building roof; interior corrosion to clarifier building roof

### **Valley Court Force Main and Gruening Park Lift Station**

**Project Estimate:** \$314,000 (Force Main only)

**Consultant:** DOWL, Carson-Dorn

Design is nearing completion by DOWL for replacement of the sewer force main from the Valley Court Lift Station to the bridge just past Anka Street. The 30 year old line is deteriorated and requires frequent repair; as the main runs under a heavily used roadway, it makes such repairs challenging and costly. The plan is to relocate the force main outside of the travel path in the drainage median so it is more accessible for future maintenance or needed repairs. Construction is anticipated to be completed by spring 2017. Design for relocation of the Gruening Park lift station out of the Alaska Department of Transportation (AKDOT) right-of-way is also under way; construction is anticipated to be completed by fall 2017 and primarily funded by AKDOT.

### **Crow Hill Fill-Line Installation**

**Project Estimate:** \$373,295

**Consultant:** DOWL

**Contractor:** Admiralty Construction, Inc.

This is the first phase of a multiphase project to replace the existing ductile iron water fill line to the Crow Hill Reservoir with a 20" HDPE fill line. This phase includes the pump station on Douglas Highway to the Crow Hill pressure reducing valve (PRV). Design work was performed by DOWL. A portion of this project occurs on the Gastineau Elementary School property; therefore, the project was bid but construction postponed until summer 2017 when all materials are available for install and work can be completed while school is not in session.

## **VII. MAJOR CIPS UNDER CONSTRUCTION**

It should be noted that the following construction bid costs do not include other associated project costs like design, project management, inspection, construction administration, permitting, etc.

### **Last Chance Basin (LCB) Wellfield Upgrades**

**Construction Bid Cost:** \$2,100,000

**Contractor:** Arete Construction

Due to a 55% reduction in production capacity and the need to keep up with water demand, the LCB underwent some fairly major upgrades in FY16. Five replacement wells and two new wells were drilled.

The new wells were housed with new buildings and outfitted with piping and controls. An emergency backup generator was installed for power outages. Carson Dorn, Inc. provided the design service for this project. Since completion, this project has helped regain the drinking water production capacity needed to serve the community, especially essential during the renovation of Salmon Creek.



New well house, pumps, piping and controls in well house at LCB

### **Salmon Creek Water Filtration Plant (SC)**

**Construction Bid Cost:** \$4,100,000

**Contractor:** North Pacific Erectors, Inc.

To meet the EPA's Long Term 2 Enhanced Surface Water Treatment Rule, two microfiltration membrane units were installed at the Salmon Creek facility. The project also required facility upgrades to the building, piping, pumps, electrical and mechanical systems. Additionally, an effluent discharge monitoring permit was acquired for discharge of the neutralized solution from the membranes cleaning process; the permit requires monthly sampling and reporting to ADEC.



Left to right: new SC water filtration building; new microfiltration membrane units

### **JDTP Catwalk and Platform Improvements**

**Construction Bid Cost:** \$286,000

**Contractor:** Henricksen Constructors, Inc.

The JDTP has operated without significant renovation for over 40 years. As a result of several safety evaluations for general facility access, it was determined that repairs to the aeration basin and digester catwalks, platforms, and handrails were necessary. During construction, significant and previously unknown floor damage was observed in one of the aeration basins; this damage was also repaired by the contractor. All upgrades were completed in a timely manner without compromising effluent quality. The CBJ Utilities WWT Maintenance staff also performed work on these facilities.



Left to right: JDTP old catwalk over digester; new calwalk and handrails

### **Cope Park Phase II Improvements**

**Construction Bid Cost:** \$250,000

**Contractor:** Glacier State Contractors

As part of a larger renovation to Cope Park (park upgrades and road rehabilitation), new 16" and 10" HDPE water mainlines with associated valving were installed. A temporary water system was also required to maintain service to the community during construction.



HDPE waterline installation at Cope Park

### **Whittier Street Road Reconstruction**

**Construction Bid Cost:** \$200,000

**Contractor:** Arete Construction

As part of the road reconstruction project for Whittier Street, a 16" HDPE water main (with associated valving and services) was installed.



HDPE waterline installation on Whittier Street

**VIII. MAJOR ASSET INVENTORY**

The CBJ Utilities staff researched the existing assets or infrastructure for the Division as shown below. These lists are intended to show the initial capital investments for the Utilities and will undergo further refinement as time allows, when improvements are undertaken and as replacement costs are appropriately assessed.

**Major Utilities Facilities**

Facility	Project Description	Year	Age (yrs)	Construction Cost (\$)	Upgrade Cost (\$)
MTP	Treatment Plant	1989	19	22,687,216	
	Storage Building	1984	32	26,604	
	Jet Truck Garage	1995	21	80,800	
	Wall repair and siding	1995	21		70,251
	New Siding	1997	19		244,936
	Fencing	2002	14		7,883
	Outfall Improvements	2002	14		66,500
	Collections Building Hot Tar Roof	2012	4		12,993
	Major Mechanical and Control Repairs	2013	3		113,715
	VFD/Valve Actuator Replacement	2014	2		81,919
<b>Total Cost:</b>				<b>23,392,817</b>	

Facility	Project Description	Year	Age (yrs)	Construction Cost (\$)	Upgrade Cost (\$)
JDTP	Treatment Plant and Inceptor System	1972	39	7,823,000	
	Plant Repairs	1986	30		21,584
	Plant Repairs	1988	28		160,234
	Structural Wall Repair - Aeration Basin	1989	27		315,605
	Outfall Line Repair	1990	26		535,583
	Leasehold Improvement Creating Sludge Pit	1990	26		25,311
	Incinerator and Solids Handling Facility	1992	24	9,020,861	
	Leasehold Improvement Creating Additional Cells	1992	24		70,573
	Fence Improvement	1992	24		6,725
	New Metal Roof and Supports on Control Building	1993	23		99,899
	Incinerator Repair	1997	19		102,361
	Incinerator CO monitor and MVWWTP Blower	2002	14		272,067
	Install U.V Disinfection System	2003	13		1,718,182
	Incinerator Heat Exchanger Replacement	2003	13		253,115
	Incinerator Roof	2004	12		215,086
	Headworks Improvement	2006	10		203,000
	Clarifier Mechanism Replacement	2007	9		592,218
	Aeration Basin & Digester Structural Repairs	2008	18		20,000
	Design, Install, Program SCADA & Autodialer Upgrade	2011	5		27,559
	Aeration Basin Repairs	2012	2		58,528
Incinerator Building Drive Through	2012	4		172,523	
Incinerator Repairs and Access Improvements	2013	2		496,704	
Infrastructure Improvements	2016	0		148,645	
<b>Total Cost:</b>				<b>22,359,363</b>	
ABTP	Treatment Plant	1974	42	1,008,000	
	Plant Rehab	1984	32		51,985
	Paving	1994	22		4,935
	Headworks Improvements	2014	2		42,597
<b>Total Cost:</b>				<b>1,107,517</b>	
SC	Filtration Treatment Plant	1984	32		
	Salmon Creek Water Rights/Penn Stock	1990	26		1,000,000
	Water Pipelines	1990	26		1,069,884
	Salmon Creek Pump House	1990	26	1,310,000	
	Salmon Creek Pump Station	1992	24		28,705
	Salmon Creek Pressure Relief Valve Deconstruction	1994	22		5,393
	Salmon Creek In-line Pumps	1994	22		83,913
	Salmon Creek Disinfection Project	2000	16		3,697,004
	Salmon Creek Pump Station improvements	2005	11		169,515
	On-site Chlorine Generation Cell Replacement	2012	4		38,852
	Install Pall Filtration plant	2016	0	3,902,146	
<b>Total Cost:</b>				<b>11,305,412</b>	

Facility	Project Description	Year	Age (yrs)	Construction Cost (\$)	Upgrade Cost (\$)
LC	Water Operations Facility	1987	29	315,000	
	Facility Improvements	1989	27		7,965
	Paved Parking	1989	27		13,647
	Repair Fire Damage	1992	24		48,053
	Networking Project	1992	24		28,068
	Paint Shop Exterior	1992	24		5,200
	Cantilever Gate and Fence	1994	22		5,295
	Replace Shop Roof	1995	21		34,000
	Water Telemetry	1996	20		1,784,019
	Auxiliary power for Lemon Creek Shop	1998	18		73,076
	SCADA Upgrades	2001	15		384,509
	Remodel Utility offices	2012	4		43,044
	Lemon Creek Office Renovation	2014	2		284,018
<b>Total Cost:</b>				<b>3,025,894</b>	
LCB	Wellfield	1959	57	--	
	Well 1 & 3 Connection	1986	30		78,165
	Gold Creek Water Improvements	1993	23		3,458,894
	Gate Installation	1994	22		5,451
	Improvements	1996	20		53,818
	Wells 3 & 4	1998	18		202,352
	Water Disinfection System	2002	16		198,883
	Improvements	2005	11		1,424,449
	40kw Generator	2008	8		9,155
	On-site Chlorine Generation System	2012	4		191,344
	New Generator and Switchgear	2014	2		261,000
	Construction of Wells 6 & 7	2015	1		1,851,250
<b>Total Cost:</b>				<b>7,734,761</b>	

### Field Facilities

Work Group	Facility Type	Quantity	Initial Investment (\$)	Recent Improvements (\$)	# of Units	
					<10 yrs old	>10 yrs old
WWC	Lift Stations	45	40,500,000	2,912,988	11	34
W	Reservoirs & Contact Tanks	9	15,221,546	780,219	0	9
	Pressure Reducing Valves	37	3,700,000	60,000	0	37
	Booster Stations	8	4,205,544	250,000	0	8
	Hydrants	1,448	7,240,000	10,385	50	1,398



**Utility Piping (Underground, in the Right-of-Way)**

Work Group	Line Type	Material	Miles	Percentage of Total Miles (%)	Pipe Size Range (inches)	Pipe Age (years)	Percentage of Total Age (%)
WWC	Gravity	PVC	105	70	8-24	< 15	80
						15-30	20
		AC	22.5	15	6-30	30-45	100
		Concrete	7.5	5	4-12	50-60	100
	Force Main	DI	7.5	5	4-12	<10	1
						10-20	4
						20-30	10
						30-40	15
						>40	2
		HDPE	7.5	5	4-20	<10	100
		PVC/C900	1	< 1%	4-6	20-30	100
<b>Total Miles of Pipe: 150</b>							
<b>Total Manholes: 2,383</b>							
W	Mainlines	DI	144	80	4-24	<15	30
						15-30	70
		CI	18	10	4-10	30-50	100
		HDPE	18	10	8-18	<10	70
						20-30	30
		PVC/C900		<1	8	<5	100
<b>Total Miles of Pipe: 180</b>							
<b>Total Mainline Valves: 2,061</b>							

**ACRONYMS**

ABTP	Auke Bay Wastewater Treatment Plant
ADEC	Alaska Department of Environmental Conservation
APDES	Alaska Pollutant Discharged Elimination System
BOD	Biochemical Oxygen Demand
CIP	Capital Improvement Project
JDTP	Juneau-Douglas Wastewater Treatment Plant
LC	Lemon Creek Water Buildings
LCB	Last Chance Basin
MGD	Million gallons/day
MTP	Mendenhall Wastewater Treatment Plant
SC	Salmon Creek Water Filtration Plant
TSS	Total Suspended Solids
WWC	Wastewater Collections
WWT	Wastewater Treatment
W	Water