UTILITY ADVISORY BOARD
AGENDA - UPDATE

Thursday, March 9, 2017 – 5:15 p.m.
Mendenhall Wastewater Treatment Plant
2009 Radcliffe Rd

I. CALL TO ORDER

II. APPROVAL OF AGENDA

III. APPROVAL OF MINUTES

December 8, 2016 Draft UAB Meeting Minutes

IV. PUBLIC PARTICIPATION

V. ACTION ITEMS

A. UAB Annual Report to the Assembly

VI. INFORMATION ITEMS

A. Review Resolution #2299 Establishing the UAB
B. Utilities Financial Update (information to follow)
C. PWF Committee Presentation
D. Utilities Operational Update
E. Biosolids Public Meeting (information to follow)

VII. NON-AGENDA ITEMS

VIII. ADJOURNMENT – Next Meeting, April 6th

UTILITY ADVISORY BOARD
MINUTES

Thursday, December 8, 2016 – 5:15 p.m.
Mendenhall Wastewater Treatment Plant
2009 Radcliffe Road

Board Members Present: Leon Vance – Chairman, Geoff Larson – Vice-Chairman; Grant Ritter; David Hanna; Janet Hall Schempf; Bryan Farrell

Board Members Absent: Andrew Campbell

Staff Present: Roger Healy, Samantha Stoughtenger; Autumn Sapp; Marissa Capito; Holly Kveum

DRAFT

I. CALL TO ORDER

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

II. APPROVAL OF AGENDA

The agenda was amended to move "Information Items" before "Action Items".

III. APPROVAL OF MINUTES

November 10, 2016 Draft UAB Meeting Minutes- approved with minor revisions.

The Board and Staff discussed the current minutes and reducing the amount of detail in the future.

IV. PUBLIC PARTICIPATION

None.

V. INFORMATION ITEMS

A. *Utilities Operational Update*- Staff gave a brief verbal overview of the operational update. The group then discussed two additions to the update: a potential three-way land swap and interim reorganization of Water Utility Operations. The land swap would

involve moving the Water Utility Operations from the Lemon Creek Shop to an existing CBJ facility or an undisclosed property. The Board and Staff discussed the ramifications and affiliated costs of the potential move with an emphasis on relocation of the SCADA telemetry system. The Board then reviewed the Utilities Organizational Chart in comparison to an interim Organization Chart including the addition of a CBJ staff supervisor that will provide daily oversight for Water Operations. The Board and Staff discussed the CBJ's recruitment process and general timelines, and the history behind the Utilities and the recent merger.

B. *FY16 Utilities Division Annual Report*- Ms. Stoughtenger informed the Board that the annual report is complete with the exception of the cover memorandum. Staff reviewed the rate model projections and clarified the funding assumptions (i.e. incremental rate increase revenue) that were approved by the Assembly in FY14. Mr. Larson added some recommendations for labeling and placement of information including short- and long-term forecasting to better demonstrate an improved and more efficient utility. Mr. Ritter noted the deficit in later years and that it was attributed to the funding of CIPs. The Board and Staff continued to discuss the current model of funding for those projects, and the history behind the assumed funding of the Utility related to state oil revenue. The Board noted that the lack of anticipated state funding may be a useful addition to the report. The Board then briefly discussed the list of assets and asked Staff to further review the original acquisition price of the Mendenhall Wastewater Treatment Plant and possibly include the appreciated value as well. Staff then reviewed the cover memorandum with the Board and asked for all recommendations to be sent via email to Staff before the next meeting for Staff to compile. The draft version of the memorandum would then be available for review at the next regular meeting.

C. *Biosolids Disposal Plan*- Staff asked the Board if they would like to stay and discuss the Plan or continue this item to the next meeting. The Board discussed the two options and agreed to send comments and revisions via email. Staff could provide a revised document at the next regular meeting. The Board then brainstormed what they would like to have achieved at the next regular meeting: finalize the annual report, and have a revised Biosolids Disposal Plan. Ms. Capito also noted that she will likely have cruise ship loading information to present at that time.

DRAFT

VI. ACTION ITEMS

A. *UAB Annual Report to the Assembly*- continued to the next regular meeting.

VII. NON-AGENDA ITEMS

Mr. Ritter asked Staff about Juneau Hydropower and if it was something that would be implemented. Mr. Healy answered that they had met with the company once, but there has not been any more conversation since. The installation cost would be quite extensive. Ms. Stoughtenger also noted that they are not a public utility and have not expressed any interest in obtaining a permit to become one.

VIII. ADJOURNMENT –

The meeting adjourned at 6:29 p.m.

DRAFT

City & Borough of Juneau
Alaska's Capital City

ENGINEERING & PUBLIC WORKS DEPARTMENT
Utilities Division
2009 Radcliffe Road, Juneau, AK 99801
907.586.0393 <phone> 907.789.1681 <fax>

MEMORANDUM

DATE: 9 March 2017

TO: Assembly of the Whole

FROM: Utility Advisory Board

SUBJECT: UAB Annual Report to the Assembly for FY16

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 Water Utility and the Wastewater Utility were able to keep operating expenses lower than budgeted amounts for Fiscal Years 2013 through 2016. Nevertheless, note that without additional revenue, the Wastewater Utility is projected to exhaust its fund balance by Fiscal Year 2020, and the Water Utility is projected to do so by Fiscal Year 2023.

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 exhaustion of the fund balances.
- 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 following recommendations for the Assembly:

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

City & Borough of Juneau
Alaska's Capital City

ENGINEERING & PUBLIC WORKS DEPARTMENT
Utilities Division
2009 Radcliffe Road, Juneau, AK 99801
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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

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.

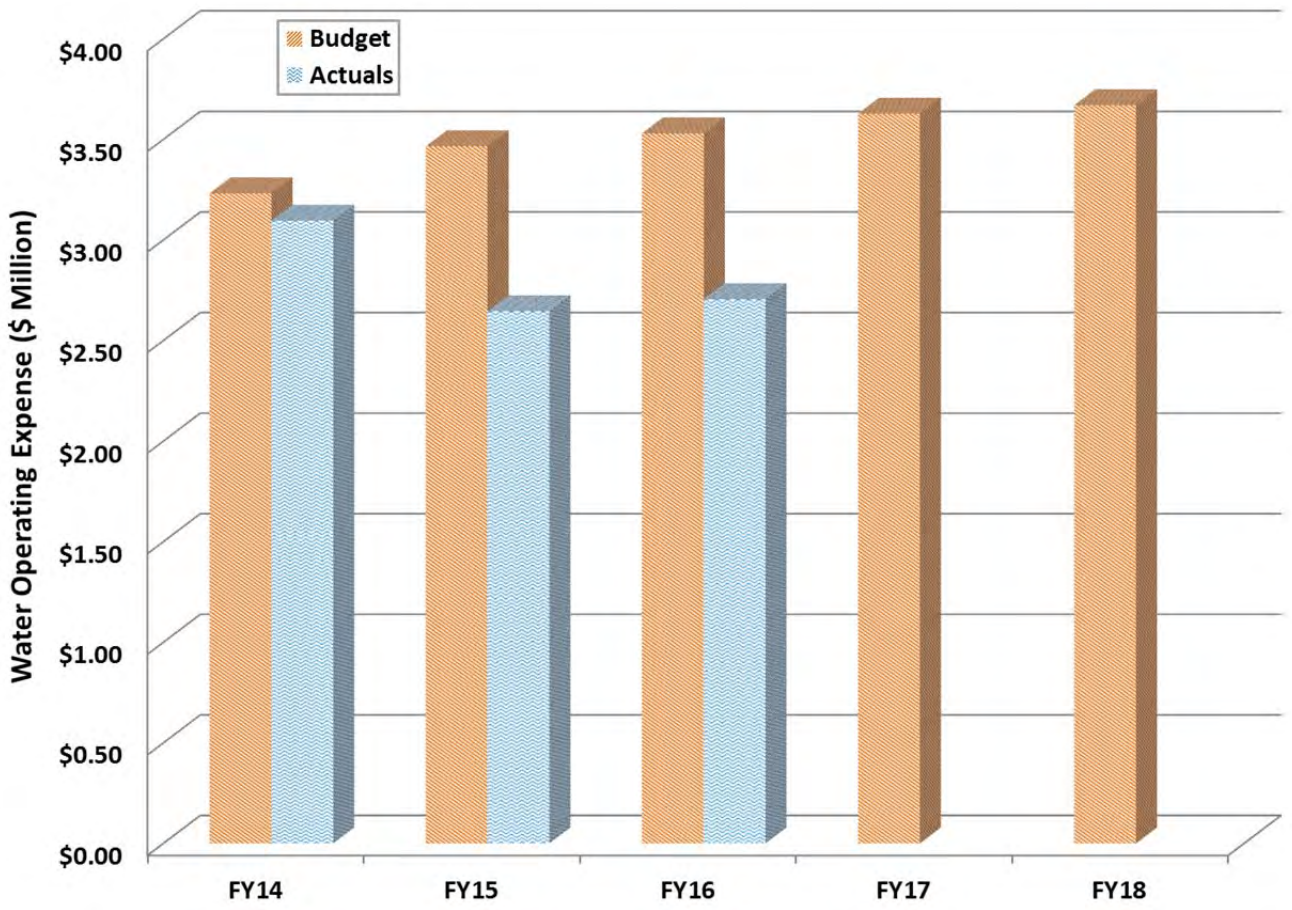
Utilities Management thought it would be helpful to the UAB, Assembly, and community at large to see a summary of annual activities and projects undertaken by the Division; as such, you will find the following sections of material:

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

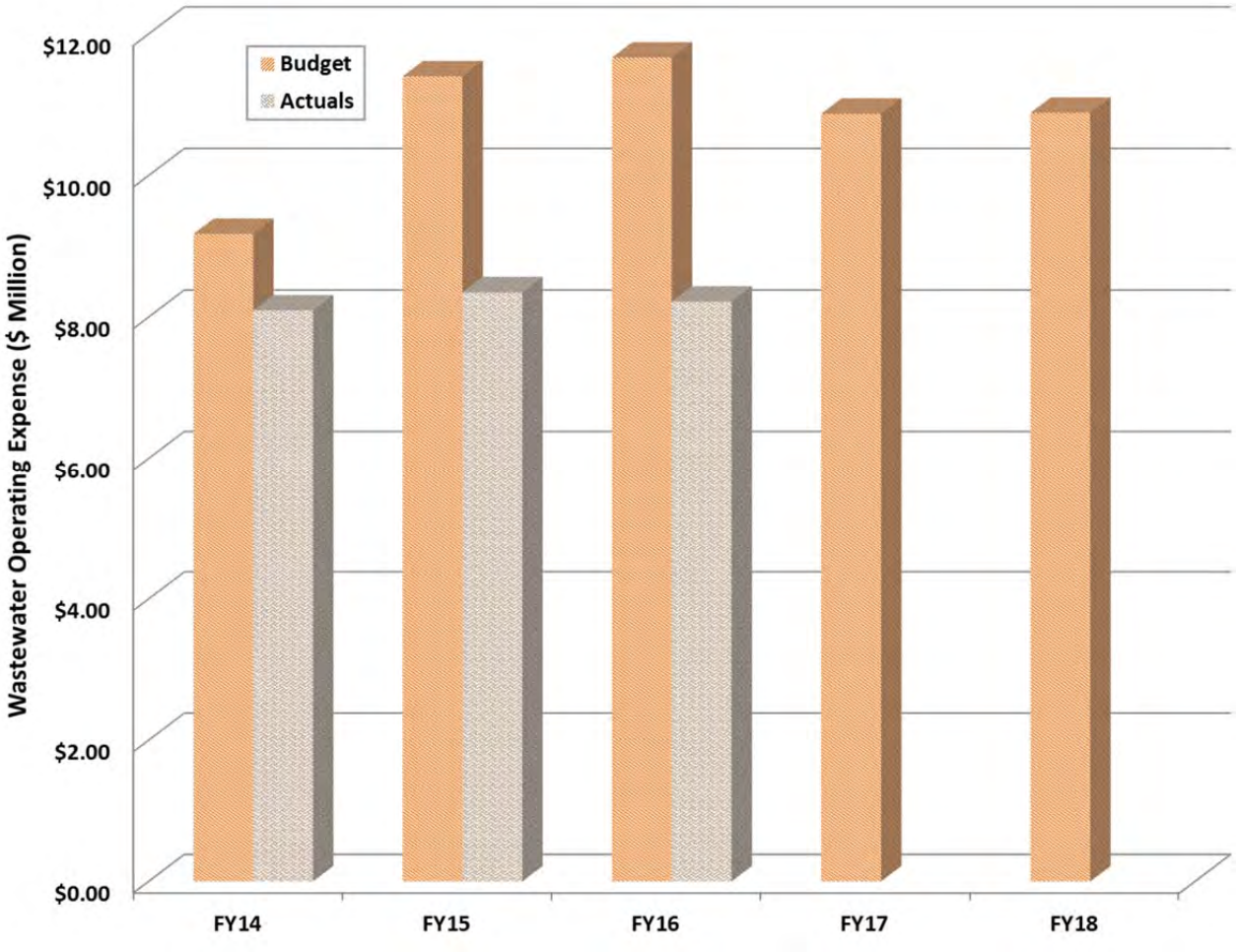
The financial status of the Water Utility and Wastewater Utility has been summarized below based on the most current information available for the close of FY16. Additionally, the annual expenditures and approved operating budgets have been shown for each utility.

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*
FY14		4,266,924		50,000	200,000				850,000	162,531	3,095,804	3,444,685
FY15	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
FY16	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
FY17	5,745,100	4,968,400			(5,270,000)			6.5	(4,380,000)	174,300	3,236,900	6,412,307
FY18	6,412,307	5,274,700						6.5	2,500,000	454,700	3,584,800	5,147,513
FY19	5,147,513	6,121,143						6.5	1,600,000	916,693	3,684,249	5,067,721
FY20	5,067,721	6,174,331	1,770,830						3,746,602	1,148,641	3,783,743	4,333,896
FY21	4,333,896	6,225,013	195,793						2,148,801	1,362,329	3,886,519	3,357,053
FY22	3,357,053	6,278,512							1,754,872	1,411,317	3,992,706	2,476,670
FY23	2,476,670	6,336,968	488,992						3,574,059	1,597,020	4,102,438	29,113
FY24	29,113	6,385,004							1,557,628	1,596,007	4,215,860	(955,379)

Wastewater Utility

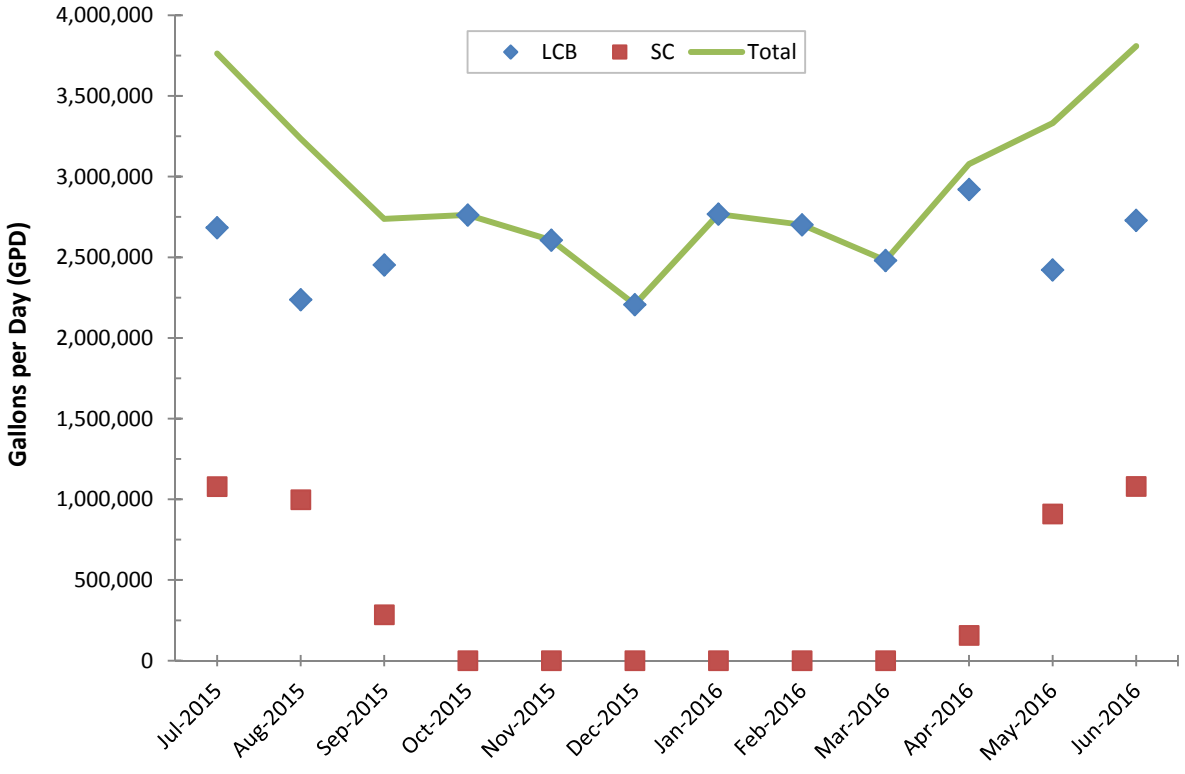


	REVENUE				EXPENSE			
	Starting Fund Balance	*WW Utility Revenues*	*DEC Loans*	*Rate Increase (% / year)*	*CIP Spending*	*Debt Service*	*Operating Costs*	*Ending Fund Balance*
FY14		9,572,483	1,150,000		1,500,000	587,305	8,214,378	8,265,804
FY15	8,265,804	10,088,393	23,400	8.0	23,400	645,387	8,333,707	9,538,168
FY16	9,538,168	11,417,877	10,000,000	8.0	13,940,000	581,582	8,218,974	8,361,200
FY17	8,361,200	11,191,700	10,000,000	8.0	10,550,000	573,300	10,413,700	8,015,908
FY18	8,015,908	12,042,900		8.0	4,815,000	513,100	10,539,700	4,191,016
FY19	4,191,016	13,977,368		8.0	5,845,000	600,662	10,396,803	1,325,927
FY20	1,325,927	13,982,226			3,225,000	2,192,645	10,664,247	(773,739)
FY21	(773,739)	14,025,874			2,815,000	2,151,840	10,940,014	(2,654,719)
FY22	(2,654,719)	14,074,796			2,500,000	2,144,315	11,224,424	(4,448,662)
FY23	(4,448,662)	14,142,859			3,400,000	2,136,791	11,517,799	(7,360,393)
FY24	(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
Permit Limit	***Report***	***85***	***85***	**--**
Jul 2015	2.21	96	95	0
Aug 2015	2.70	95	96	1[a]
Sep 2015	2.87	95	91	0
Oct 2015	2.70	92	91	1[a]
Nov 2015	2.70	95	92	2[a]
Dec 2015	2.12	94	92	4[a]
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
Summary	***Av. = 2.31***	***Av. = 94.3***	***Av. = 92.8***	***Total = 8***

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
Permit Limit	***2.76***	***85***	***85***	**--**
Jul 2015	1.30	96	92	3[a]
Aug 2015	1.30	96	88	4[b]
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[c]
May 2016	1.00	98	98	0
Jun 2016	1.00	99	98	0
Summary	***Av. = 1.21***	***Av. = 98.0***	***Av. = 96.8***	***Total = 10***

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
Permit Limit	***Report***	***85***	***85***	--
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
Summary	***Av. = 0.07***	***Av. = 96.2***	***Av. = 97.7***	***Total = 0***

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
Wastewater Treatment	Preventative Maintenance Work Orders	2,492
	Source Control Sampling Events	317
Wastewater Collections	Lift Station Site Visits	13,329
	Service Calls	126
	Locates	317
	Lateral Camera Inspections	53
	CCTV Inspections	89
	Adjustment/Paving Manholes	38
Water	Service Calls	175
	Locates	295
Utility Billing	Service Calls	3,581
	Bills Generated	100,837
Meters	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 vactor 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 Tonsgard 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 Cost: *$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

Cost: *$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

Cost: *$2,400,000 (Estimate only)*

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

Cost: *$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

Cost: *$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

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 caltwalk 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
			Total Cost:	**23,392,817**	

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
	Areation 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
			Total Cost:	**22,359,363**	
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
			Total Cost:	**1,107,517**	
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	
			Total Cost:	**11,305,412**	

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
			Total Cost:	**3,025,894**	
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
			Total Cost:	**7,734,761**	

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
	Total Miles of Pipe: 150						
	Total Manholes: 2,383						
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
	Total Miles of Pipe: 180						
	Total Mainline Valves: 2,061						

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

Presented by: PWFC
Introduced: 02/28/2005
Drafted by: J.W. Hartle

RESOLUTION OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 2299

A Resolution Establishing a Utility Advisory Board.

WHEREAS, in February, 2004, Mayor Botelho established the Ad Hoc Utility Advisory Board with the purpose of making recommendations to the Assembly and Manager concerning operation and management policies of the municipally-owned utilities, specifically the Water Utility and Wastewater Utility; and

WHEREAS, state and federal grant availability has declined and is predicted to further decline in the future; and

WHEREAS, an ongoing review of water and sewer utility rates and fees for sufficiency and equity is necessary and in the public interest; and

WHEREAS, at the January 10, 2005, meeting of the Public Works & Facilities Committee, a motion was adopted to forward to the Human Resources Committee the Ad Hoc Utility Board's recommendation of creating a full time utility advisory board; and

WHEREAS, at the February 7, 2005, meeting of the Human Resource Committee a motion was adopted to forward a resolution to the Assembly establishing the Utility Advisory Board; and

WHEREAS, the Assembly has determined that a utility advisory board should be established to review and make recommendations to the Assembly and the CBJ administration on water and sewer rate structures and policy issues involving the utilities.

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NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

Section 1. Utility Advisory Board Established. There is established the City and Borough of Juneau Utility Advisory Board, which shall comprise seven members appointed by the Assembly.

Section 2. Membership Qualifications. To the extent practicable, appointments shall be made as follows:

(a) one engineer registered in the State of Alaska, preferably with training and experience in water, wastewater, and/or utility systems design and operation;

(b) one accountant, preferably experienced with utility financial management practices;

(c) one general contractor, preferably experienced in the construction of water and/or wastewater utility systems;

(d) two commercial customers of the City and Borough water and/or wastewater utility;

(e) one residential customer of the City and Borough water and/or wastewater utility; and

(f) one member of the general public.

Section 3. Utility Advisory Board Purposes. The purpose of the Utility Advisory Board is to advise the Assembly on issues relating to water and wastewater utilities. The board is encouraged to gather relevant information from all sources available, and hold public hearings as necessary on issues under review, and to report to the Assembly on an annual basis, at a minimum, concerning the status of water and wastewater utility issues as follows:

(a) Review and make recommendations to the Assembly and Manager on all matters pertaining to the operation of the water system and the wastewater system, to the end that the consuming public is provided with the best possible service consistent with good utility management and cost containment;

(b) Review annual budgets and funding plans and make recommendations for the efficient and economical operation of the water system and the wastewater system including bond issues, staffing, fiscal matters, and public relations;

(c) Make recommendations on long-range planning for system expansion replacement, and priorities to meet future needs of the water and wastewater systems;

(d) Make recommendations on water and wastewater utility rates to ensure that the rates are equitable and sufficient to pay for operation, maintenance, debt reduction, system replacement, and utility reserves necessary to ensure sustainable public utilities;

(e) Make recommendations on measures to increase the efficiency and cost effectiveness of the water and wastewater utility operations; and

(f) Perform such other duties and functions related to the utilities as the Assembly or the Manager may request.

Section 4. Procedures. The rules of procedure for Assembly advisory committees established by resolution, shall govern the conduct of business by the Utility Advisory Board.

Section 5. Staff Assistance. Staff support and assistance to the Utility Advisory Board shall be provided by the City and Borough Public Works, Engineering, Finance, and such other departments as available and appropriate.

Section 6. Effective Date. This resolution shall be effective immediately upon adoption.

Adopted this 28th day of February, 2005.

Bruce Botelho

Bruce Botelho, Mayor

Attest:

Laurie J. Sica

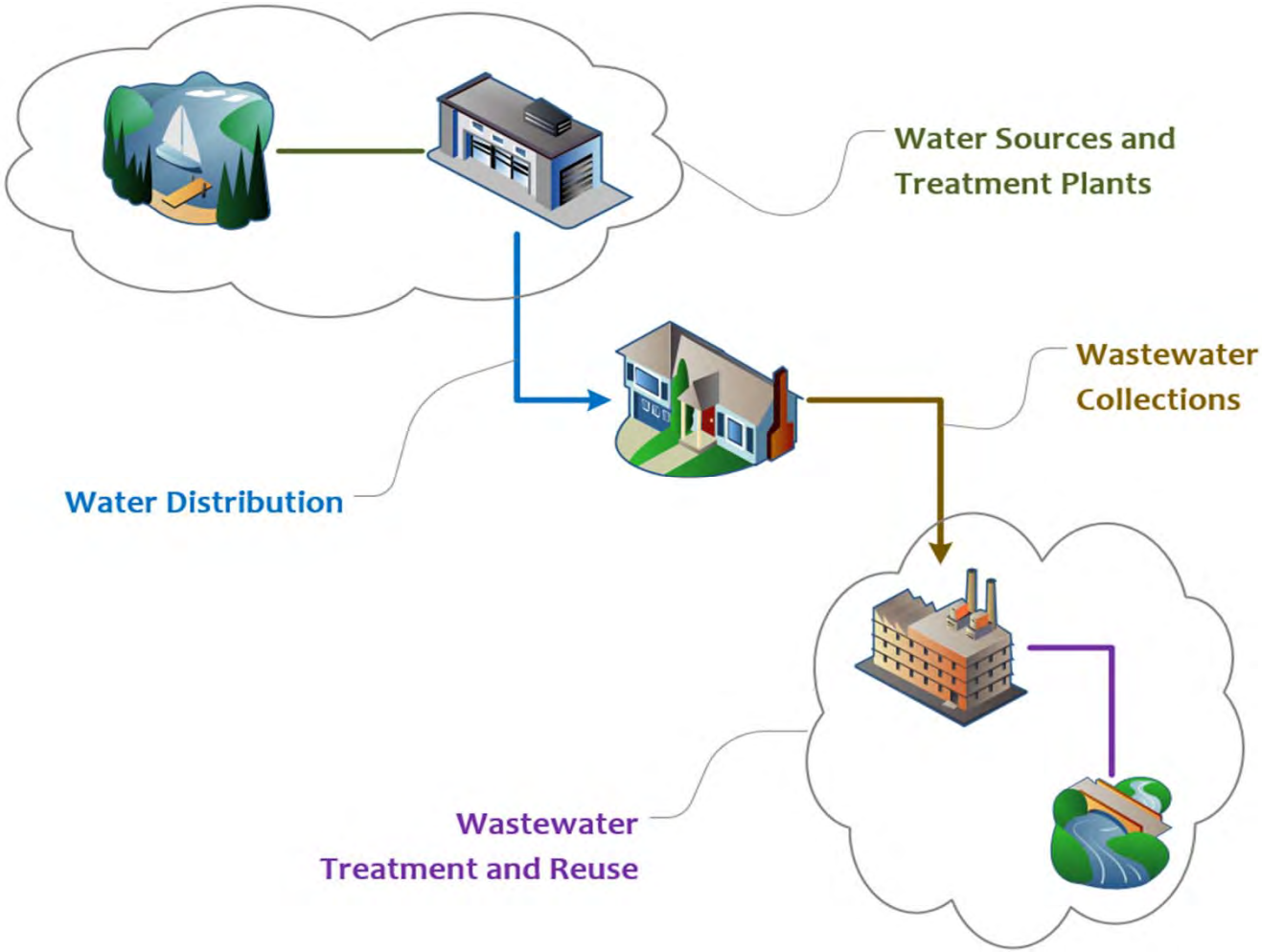
Laurie J. Sica, Clerk

Wastewater Biosolids Update

Public Works & Facilities Committee

27 February 2017

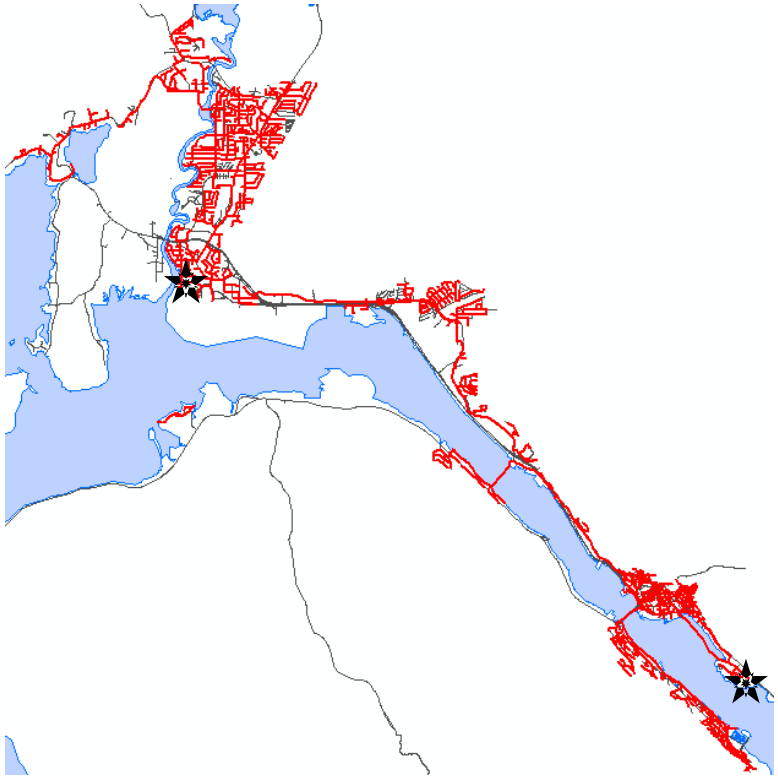
Biosolids start here…



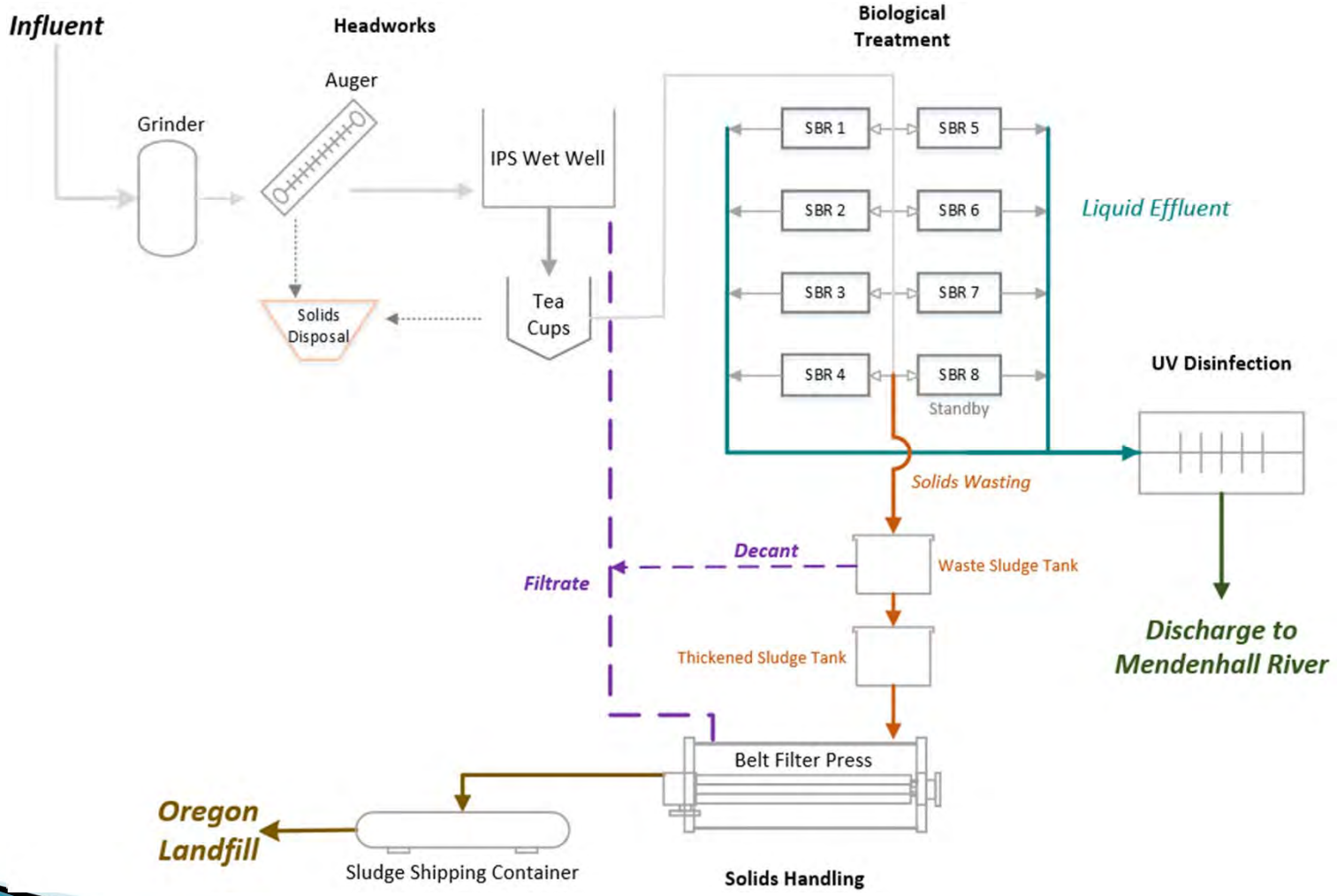
1.1 billion gallons of water treated every year

Daily Operations

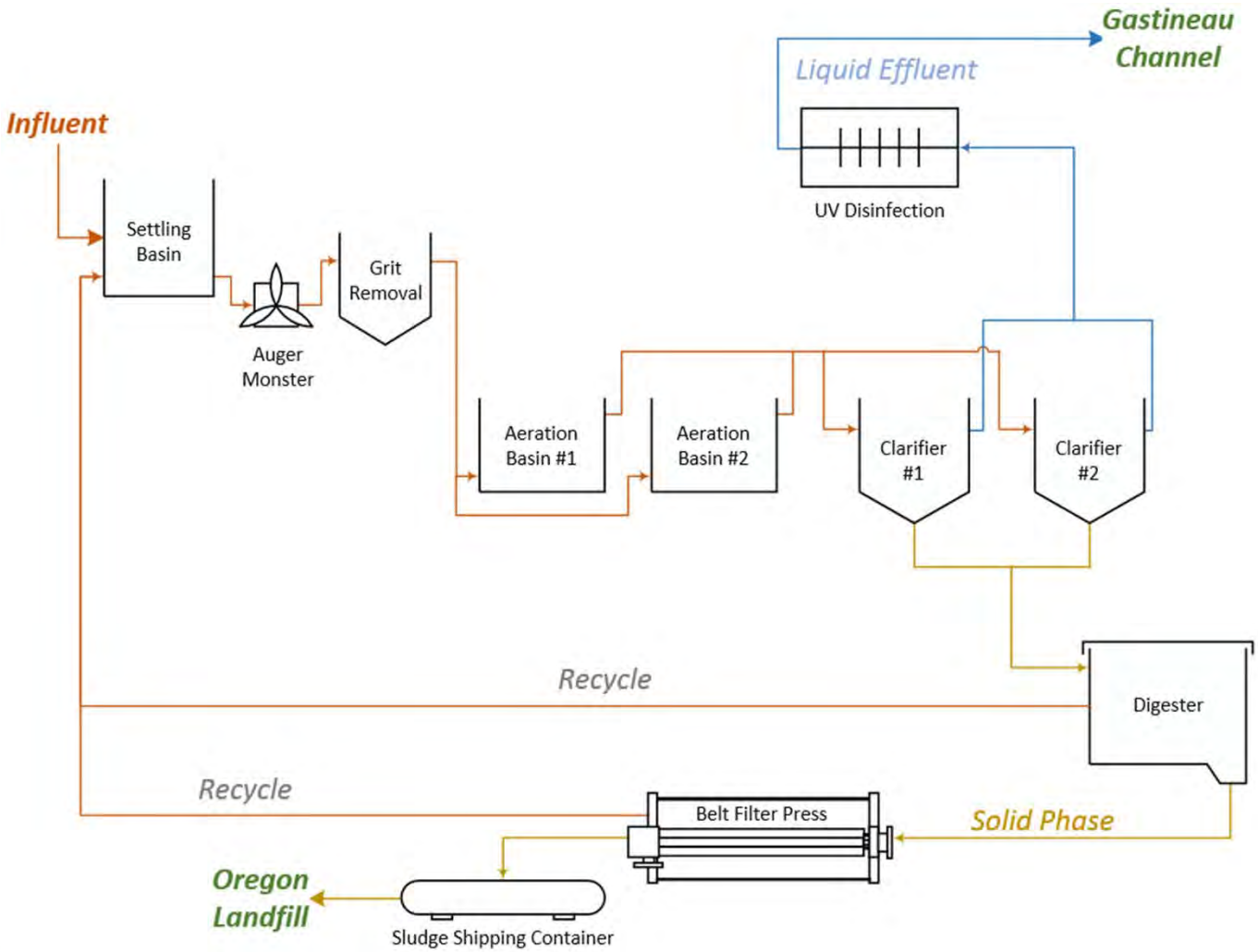
- 3 wastewater treatment plants
  - MTP: 1960s original construction; 1989 SBR plant upgrade
  - JDTP: 1970s conventional activated sludge flow-through plant
  - ABTP: 1970s activated sludge package plant
- 45 sewer lift stations
- 140 miles of pipes
- 7100 service connections



MTP Treatment Process



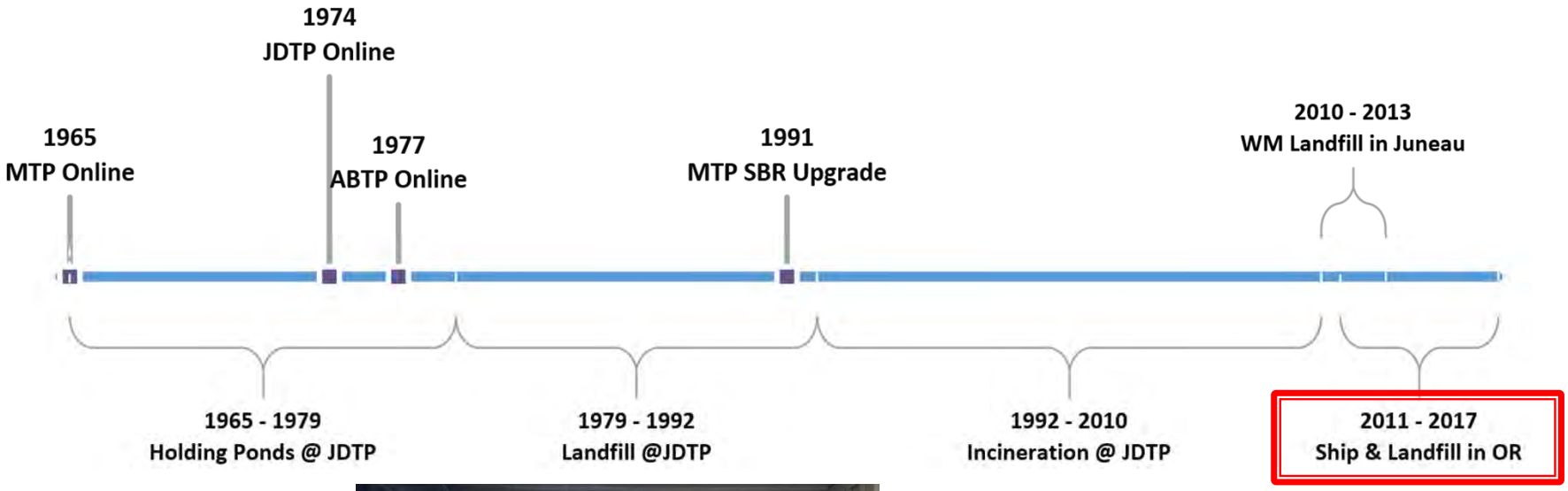
JDTP Treatment Process



Biosolids Production

Plant	Maximum Daily Permit Limit (MGD)	Average Annual Flow Treated (MGD)	Annual Solids Produced (Wet Tons)	% Total Solids
MTP	4.9	2.2	5320	15%
JDTP	6.0	1.0	1675	15%
ABTP	0.16	0.07	--	--

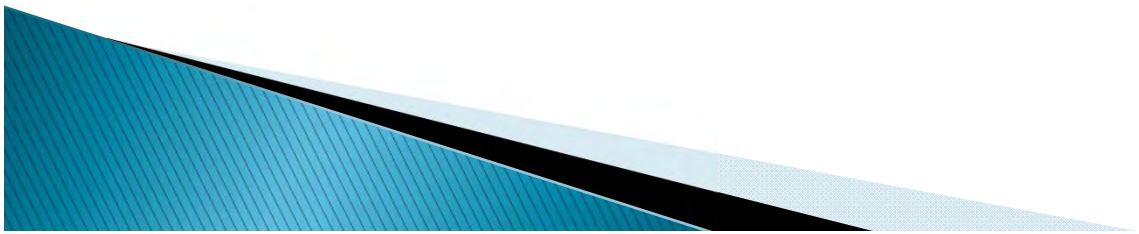
Biosolids Disposal



- $2M annual cost
- 35 day turn-around time
- Highly uncertain

Investigate Disposal Alternatives

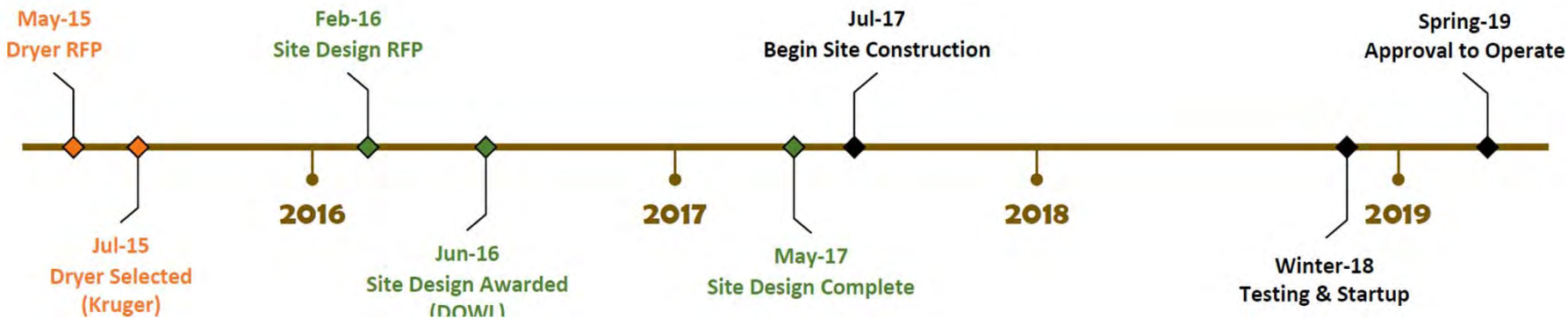
- 2012/13 Phase I Tetra Tech Biosolids Evaluation
  - Reviewed industrywide biosolids treatment/disposal options
  - Established project objectives (Class A product & volume reduction)
  - Narrowed alternatives for a future study and detailed analysis
- 2014 CH2M Hill Phase II Study
  - Purpose: Find a stable long-term biosolids disposal option
  - Governing Principles:
    - Product with multiple end uses
    - Maximum volume reduction
    - Use established technology as classified by USEPA
    - Class A biosolids product of exceptional quality

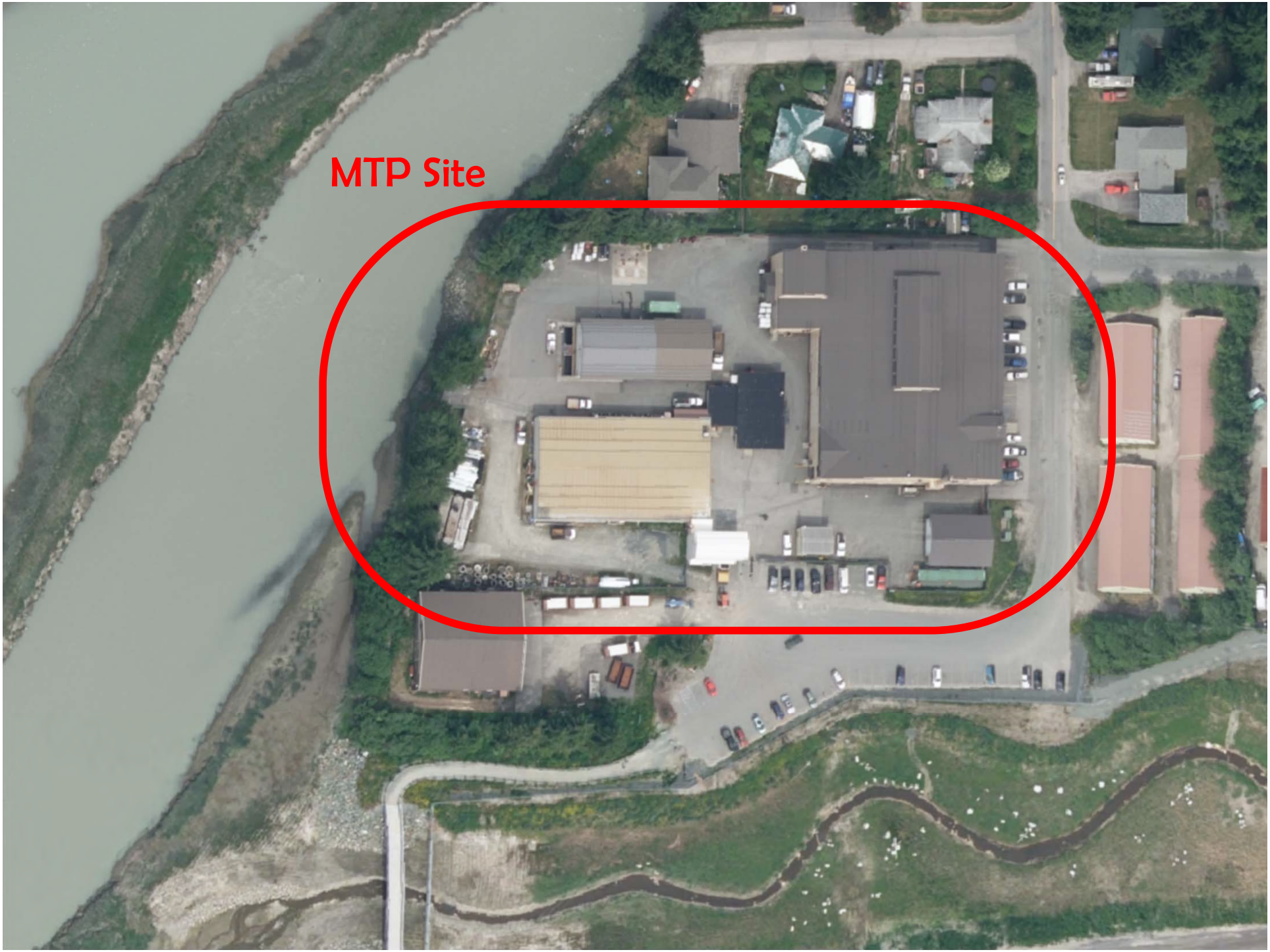


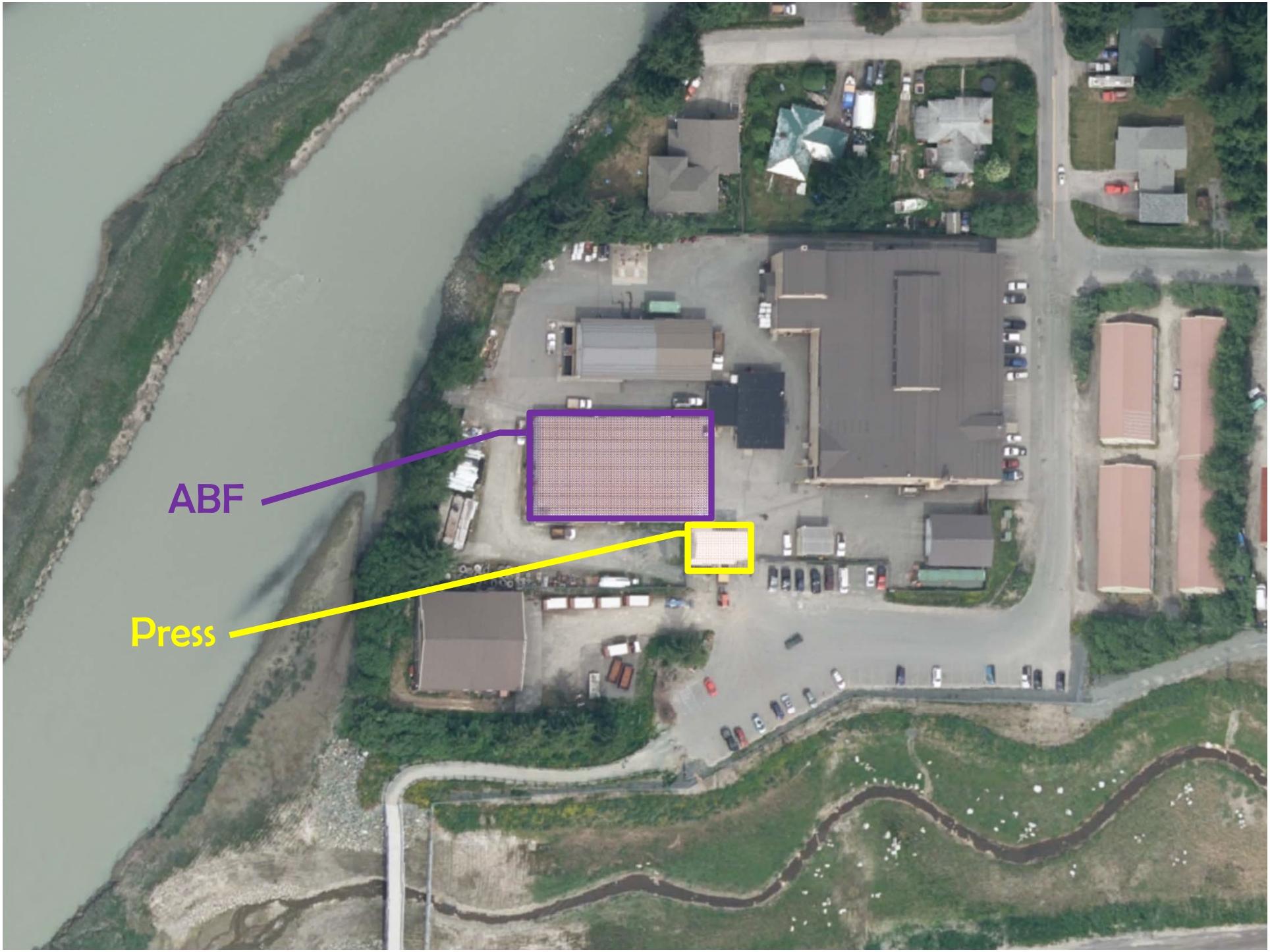
Selected Improvement - Dryer

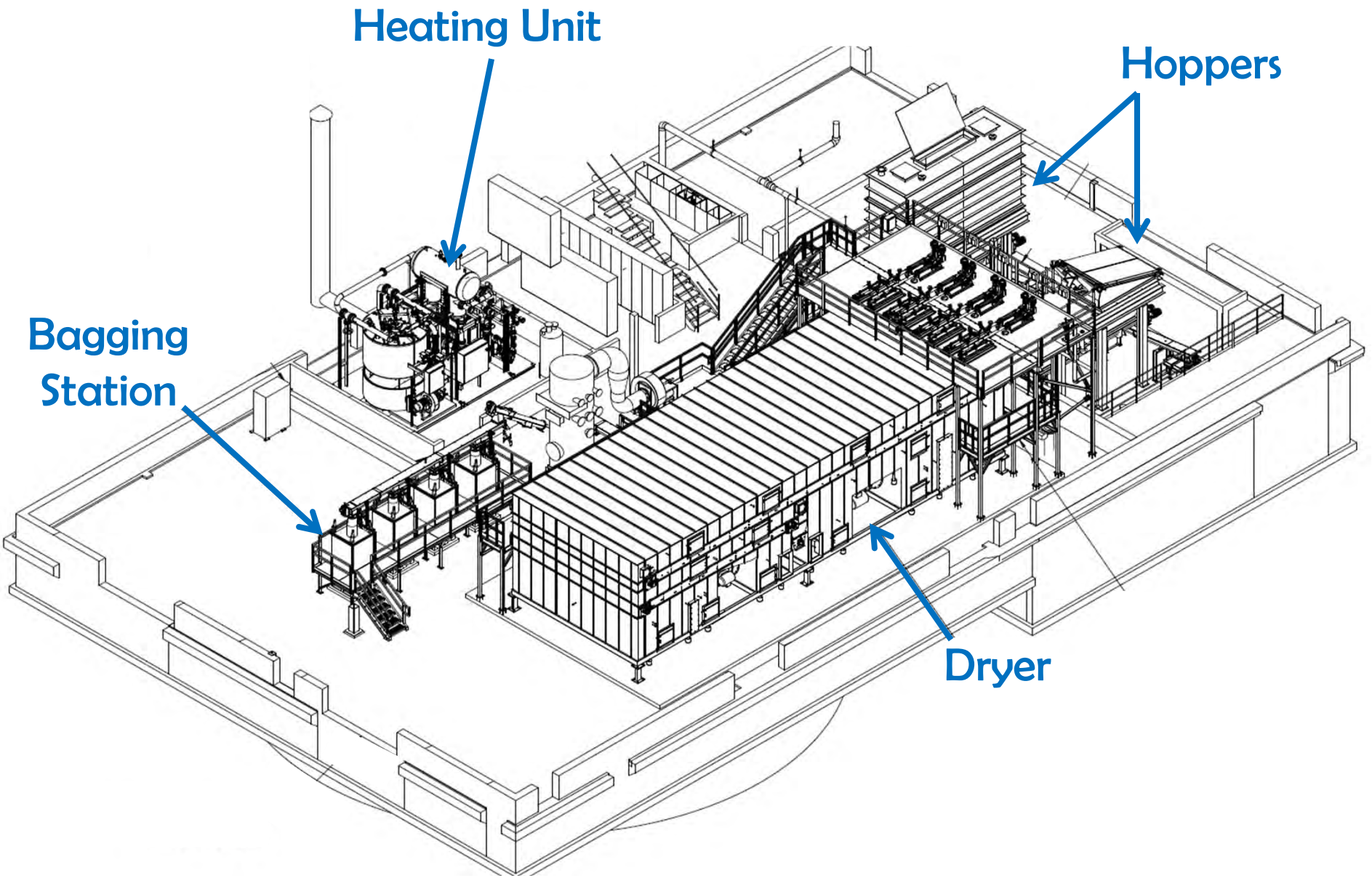
- Stable, Long-term Treatment and Disposal
- $16M Estimated Project Cost
  - Dryer install
  - Site modifications
  - Building construction
- Funding
  - ADEC Loans
    - Rate Revenue

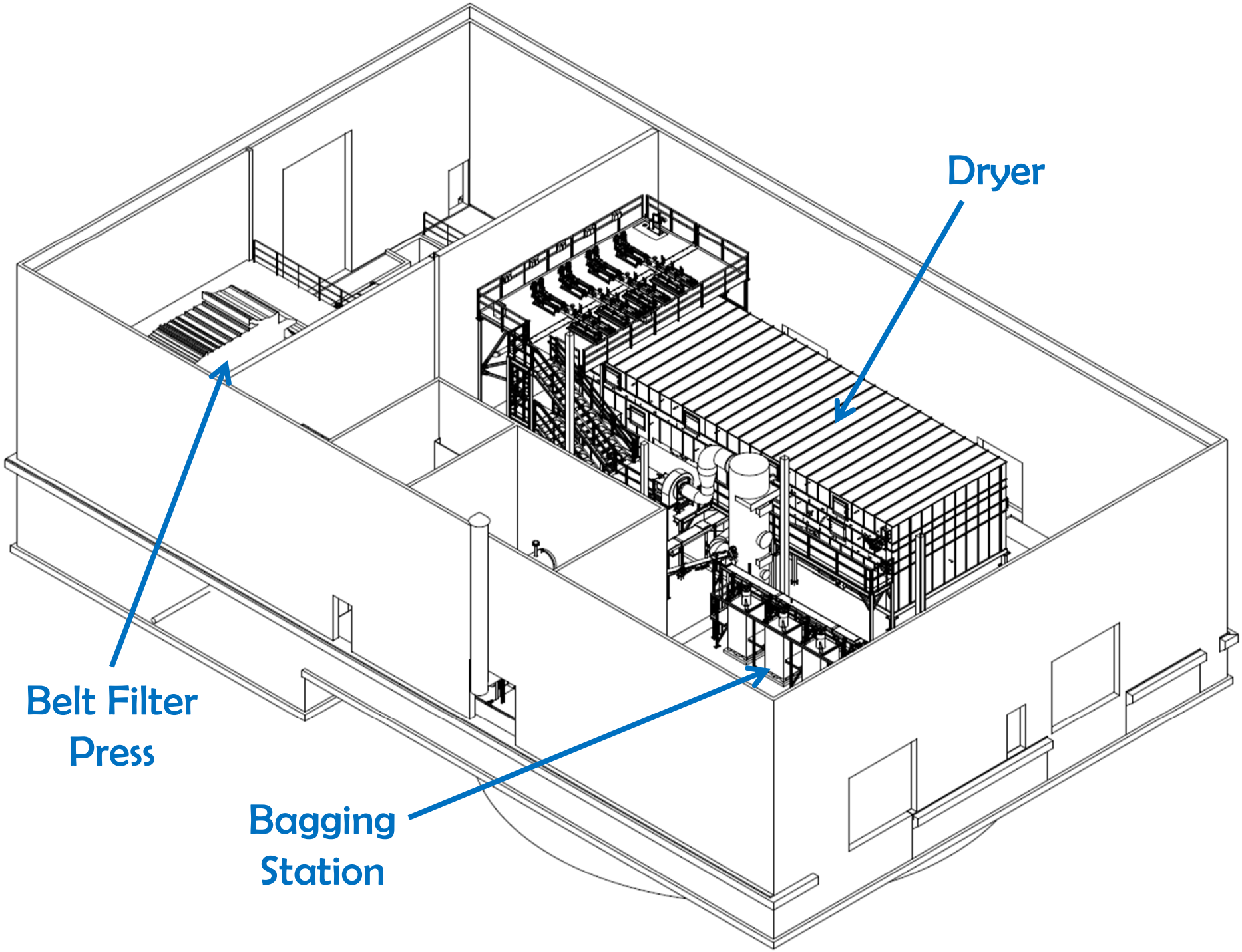
Design and Construction Timing

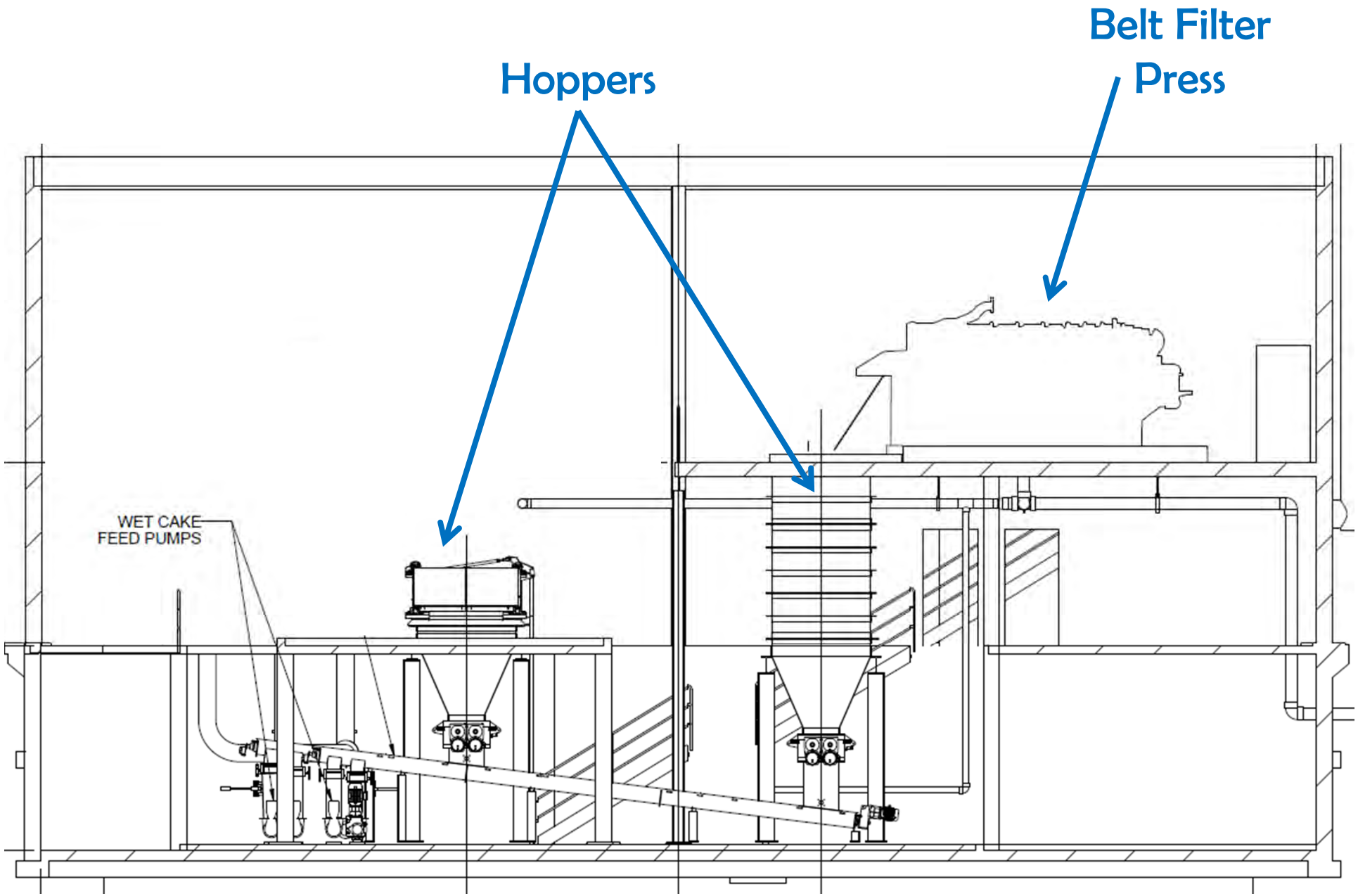


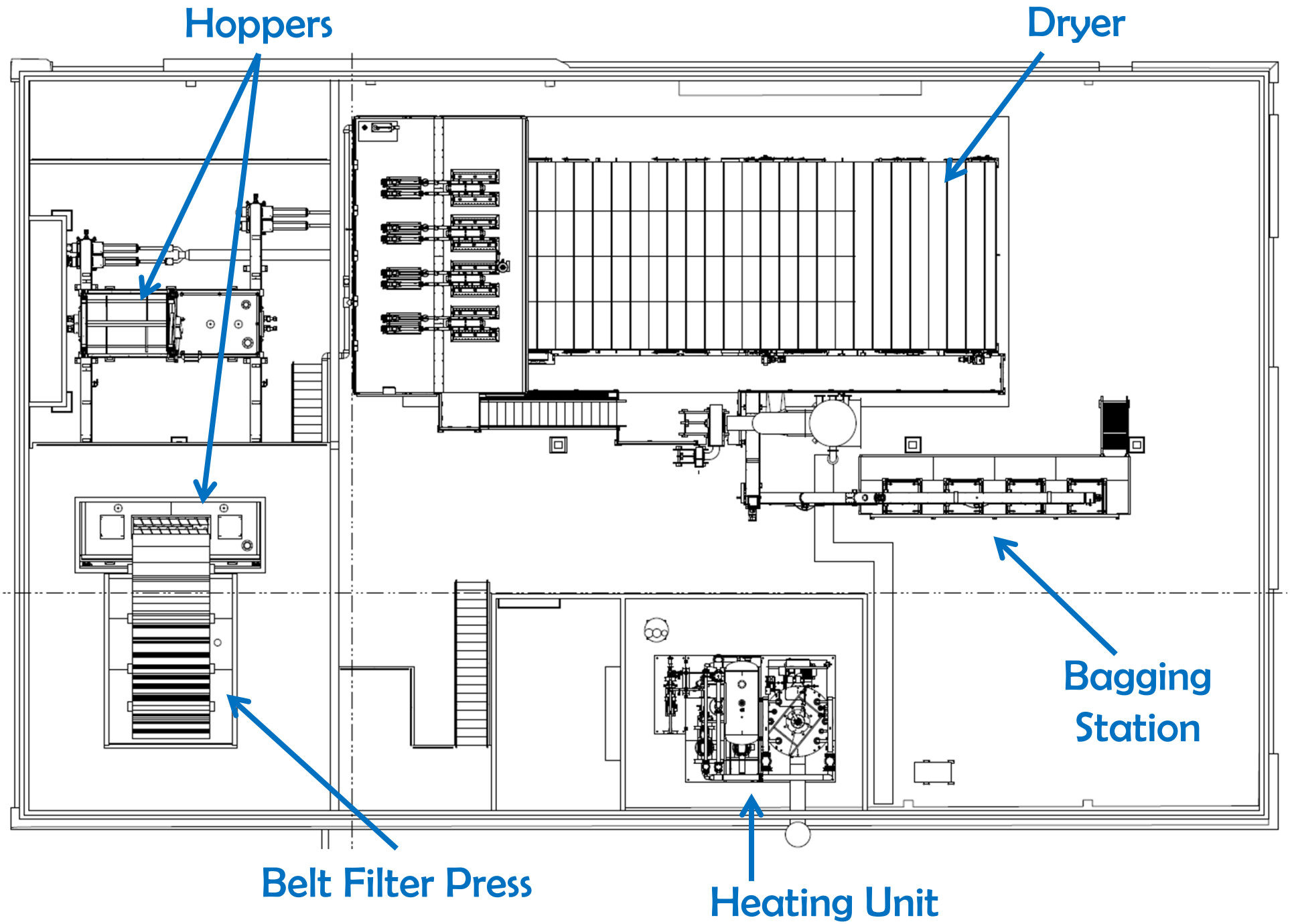

MTP Site


ABF
Press

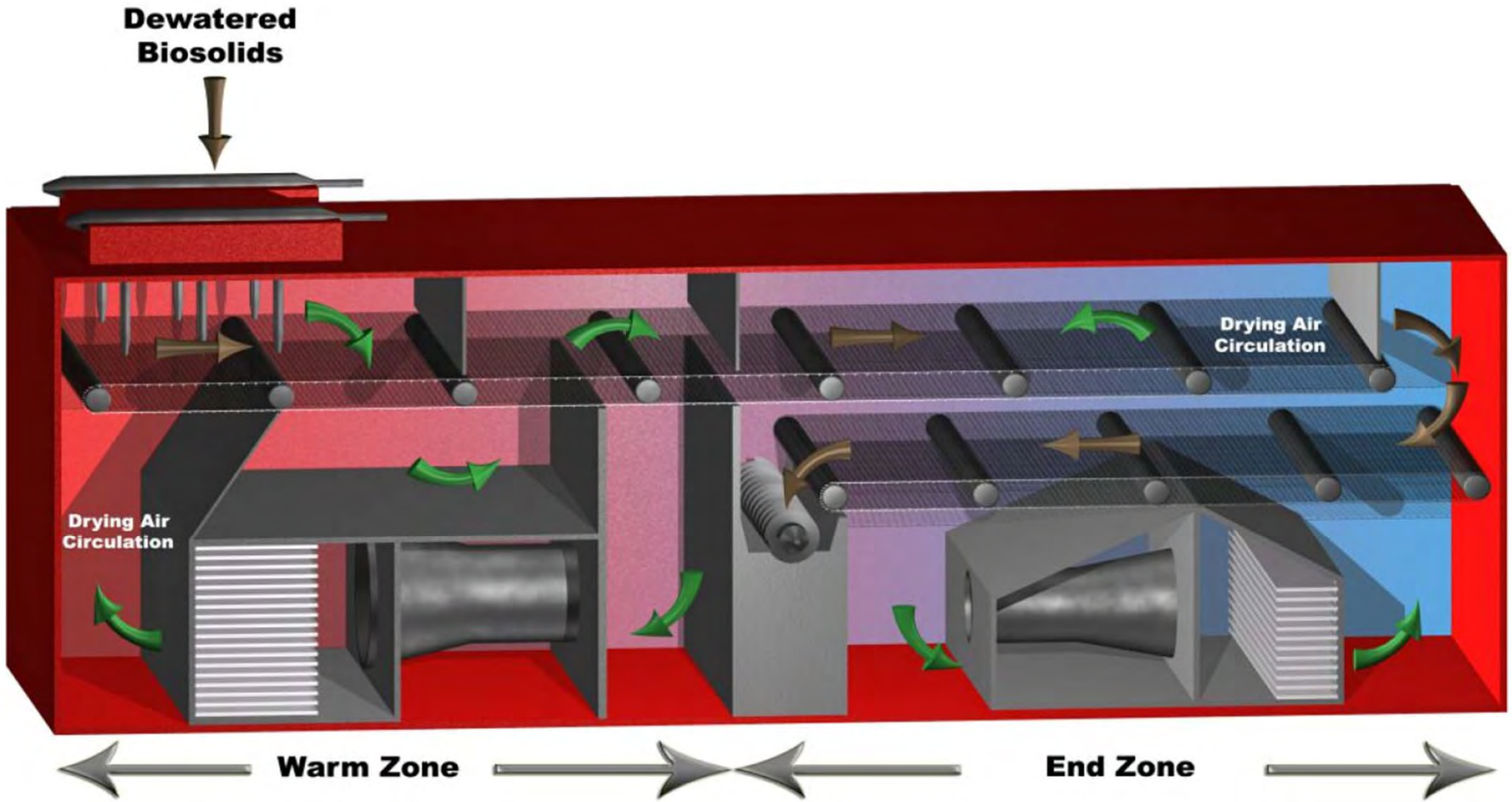

Heating Unit
Hoppers
Bagging Station
Dryer


Dryer
Belt Filter Press
Bagging Station


Belt Filter Press
Hoppers
WET CAKE FEED PUMPS


Hoppers
Dryer
Bagging Station
Belt Filter Press
Heating Unit

Dryer


Dewatered
Biosolids
Drying Air
Circulation
Drying Air
Circulation
Warm Zone
End Zone

Pumps and Extruders

Extruders Applying Pressed Cake to the Belt

View inside the Dryer

Cake Extruded onto Belt
(view inside the Dryer)

Dried Pellets (view inside the Dryer)

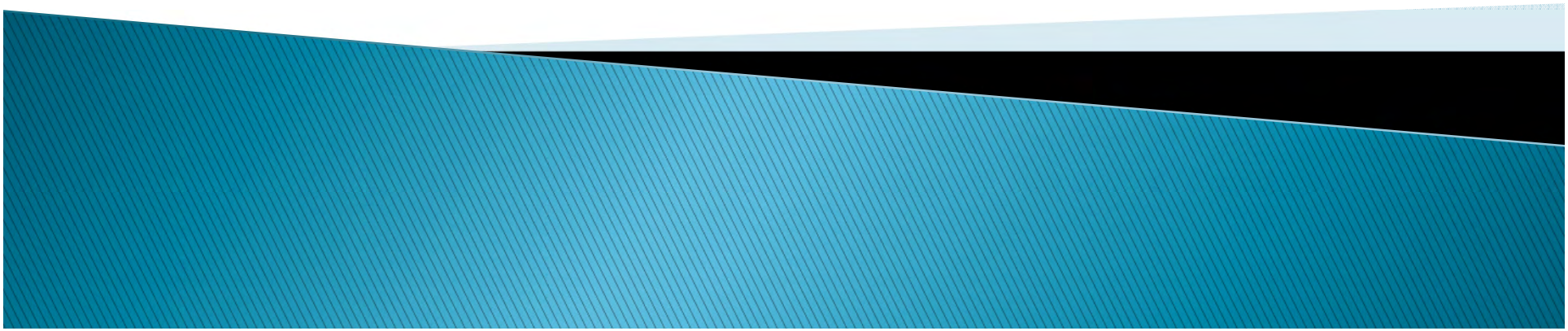
Bagging Station

Dried Pellets

Pellets End Use Document

https://beta.juneau.org/department/public-works/utilities/biosolids-pellets-end-use/02/22/2017

Questions?



City & Borough of Juneau
Alaska's Capital City

ENGINEERING & PUBLIC WORKS DEPARTMENT
Utilities Division
2009 Radcliffe Road, Juneau, AK 99801
907.586.0393 <phone> 907.789.1681 <fax>

MEMORANDUM

DATE: 6 March 2017

TO: Utility Advisory Board, Leon Vance, Chair

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

SUBJECT: CBJ Utilities Operational Update through January 2017

WASTEWATER TREATMENT

Mendenhall WWTP (MTP):

- 53 operational preventative work orders completed.
- MTP treatment data and removal efficiencies for biochemical oxygen demand (BOD) and total suspended solids (TSS):

Month	Treated Effluent (MG)	BOD (% removal)	TSS (% removal)
Jan 2017	61.8	93.0	92.0
Dec 2016	61.2	95.0	94.0
Nov 2016	55.7	96.0	95.0

- MTP operational performance summary data:

January 2017						
Parameter	Units	Design Limit	Influent Loading		Effluent Monthly Average	Variance (Loading vs Design) Monthly Average
			Monthly Average	Annual Average		
Flow	MGD	4.90	2.0	2.0	1.9	
BOD	mg/L	260	310	310	22	16%
TSS	mg/L	220	210	210	17	05%

*Note: Influent samples are from the West SBR, not Influent Pump Station

Auke Bay WWTP (ABTP):

- No effluent discharge violations this month.
- 25 operational preventive work orders completed.
- 74,000 gallons of digested activated sludge was transported to the MTP for processing.

- ABTP treatment data and removal efficiencies for BOD and TSS:

Month	Treated Effluent (MG)	BOD (% removal)	TSS (% removal)
Jan 2017	1.47	97.4	98.6
Dec 2016	1.64	97.7	97.7
Nov 2016	1.56	95.6	94.5

Juneau-Douglas WWTP (JDTP):

- No effluent discharge violations this month.
- 37 operational preventative work orders completed.
- Collected samples from vactor pond tailings for laboratory analysis.
- JDTP treatment data and removal efficiencies for BOD and TSS:

Month	Treated Effluent (MG)	BOD (% removal)	TSS (% removal)
Jan 2017	27.0	97.0	97.0
Dec 2016	31.0	97.0	97.0
Nov 2016	26.9	98.0	97.0

- JDTP operational performance summary data:

January 2017						
Parameter	Units	Design Limit	Influent Loading		Effluent Monthly Average	Variance (Loading vs Design) Monthly Average
			Monthly Average	Annual Average		
Flow	MGD	2.76	0.90	0.90		
BOD	mg/L	200	184	184	5	92%
TSS	mg/L	200	148	148	5	74%

Wastewater Plant Maintenance/Instrumentation:

- Replaced basin #2 aerator electric motor and basin #1 gear box at JDTP.
- Performed confined space entry into basin #3 at MTP for yearly maintenance and repairs.
- Began relocating air system for MTP Bypass Project.
- Received, installed, and tested new influent/effluent samplers for both JDTP and MTP.
- Continued reorganization efforts at MTP to prepare for construction.
- Performed the following maintenance and instrumentation work orders (WOs) for the three wastewater treatment plants:

Plant	Completed WOs	Open WOs	Delinquent WOs
MTP	116	5	4
JDTP	18	10	10
ABTP	21	0	0
TOTAL	**155**	**15**	**14**

WASTEWATER UTILITY SOURCE CONTROL SAMPLING

- Source Control Sampling conducted through January 10, 2017.
- Some of the test results were found to be above the normal domestic wastewater levels.
- Completed the following number of Source Control Sample Events:

Month	Sample Events
Jan 2017	4
Dec 2016	18
Nov 2016	32

WASTEWATER COLLECTIONS

- CIPs in progress: Montana Creek West Phase 2B (Bicknell Construction), Ridgeview Subdivision (RH Development), Egan Water System Replacement (S.E. EarthMovers), Downtown Streets Improvements Ph. 1 (S. Franklin) – Pre Bid, W. 8th – Pre Bid, Aspen/Pinewood – Pre Bid, Blueberry Hills Road - 95% submittal, East Street – 95% submittal, Silver Street Paving, Dunn Street Paving, Valley Court Force Main Replacement.
- Continue to load bank and exercise lift station generators, wet-well cleaning, and alarm/controls testing areawide.
- Performed VFD and control panel maintenance.
- Continue shop reorganization/relocation project.
- Performed the following number of site visits to the 45 CBJ lift stations:

Month	Weekdays	Weekends	Holidays	TOTAL
Jan 2017	900	171	38	1109
Dec 2016	945	171	19	1135
Nov 2016	855	152	57	1064

- Fielded the following direct customer service calls/locates for the community:

Month	Service Calls	Locates	Lat Camera	CCTV	Adj/Pave MH's
Jan 2017	7	8	2	0	0
Dec 2016	5	6	3	5	0
Nov 2016	8	4	5	10	2

- Performed the following work orders (WOs) using Lucity software:

Month	Completed PM WOs	Requested WOs	Other WOs	Open WOs
Jan 2017	9	7	11	16
Dec 2016	8	5	13	13
Nov 2016	11	5	29	8

WATER DISTRIBUTION AND TREATMENT

- Conducted weekly coliform bacteria and disinfection byproduct samples, Salmon Creek Filtration Plant crypto and discharge sampling, and daily station inspections.
- Repaired two hydrants at Commercial Boulevard and the Fire Training Center, and repaired flow control valves at Crow Hill and West Juneau Pump Stations.
- Performed preventative maintenance on Salmon Creek Filtration Plant chlorine pumps.
- Replaced solenoid valves on PRV at Salmon Creek Pump Station.
- Installed new panel view at Last Chance Basin Well Field.
- Calibrated pump station analyzers areawide.
- Continued cross-training efforts.

Month	CIP or Major Development Locates
Jan 2017	10
Dec 2016	6
Nov 2016	10

UTILITY BUSINESS UNIT

UTILITY BILLING:

Month	UB Calls	Collection Calls	PW Calls	A/R Calls	Tax Calls	Bills Generated
Jan 2017	130	8	-	12	1	8393
Dec 2016	210	5	3	13	1	8423
Nov 2016	227	16	1	12	1	8448

METERS:

Month	New Meter Installs	Mtr Assessments, Register/Mtr/MIU Replacements	Non-Pay Door-Hangers	Non-Pay Shut-Off's	On/Off Requests	High Usage Calls/ Investigation	Residential Locates	Leaks	Misc Calls
Jan 2017	5	12	42	6	11	78	3	2	62
Dec 2016	5	9	26	1	7	52	2	3	14
Nov 2016	2	6	24	4	11	36	-	2	22

Septage Disposal

January 2017	Douglas Bridge	JR Park
Alaska Glacier Seafoods		4,500
Alaska Icefield Exp.	-	
Alaska Pacific Env.	12,600	
Allen Marine	-	
Juneau Septic	3,400	
Tyler Rental		4,600
Total Gallons	**16,000**	**9,100**

December 2016	Douglas Bridge	JR Park
Alaska Glacier Seafoods		4,000
Alaska Icefield Exp.	-	
Alaska Pacific Env.	24,550	
Allen Marine	-	
Juneau Septic	1,600	
Tyler Rental		-
Total Gallons	**26,100**	**4,000**

November 2016	Douglas Bridge	JR Park
Alaska Glacier Seafoods		9,000
Alaska Icefield Exp.	-	
Alaska Pacific Env.	39,330	
Allen Marine	7,000	
Juneau Septic	17,800	
Tyler Rental		6,410
Total Gallons	**64,130**	**15,410**