Tuluksak Native Community

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Draft Business Plan

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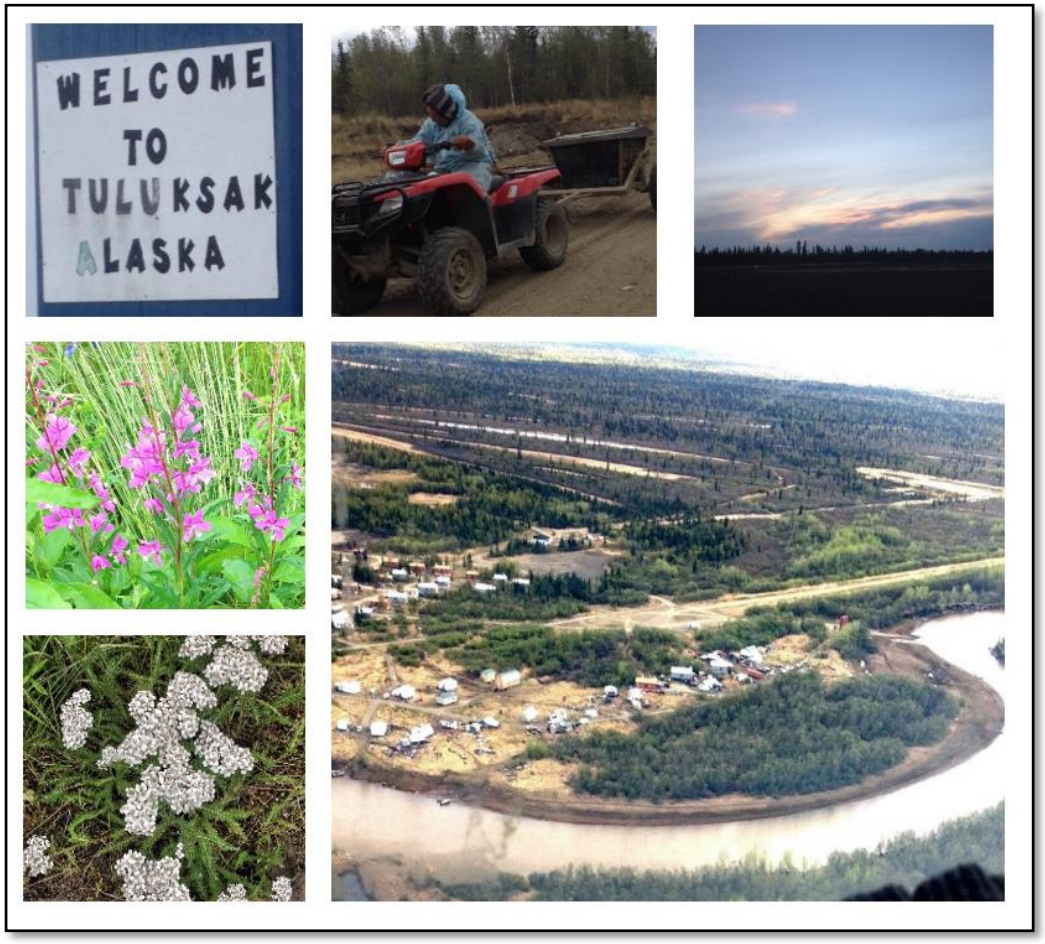
Engineer: CRW Engineering Group, LLC

Water and Sewer Utilities



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Section 1 Executive Summary

The Tuluksak Native Community (TNC) is a federally recognized tribe and a traditional Yup'ik Eskimo village in Alaska within the Bethel Census Area. The community uses a tribal government to administration the local services such as the water and sewer utility. Administration of the water and sewer utility includes operations, maintenance, construction, and system upgrades.

The Tuluksak Native Community, in conjunction with the State of Alaska, Village Safe Water is moving forward plans to complete construction of a new sewage lagoon, lift station, and force main. Funding has been requested for a new Water Treatment Plant/Washeteria (WTP/W). The proposed improvements include:

- Completion of construction of a new two cell sewage lagoon.
- Construction of a new sewer service lines for up to four community facilities.
- Construction of new piping to collect sewage from the school.
- Completion of a new lift station.
- Completion of a heat recovery system.
- Construction of new water service connection for community facilities.
- If funded, construction of a new WTP/W.

This business plan is the first step toward ensuring the adequate management of the water and sewer utility by TNC. Additionally operation and maintenance (O&M) requirements for this project are included. The estimated monthly bill for sewer haul will be $20 and washeteria and haul water use is expected to be about $45 per month. The annual cost is 3% of the median income and is within the guideline that utilities should not cost more than 5% of the median household income. However, the cost of living analysis indicates that the majority of households may face significant challenges in paying the fees.

Section 2 Community Overview

Location

Tuluksak is located on the south bank of the Tuluksak River, approximately 1.5 miles upstream of its junction with the Kuskokwim River (Figure 1). The village is 35 miles northeast of Bethel. It lies at approximately 61.1025˚ North Latitude and 160.9617˚ West Longitude and is located in the Bethel Recording District (Section 27, Township 012 North, Range 066 West, Seward Meridian). The area encompasses 3.1 square miles of land and 0.1 square miles of water.

Tuluksak experiences a mild climate. Summer temperatures range between 82ºF to 42ºF. Winter temperatures range between 40ºF to -42ºF.

Figure 1. Location of Tuluksak

Population & Housing Characteristics

The historic and projected populations for Tuluksak are presented in Table 1. The exact growth rate for small villages like Tuluksak is difficult to predict. The Bethel Census Area, which encompasses the community, is expected to grow at 1% over the next 20 years. Tuluksak has shown a decline in population over the past 20 years. With the new water and sewer facilities it is assumed that the population levels will stabilize and the village will neither grow nor decline in population on average over the years to come.

The median age in the community is 24.7 years, with only 1.2% of the population aged 65 or older. Housing consists mostly of single unit detached homes built between 1970 and 1989. Approximately

65% of homes are owner occupied while 35% of homes are renter occupied. Homes use a honey bucket haul system and haul water.

Selected Statistics – Tuluksak, Alaska

Selected demographic and historical data for the community is provided in Table 1.

Table 1. Selected Demographic and Historical Data

Population	
2017 (DLWD Population Estimate)	367
2010	373
2000	428
1990	358
1980	236
1970	195
1960	137
1950	116
1930	71
1920	91
Housing (2016) Data	
Occupied Housing	81
Vacant Housing From Seasonal Use	2
Other Vacant Housing	6
Average Household Size	5
Economic Data (2012-2016 ACS Data)	
Unemployment Rate	20.4%
Median Household Income	$24, 625

(DCRA) Department of Community and Regional Affairs

(DLWD) Department of Labor and Workforce Development

(Information retrieved from Alaska DCRA community database: https://www.commerce.alaska.gov/dcra/DCRAExternal/community; and US Census ACS 2016: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF)

Transportation Available

Tuluksak can be accessed by a State-owned 2,461-foot long by 30-foot wide gravel airstrip year-round. Barges deliver freight during the summer, although there are no docking facilities and on rare occasions the water level is too low for barge transportation. An ice road on the Kuskokwim River provides access to Bethel in the late winter.

Residents use fishing boats and skiffs for summer river travel. In the winter snow machines and all-terrain vehicles (ATVs) are used for local transportation. Unpaved roads through the community support travel via cars, trucks, and ATV's.

Key Assumptions

Community-related assumptions are as follows:

- The demographic information obtained from the DCRA community database, DLWD, and the US Census Bureau 2012-2016 American Community Survey 5-year Estimate are reliable.
- Village population will remain stable with no significant decrease.
- Household incomes will be stable.

Section 3 Management Structure

Organizational Chart

Village management consists of a Tribal Council, Tribal Administrator, Water/Sewer Manager, and Finance Director. The organizational chart in Figure 2 illustrates the staff relationships of the existing water and sewer utilities.

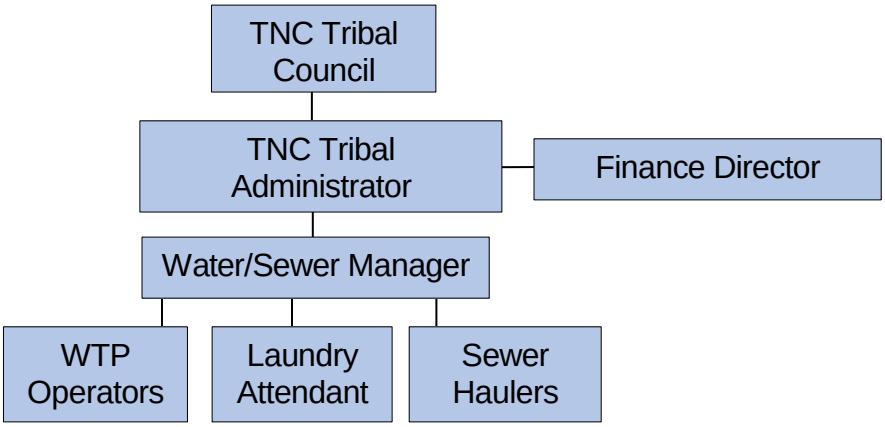

Figure 2. Tuluksak Water and Sewer Organizational Chart

The TNC Tribal Administrator and Finance Director preform both Water/Sewer utility and other functions. The Water/Sewer Manager, WTP Operators, the Sewage Haulers, and the Laundry Attendants work solely for the Water/Sewer utility and are part time positions.

Water/Sewer utilities positions and some responsibilities are given below:

- **Tribal Council** – Responsible for utility management and rate change ordinances.
- **Tribal Administrator** – Oversees TNC and utility administration.
- **Finance Director** – Does financial planning and accounting tasks.
- **Water/Sewer Manager** – Oversees day-to-day operations including maintenance and repairs and supervises Water/Sewer staff.
- **Water Treatment Plant Operator** – Operates WTP and watering point.
- **Sewage Hauler** – Picks up sewage in hoppers and disposes in the lagoon.
- **Laundry Attendant** – Collects laundry/shower fees and cleans Washeteria.

Staffing and Training

The duties and responsibilities of several of the key positions related to the efficient management of the water/wastewater utility are detailed below.

Tribal Administrator:

- Village planning and budgeting.
- Report on Village operations to the Tribal Council.

- Monitor budgets for water and sewer and capital improvement programs.
- Provide guidance on water and sewer operations, rates, and ordinances.
- Assist in enforcing rules and guidelines associated with the water and sewer utility.

Finance Director:

- Manage all Tribal financial transactions including accounts payable and receivable, and payroll.
- Responsible for depositing cash receipts and other funds to the TNC's bank accounts.
- Collect and verify timesheets and issue payroll checks.
- Reconcile bank accounts and provide monthly reports.
- Ensure compliance with funding agency requirements.

Water/Sewer Manager:

- Ensure that the WTP functions efficiently.
- Supervise the WTP operators, sewage haulers, and laundry attendants.
- Generate customer billings and ensures collections.
- Make monthly reports on operations to Tribal Administrator and Council.
- Maintain familiarity with operating ordinances.
- Respond to emergencies related to the water and sewer system.
- Order supplies.

Water Treatment Plant Operator:

- Operate WTP on a daily basis.
- Recognize, identify, and correct operational problems within the plant.
- Record accurate readings and occurrences in plant log book.
- Take samples and test for pH, chlorine, and turbidity as required by regulation.
- Repair plant equipment as needed.
- Maintain operator certification for a Class 1 system.

Sewage Haul Workers:

- Empty honey bucket hopers and dispose of in lagoon.
- Provide maintenance to equipment.
- Clean honey bucket hopper sites.
- Ensure the storage area for equipment is secured at all times.

Laundry Attendant:

- Collect cash, write receipts, reconcile daily cash, and turn into manager.
- Start laundry machines for customers, clean lint screens, and report problems.
- Stock and sell pop, laundry soap, and other items.
- Clean the showers after every use and clean the Washeteria daily
- Enforcing washeteria rules, protect the facility, and report problems to the Water/Sewer Manager.

Training

Personnel who operate the utilities should receive pertinent training. Initially additional training is not required for completion of the system upgrades, but public works employees should continue to receive training to keep their certifications current. Once the number of water and sewer service connections reaches 15 or more Water Distribution and Wastewater Collection certifications should be obtained.

There are classes for water and sewer operations throughout the state offered by a variety of vendors. Classes are typically four days long, with the fifth day reserved for certification testing or can be taken on-line over a one month period. Classes can be found on the ADEC Alaska Training Coalition Calendar website:
https://dec.alaska.gov/water/opcert/TrainingCalendar.htm

Certification testing can be completed in person at various locations, including Bethel or online through Proctored Online ABC Certification Exams. Information for on-line testes can found here:
https://dec.alaska.gov/water/opcert/ProctoredOnlineCertExams.htm

Training and testing cost vary but on average cost about $2,250 per person ($675 for airfare, $750 for travel expenses, $675 for training, and $150 per exam).

Key Assumptions

Employee-related assumptions are:

- The cost of training new employees will be constant.
- That training will be available.
- There will not be significant staff turnover.
- Operators will pass the certification test.
- Key personnel will be available for hire.

Section 4 Existing Infrastructure and Proposed Facility Improvements

Current Infrastructure

Key components of the existing WTP/W facility are noted in Table 2, with a full write-up in Appendix D.

Table 2. Summary of Water and Sewer System Current Infrastructure.

Existing Facilities	Description

Water Source	• Ground Water.
	  ○ Water is high in iron and manganese.
	• Well with 6-inch casing, 56 feet deep.
	  ○ Located outside of the WTP/W.
	• Sometimes water supply line to WTP freezes.

Water Storage Tanks	• Two uninsulated 10,000 tanks. • Built in 1983.
Water Treatment Plant	• Built in 1982. • Class 1 water treatment system. • Sodium Hypochlorite is used to disinfect water. • Building is in ok condition. • Equipment for water treatment is in poor condition. • Wastewater discharges to lagoon usually freezes 1-time per winter.
Washeteria and Watering Point	• Built 1982. • 4-washing machines and 2-drying machines. • 1-shower/toilet room. • Laundry attendant collects fees and maintains building. • Watering point sells water for $0.25. ○ Sales average 40gpd.

Lagoons	• WTP/W lagoon – single cell percolation (not permitted).
	  ○ Located 200 feet south of community.
	  ○ Takes waste from WTP/W and construction camp/hotel.
	• School lagoon – single cell (not permitted).
	  ○ Takes waste from school and teacher housing.
	• Honey bucket lagoon – new two cell lagoon.
	  ○ Built 2016-2017.
	  ○ Takes waste from the sewer haul system.

Sewer Haul	• 20 honey bucket hoppers around the community. ○ Most hoppers do not have lids or secure lids and spill sewage when transported for emptying. • 1 ATV for hopper hauling.
Power Plant	• Upgraded in 2004. • Powers homes, the WTP/W, community facilities such as the clinic, police station, store, and teen center. ○ The school operates an independent power plant.

Currently, residents and public facilities pay for provided services based on the following:

- Self-haul water (unlimited quantity) - $0.25/gallon;
- Central honey bucket collection - $40.00/month/home;
- Yupiit School (water service) - $18,750/ every 3 months;
- Construction Camp (when in use) - $140/month;
- Laundry/Washing machine - $4/load;
- Laundry/Dryer - $3/load;
- Showers - $2/per shower.

Proposed Facility Improvements

A host of improvements to the water and sewer utilities are proposed for the community. Key improvements are outlined in Table 3, with a full write-up in Appendix E.

Table 3. Summary of Water and Sewer System Improvements.

Facility Improvement	Description
Water Source	• New source using to 2-wells drilled in 2005. ○ Location of new wells is near the Utility Core Site. • New wells can handle an increase in water demand. • Water is of good quality.
Water Storage Tank	• New 35,000-gallon tank. • WST will be large enough to me the highest anticipated daily water needed and have water for a few more days in the event of a system failure.
Water Treatment Plant/Washeteria Building	• New 14-foot wide x 36-foot long x 14-foot high modular building. • Post and pad foundation. • Floor elevation will be 2-feet above the 100-year flood elevation. • 4 washing machines and 4 drying machines. • 2 bathrooms plus 1 ADA compliant bathroom. • Storage room for chemicals. • General storage area. • Office/lab for water treatment staff.
Water Treatment	• New water treatment system – using conventional water treatment with a pre-oxidation package. • Increase in production ability to 43,000 gallons per week. • Chlorine disinfection. • Water produced will be of better quality.

Water Distribution	• Water distribution mains will be installed to:
	  ○ Construction Camp/Hotel
	  ○ Clinic
	  ○ Store
	  ○ Teen Center
	  ○ School

Waste Water Collection	• New 3-inch HDPE wastewater lines with two 2-inch HDPE glycol lines contained inside a 16-inch Arctic carrier pipe.
	• Sewer mains would collect waste from the:
	  ○ Construction Camp/Hotel
	  ○ Clinic
	  ○ Store
	  ○ Teen Center
	  ○ School

Heat Recovery System	• Heat recovery loop between the Power Plant and WTP/W. • Heat would be used to pre heat water from the wells, heat the WST, heat water lines to the school, heat force mains, heat the WTP/W building, and generate hot water for the washeteria.

Key Assumptions

Assumptions are:

- The existing infrastructure will not need to be repaired prior to completing construction.
- The plumbing in the facilities to be connected to the water and or sewer system will not require major repaired prior to connection.
- Project designs are complete and completion of partially constructed facilities will take one construction season.
- Design and construction of the WTP/W will take place once funding has been secured.

Section 5 Financial Data

TNC currently utilizes a third party billing company (Rural Alaska Empowered) to reconcile accounts. However, the business is in the process of closing and a new solution to account reconciliation is needed by September 2018. The firm uses the accounting software QuickBooks Pro to track transactions, revenue, and expenditures. Each entity in the community is tracked individually. Entities include: clinic, gaming operations, water plant, sewage hauler, post office, teen center, utility, laundry, police, and administration.

Sewer haul bills are issued on a monthly basis via mail. The collection rate is estimated to be between 5% and 8%, including the TNC employees that have the $40 charge taken directly out of their pay checks. A target collection rate for sewer haul bills has not been set. Sewer haul services are not withheld for non-payment.

The fiscal year (FY) runs from January 1st to December 31st. Budgets for the various operations are established at the beginning of each FY and tracked with income versus budget statements. Revenue/Expense reports for FY 2015, 2016 and 2017 were provided. Budget data was provided for 2014 and 2018.

The following financial estimates are preliminary in nature and are in year 2017 dollars. The estimates assume that systems are fully functioning. All estimates and assumptions continued in this plan are preliminary and are anticipated to change as the project progresses. Actual revenues and expense will vary throughout the life of the facility and these estimates should not be considered final.

Estimated Annual Income

The revenue required to support the existing system and proposed improvements will be met through a combination of washeteria fees, water service fees, sewer haul fees, and school fees. A summary of the water and sewer system expenses, revenues, and profits are shown in Table 4. The amount of profit should increase as additional businesses and homes are connect to the system.

Table 4. Water and Sewer System Expense, Revenue, and Profit.

Expense (with proposed improvements)	
Cost to Run (labor, supplies, electricity, heat, etc.)	$110,200
Repair & Replacement	$18,200
TOTAL	$**128,400**
Revenue	
Revenue (with proposed utility rates and target fee collection rates)	**$157,200**
PROFIT	**$28,800**

Proper funding of the sewer haul system will help ensure timely waste removal, proper maintenance of sewer haul equipment, and proper maintenance of hopper collection sites. With historic sewer haul collection rates around 5% drastic measures will need to be taken to ensure sewer haul fee collection. Confidence in the system is low and people avoid hopper use if possible because of unsanitary conditions, as such people do not want to pay for the service.

The honey bucket haul fee was dropped from $40 per month to $20 per month, see Table 5. At this new rate, fee collection must be 75% or higher or the service will not be sustainable. It is recommended that the collection fee be paired with electric bills. If the bill is not paid, then households could face having their power shut off. It is also recommended that the community pair the rate change with a thorough cleaning of the hoppers and hopper sites and repairs to the hoppers to increase confidence in the system.

Table 5 shows proposed monthly rates for water and sewer services, target collection rates, and anticipated yearly revenues.

Table 5. Revenue Sources

Revenue Source	Monthly Rate	Unit	Quantity	Collection Rate	Yearly Revenues
Water Plant					
Haul Water sales ($0.10 per gallon)	$0.10	Gallon	50,000	85%	$4,250
				Total	**$4,250**
School Water and Sewer Fees					
School User Fees (Includes Teacher housing)[1]	$18,750	Every 3 Months	4	100%	$75,000
School Wastewater Fees (Including Teacher Housing) [2]	$1,400	Month	12	100%	$16,800
				Total	**$91,800**
TNC Community Facilities Water and Sewer					
Store[3]	$350	Month	12	100%	$4,200
Teen Center[3]	$350	Month	12	100%	$4,200
Clinic[3]	$350	Month	12	100%	$4,200
Construction Camp/Hotel[3]	$350	Month	0	100%	$0
Washeteria[3]	$350	Month	12	100%	$4,200
				Total	**$16,800**
Residential Sewer Haul					
Hopper Fee per Household (81)	$20.00	Month	12	85%	$204
				Total	**$16,524**
Washeteria[4]					
Washers[5]	$5	Load	4212	85%	$17,901
Dryers[5]	$4	Load	2527	85%	$8,592
Showers[5]	$3	Shower	520	85%	$1,326
				Total	**$27,819**
				TOTAL REVENUE	**$157,193**

1	The Yupiit School District has an agreement with TNC to pay $75,000 per year for up to 3,000 gallons of potable water per any given 24-hours period. See Appendix F.
2	TNC Resolution #15-08-01 indicates that the school will pay $1,400 per month for sewer services once the new lagoon system is open, see Appendix F
3	TNC Resolution #15-08-01 states that the village will pay $1,400 in water and sewer fees for community facilities. The $1,400 was split amongst four community facilities, the Construction Camp/Hotel was left out due to infrequent use, see Appendix F.
4	Revenue for the washeteria is variable. In 2015 the revenue only covered 45% of operations and no monies were set aside for Repair and Replacement. In 2016 revenue was supplemented with lease income. In 2017 use and revenue was more than anticipated and covered 103% of the operation costs.
5	With a new safe WTP/W, it is anticipated that initially households will do approximately one load of laundry per week with 60% of the loads being dried in a dryer. Showers should increase from 10 showers per week to 1 shower per household per week.

The water and sewer system will have some revenue to accommodate the variable use of the Washeteria with an 85% fee collection rate from citizens and 100% fee collection rate from the school and TNC. If Washeteria use is lower than expected and revenue cannot cover the revenue gap, monies could be allocated from the gaming account. However over the years other entities have needed supplementing from the gaming account, and it cannot be considered a guarantee that supplement funds would be available.

Alternatives to Fee Collection

Rather than collect sewer haul fee in the traditional bill and payment system, alternative methods can be used. A few potential ideas are as follows:

- Honey bucket hopper bingo – Dedicate proceeds from Bingo, specific days of the month toward funding new sewer haul equipment such as a trailer with a tank and pump.
- Adopt an elder – Families in the community can adopt an elder and pay the water sewer fee on their behalf if they are not able too.
- Community Operations – Members of the community can volunteer to run the Washeteria, pick up trash around the community, or help clean hopper locations in exchange for reduced sewer haul rates.
- Bulk discount – If the annual fee for sewer haul is paid in one chunk a discount is given, for example pay 12 months for the price of 11.
- PFD – When the Alaska Permanent Fund Dividends come out, run a discount special, for example pay for next year's sewer haul, and get 12 months for the price of 11.

This list is meant to help encourage creativity and generate alternative ideas for the community to cover water and sewer expenses.

Estimated Annual Expenses

There are two cost categories that will be incurred in the ongoing operation and upkeep of the water and sewer utilities improvements – O&M and Repair and Replacement (R&R). Note, the community does have an existing bulk fuel loan of approximately $270,000. It is important to note existing loan obligation and proceed such that the proposed system will be self-sufficient and will not contribute to the debt burden.

Operations and Maintenance

O&M items are defined as expenses that are incurred on a regular basis to sustain the operation of utility assets and the cost of utility administration. The proposed improvements have higher O&M costs that come from lagoon maintenance, an improved water treatment system, and an improved wastewater collection system, see Table 6.

Table 6. Annual Expenses (Includes Proposed Improvements)

Expense Category	Total Annual Estimate
Administration	$4,990
Labor	$56,470
Miscellaneous Materials	$5,480
Electricity	$14,050
Fuel	$11,360
Miscellaneous	$4,100
Water Testing	$2,730
Insurance	$7,500
Training	$3,500
Repair and Replacement Account	$18,200
TOTAL	**$128,370**

Repairs and Replacement

R&R costs are those expenses defined generally as items costing more than $1,000 and having a lifespan of no greater than 15 years. R&R costs are capital cost that will be depreciated over the useful life of the item and represent the amount that should be saved each month/year to repair/replace the asset at the end of its lifespan.

Table 7 shows expected annual R&R costs for major equipment i.e. pumps, heat exchanges, boilers, and system controls associated with the water and sewer utility. In this case, the total amount that should be set aside annually for R&R is $18,200.

The Water/Sewer Manager will work with the water operators, the engineers, construction firms, and with the Remote Maintenance Worker program to develop a critical spare parts list and a critical spare parts inventory for each of the systems as they are built.

Table 7. R&R Costs

Equipment Description	Number	Cost	Useful Life	Replacement Cost	Depreciation
Raw Water Wells					
Raw water line circulation pumps	2	$500	5	$1,104	$221
Submersible well pumps	2	$1,250	5	$2,760	$552
Raw water heat exchanger	1	$3,500	15	$4,711	$314
Building					
Boiler circulation pumps	2	$500	10	$1,219	$122
Process heat circulation pumps	2	$750	10	$1,828	$183
Unit Heaters	8	$750	15	$8,075	$538
Water Treatment					
Mixers	2	$1,500	10	$3,657	$366
Filter effluent pump	1	$3,500	10	$4,266	$427
Backwash pump	1	$4,500	10	$5,485	$549
Air blower	1	$4,000	10	$4,876	$488
Chemical pumps	3	$2,000	5	$6,624	$1,325
Water Storage					
WST circulation pumps	2	$500	10	$1,219	$122
Heat exchangers	1	$2,500	15	$3,365	$224
Water Distribution					
Pressure pumps	2	$2,250	10	$5,485	$549
Water main circulation pumps	2	$750	10	$1,828	$183
Heat exchangers	1	$3,500	15	$4,711	$314
Washeteria					
Water heater	1	$3,500	10	$4,266	$427
Washers	4	$4,700	10	$22,917	$2,292
Dryers	4	$5,400	10	$26,330	$2,633
Wastewater Collection and Disposal					
Lift Station pumps	2	$3,750	10	$9,142	$914
Force main glycol circulation pumps	2	$500	10	$1,219	$122
Heat exchangers	1	$2,500	15	$3,365	$224
Sewer Haul					
ATV	1	$8,000	5	$8,833	$1,767
Hoppers	20	$1,000	10	$24,380	$2,438
Heat Recovery					
HRS circulation pumps	2	$750	10	$1,828	$183
HR system heat exchangers	2	$4,000	15	$10,767	$718
TOTAL ANNUAL CONTRIBUTION					**$18,200**

Time Line / Design Life of Major Components

The design life of the washeteria and water treatment plant building is estimated to be 30-years. The sewer lagoon will have a design life of 30-years. The washeteria and water treatment plant equipment (short lived assets) is shown in Table 7 and the various items have lives ranging from 5 to 15-years. Maintenance will have a positive effect on the design life of the building, plant, and equipment.

Net Operating Income

The potential income of the system is $28,800. This income rate assumes an 85% collection rate from residents and 100% collection rate from TNC and the school. Table 8 highlights the revenue sources and the expenses.

Table 8. Net Operating Income

Revenue		
School - Water	$	75,000
TNC Community Facilities	$	16,800
School - Sewer	$	16,800
Residential - Sewer Haul	$	16,524
User Fees from Washeteria	$	27,819
Water Sales (per gallon)	$	4,250
Total	$	**157,200**
Expenses		
Annual operation and Maintenance Costs	$	110,200
Annual Repair and Replacement Costs	$	18,190
Total	**$**	**128,370**
Net Operating Income (Loss)	**$**	**28,800**

Key Assumptions

Financial assumptions are:

- The existing residential accounts will have an 85% collection rate.
- The number of commercial accounts will not decrease.
- Revenue for the school has a 100% collection rate.
- Revenue for the TNC paid facilities has a 100% collection rate.

Section 6 Legal Authority & Issues

Ownership

TNC has one hundred percent ownership of the Water & Sewer Utility and associated facilities and equipment. The proposed improvements will also be owned by TNC.

Ordinances Related to New Project

A new ordinance will be required for any utility rate changes. TNC maintains all ordinances regulating the operation of the water and sewer utilities. No new ordinances are required for the construction or operation of the proposed improvements.

Special Permits, Licenses and Regulations

The following regulatory requirements are anticipated for construction of the proposed improvements:

- ADEC Approval to Construct and Certificate to Operate.
- ADEC SWPPP and Notice of Intent.
- USACE Wetlands Permit.
- Discharge Permit(s).
- SHPO clearance.

Key Assumptions

Key legal assumptions are:

- TNC will continue to operate the Water & Sewer Utility.
- The DEC will continue to be the regulatory authority for public water and wastewater

Section 7 Interagency Relationships

Involvement of Other Agencies

Involvement in Construction Phase

The VSW will oversee construction of the proposed improvements.

Involvement in Ongoing Operations

The Alaska Department of Commerce, Community, and Economic Development (DCCED) provides training opportunities and oversight through the RUBA program.

Funding of Major Components

The project will be funded through a combination of state and federal funds. VSW will administer project funding.

Regulatory Agencies

The primary regulatory agency for water and sewer projects is the ADEC. ADEC regulates a wide array of environmental areas. Of concern to this project is the agency's authority over operator training standards, engineering plan approval, water quality, waste water treatment, and drinking water protection areas.

The Regulatory Commission of Alaska (RCA) is another regulatory agency with jurisdiction over the water and sewer system. The RCA is the utility regulator for the state. They issue a "certificate of public convenience and necessity" to utilities after finding them "fit, willing and able" to provide the public service. The RCA has a streamlined process for smaller communities called the Application for Provisional Certificate of Public Convenience and Necessity.

Replacement Agencies

Funding for the complete replacement of the utilities at the end of their design lives has not been considered in this business plan.

Key Assumptions

Key interagency assumptions are:

- Each agency will be able to participate fully when needed.
- TNC staff will be available to work with agency representatives.

Section 8 Summary

Wrap-up

The project will be considered complete when the service mains, lift station, and WTP/W have received final approval to operate by ADEC. Completion of the proposed improvements will improve the quality of life in the community. The new WTP/W that produces better quality water for drinking and laundry is expected to help stabilize the population

Completion of the proposed improvements will improve the quality of life in the community. The new WTP/W that produces better quality water for drinking and laundry is expected to help stabilize the population. Additional attentions is needed to improve the sewer haul service. The community seems to feel that the quality of the haul service is too low to pay for. Improvements will improve community health, add value to the service, and increase fee payments.

Timelines

Completion of the force mains, school sewer connection, heat recovery system, and two cell sewage lagoon are anticipated to be completed within one construction season. Design of the WTP/W is anticipated to take 12-24 months, with construction happening in two construction seasons. Timing depends on the availability of funding.

Ability to Pay

Based on the 2016 ACS Census statistics, the mean household income is $24,625. Based upon the research and community input, it is expected that the proposed annual sewage haul rate of $240 and use of the washeteria averaging $480, see Table 9. These costs represents 3% of median household income. This falls below the guideline that utilities should not cost more than 5% of the median household income.

However, the cost of living analysis shows that at the median household income of $24,625 a yearly deficit of $6,565 occurs. This indicates that at least half of the community will face serious challenges when it comes to paying utility fees, buying food, purchasing fuel, and making ends meet. It may not be possible to meet the 85% community fee collection rate recommended to keep the water and sewer utility sustainable.

Cost of Living/ Resident Ability to Pay

Table 9. Cost of Living

Description	Average Rate	Times	Amount
Incomes Per Household			
Median Household Income			$24,625
Expenses Per Household			
Rent	$250	12	$3,000
Food	$338	52	$17,550
Electricity	$150	12	$1,800
Fuel	$190	12	$2,280
Sewer Haul	$20	12	$240
Washeteria & haul water	$40	12	$480
Airfares	$240	1	$240
Clothing	$40	12	$480
Gifts/Holidays	$400	1	$400
Other	$100	12	$1,200
Internet/Phone/Cable	$300	12	$3,600
			$31,210
	Surplus/(Deficit)		**($6,585)**

Key Assumptions

Key assumptions related to community impact are:

- The median household income from the 2012-2016 ACS Census statistics is correct.
- The estimated household expenses are reasonable and correct.
- There will be no significant increase in the cost of air and freight transportation.
- This plan has not considered the potential effect of natural disasters such as fire, flood, and earthquake.

Appendices

Appendix A: Tuluksak Vicinity Map with Existing Facilities
Appendix B: Financial Statements
Appendix C: O&M Cost Calculation
Appendix D: Water and Sewer System Current Infrastructure Details
Appendix E: Water and Sewer System Improvements
Appendix F: Resolutions and Contracts

Appendix A
Tuluksak Vicinity Map With Existing Facilities

TULUKSAK RIVER

WTP/W FACILITY

SCHOOL LAGOON

LIFT STATION

OLD SOLID WASTE DUMPSITE

WTP/W LAGOON

2003 WELLS

2005 WELLS

UTILITY CORE SITE

OLD HONEYBUCKET DUMP SITE

TO NEW AIRPORT

NEW SOLID WASTE LANDFILL

NEW COMMUNITY LAGOON SITE

NOTE:
BASEMAP FROM 2007 DCCED COMMUNITY PROFILE MAP.

LEGEND

W — WATER LINE

S — SEWER LINE

GRAPHIC SCALE

150 0 150 300

SCALE IN FEET

PROJECT:

STATUS: DRAFT

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

TULUKSAK

BUSINESS PLAN

EXISTING FACILITIES MAP

DATE: JULY 2018

SCALE: GRAPHIC

FIGURE: 1

File: \\10-DFS01\Departments\Transfer\Michelle\Tulusak BP\00 CADD\02 Figures\Business Plan\Sanitation Facilities.dwg

Appendix B
Financial Statements

FY 15 Actual Data
&
FY 16 Budget Data

TULUKSAK NATIVE COMMUNITY

2015 Actual / 2016 Projected Budget
Revenue & Expense Summary

LOCALLY GENERATED REVENUES:	FY 15 Actual	FY 16 Proj
Advance Fee Income	5,735	5,800
Fine Income		600
Gaming	80,580	81,000
Laundry Income	14,961	15,000
Clinic Income	24,884	25,000
Post Office Income	24,879	24,879
Lease Income	6,200	6,500
Sales Tax Income	14,461	14,500
State Revenue Sharing	48,574	32,520
Sewage Hauler Income	14,561	14,600
Utility (Power) Income	320,364	320,500
PCE (Energy Assistance)	53,796	54,000
Contract Support		18,563
General Other Income	10,109	10,250
Water Plant Income	65,892	70,500
TOTAL OPERATING REVENUES	**684,996**	**694,212**

EXPENSES:		FY 15 Actual	FY 16 Proj
Clinic	**Clinic Total**	17,472	18,748
Gaming :			
Operating expenses		71,526	59,734
*Donations		22,011	21,294
	Gaming Total	**93,537**	**81,028**
*General:			
Water Plant		63,272	65,786
Sewage Hauler (minus donation amount)		14,561	15,807
Teen Center		16,865	17,400
Post Office		23,759	25,088
Utilities		235,266	236,947
Laundry		33,160	34,788
Police		107,396	60,000
Community Events			400
General Admin		44,057	45,228
	General Total	**538,336**	**501,444**
TOTAL OPERATING EXPENDITURES		**649,344**	**601,219**

Balance of Income Minus Expenses	**35,653**	**92,993**

TULUKSAK NATIVE COMMUNITY

GAMING DONATIONS

2015 Actual / 2016 Projected Budget

ACCOUNTS:	FY 15 Actual	FY 16 Proj
Travel		
Member Assistance		
Sewage Hauler	22,011	21,294
Other		
Total Donations	**22,011**	**21,294**

TULUKSAK NATIVE COMMUNITY

2015 Actual / 2016 Projected Budget

Water Plant

		FY 15 Actual	FY 16 Proj
Personnel Services:	**Payroll Taxes**	3,495	3,500
	Salaries	34,094	34,250
	Worker's Compensation	1,459	1,466
	Other: _____		
	TOTAL PERSONNEL SERVICES	**39,048**	**39,216**
Facility Expenses:	**Electric**	16,085	16,250
	Fuel Oil	0	
	Telephone		
	Other:_____		
	TOTAL FACILITY EXPENSES	**16,085**	**16,250**
Supplies:	**Supplies**	5,914	6,000
	Postage/Freight	736	800
	Other:_____		
	TOTAL SUPPLIES	**6,650**	**6,800**
Equipment:	**Gas**	443	450
	Vehicle/Equipment Maintenance/Supplies	0	150
	Inspection Fee	0	350
	Other:Personal Vehicle Use	170	170
	TOTAL EQUIPMENT	**613**	**1,120**
Other Operating Expenses:			
	Water Testing	630	650
	Facility Repair	172	175
	Dues/Fees	74	75
	Training	0	1,500
	TOTAL OTHER	**876**	**2,400**
TOTALWATER PLANT BUDGET		**63,272**	**65,786**

TULUKSAK NATIVE COMMUNITY

SEWAGE HAULER

2015 Actual / 2016 Projected Budget

		FY 15 Actual	FY 16 Proj	FY 15 Pd by donations	FY 2016 Proj Pd by donations
Personnel Services:	**Payroll Taxes**	2,986	3,000		
	Salaries	29,355	29,500	22,011	21,294
	Worker's Compensation	2,304	2,316		
	Other: _____				
	TOTAL PERSONNEL SERVICES	**34,645**	**34,816**	**22,011**	**21,294**
Facility Expenses:	**Stove Oil**	0	250		
	Other:_____				
	Other:_____				
	TOTAL FACILITY EXPENSES	**0**	**250**	**0**	**0**
Supplies:					
	Supplies	413	500		
	Other:Postage	15	25		
	TOTAL SUPPLIES	**428**	**525**	**0**	**0**
Other Operating Expe	**Gas**	1,242	1,250		
	Vehicle/Equip Maintenance/Supplies	257	260		
	TOTAL OTHER	**1,499**	**1,510**	**0**	**0**
TOTAL SEWER BUDGET		**36,572**	**37,101**	**22,011**	**21,294**

TULUKSAK NATIVE COMMUNITY

LAUNDRY Budget Report

2015 Actual / 2016 Projected Budget

		FY 15 Actual	FY 16 Proj
Personnel Services:	**Payroll Taxes**	1,571	1,640
	Salaries	15,523	16,000
	Worker's Compensation	435	448
	Other: _____		
	TOTAL PERSONNEL SERVICES	**17,529**	**18,088**
Travel:	**Airfare**		
	Hotel		
	Per Diem		
	Registration Fees		
	Other:_____		
	Other:_____		
	TOTAL TRAVEL	**0**	**0**
Facility Expenses:	**Electric**	13,599	14,000
	Telephone		
	Fuel Oil		
	Equipment	400	500
	TOTAL FACILITY EXPENSES	**13,999**	**14,500**
Supplies:	**Supplies**	1,632	1,700
	Other: Freight	0	500
	Water Chemicals		
	TOTAL SUPPLIES	**1,632**	**2,200**
Other Operating Expenses:	**Operator Certifications**		
	Water Testing		
	Other:_____		
	TOTAL OTHER	**0**	**0**
TOTALLAUNDRY BUDGET		**33,160**	**34,788**

FY 16 Actual Data
&
FY 17 Budget Data

TULUKSAK NATIVE COMMUNITY

2016 Actual / 2017 Projected Budget
Revenue & Expense Summary

LOCALLY GENERATED REVENUES:	CY 16 Actual	CY 17 Proj
Advance Fee Income	3,892	3,892
Fine Income	500	500
Fund Raising- subsidized Gaming (Sewer Hauler) & Water Plant	2,113	2,113
Gaming	102,079	102,079
Laundry Income	19,943	19,943
Clinic Income	24,884	24,884
Post Office Income	24,879	24,879
Lease Income- subsidized Laundry	16,900	16,900
Sales Tax Income	23,927	24,000
State Revenue Sharing	32,566	32,520
Sewage Hauler Income	25,692	25,692
Utility (Power) Income	323,151	323,151
PCE (Energy Assistance)	118,918	118,918
Contract Support	73,873	73,873
General Other Income	581	600
Water Plant Income	60,000	60,000
RAMHA BIA Settlement	261,493	
TOTAL OPERATING REVENUES	**1,115,391**	**853,944**

EXPENSES:		CY 16 Actual	CY 17 Proj
Clinic	**Clinic Total**	20,019	20,992
Gaming :			
Operating expenses		**90,607**	**79,756**
Donations			
Sewer Hauler		4,906	4,906
Other		5,390	5,000
	Donations Total	**10,296**	**9,906**
	Gaming Total	**100,903**	**89,662**
Fundraising Donations:			
Sewer Hauler		1,393	1,393
Water Plant		720	720
	Fundraising Total	**2,113**	**2,113**
General:			
Water Plant		60,720	60,720
Sewage Hauler (paid by collections)		25,692	25,692
Teen Center		8,919	9,370
Post Office		23,719	24,875
Utilities		305,607	309,868
Laundry		23,755	18,537
Police		78,734	61,318
General Admin		92,138	38,886
Repair and Replace		15,572	18,000
	General Total	**634,856**	**567,266**
TOTAL OPERATING EXPENDITURES		**757,891**	**680,033**

Balance of Income Minus Expenses	**357,500**	**173,911**

TULUKSAK NATIVE COMMUNITY

GAMING DONATIONS

2016 Actual / 2017 Projected Budget

ACCOUNTS:	CY 16 Actual	CY 17 Proj
Sewage Hauler	4,906	4,906
Other	5,390	5,000
Total Donations	**10,296**	**9,906**

TULUKSAK NATIVE COMMUNITY

Fundraising Donations

2016 Actual/ 2017 Projected Budget

ACCOUNTS:	CY 16 Actual	CY 17 Proj
Sewage Hauler	1,393	1,393
Water Plant	720	720
Total Donations	**2,113**	**2,113**

TULUKSAK NATIVE COMMUNITY

2016 Actual / 2017 Projected Budget

Water Plant

		CY 16 Actual	CY 17 Proj
Personnel Services:	**Payroll Taxes**	3,877	3,877
	Salaries	40,077	40,077
	Other: _____		
	TOTAL PERSONNEL SERVICES	**43,954**	**43,954**
Facility Expenses:	**Electric**	7,687	7,687
	Fuel Oil		
	Telephone		
	Other:_____		
	TOTAL FACILITY EXPENSES	**7,687**	**7,687**
Supplies:	**Supplies**	2,502	2,502
	Postage/Freight	1,363	1,363
	Fundraiser Expenses	761	761
	TOTAL SUPPLIES	**4,626**	**4,626**
Equipment:	**Gas**	291	291
	Vehicle/Equipment Maintenance/Supplies		
	Inspection Fee		
	Personal Vehicle Use		
	TOTAL EQUIPMENT	**291**	**291**
Other Operating Expenses:			
	Water Testing	1,720	1,720
	Facility Repair		
	Dues/Fees	768	768
	Training	1,674	1,674
	TOTAL OTHER	**4,162**	**4,162**
TOTAL WATER PLANT BUDGET		**60,720**	**60,720**

Facility repair moved ro Repair and Replace

$720 subsidized by Fundraising in 2016

TULUKSAK NATIVE COMMUNITY

SEWAGE HAULER

2016 Actual / 2017 Projected Budget

		CY 16 Actual	CY 17 proj	CY 2016 actual Pd by donations	CY 2017 proj paid by donations	CY 2016 Paid by Fundraising	CY 2017 Proj paid by Fundraising
Personnel Services:	**Payroll Taxes**	2,747	2,747	2,747	2,747		
	Salaries	28,159	28,159	2,467	2,467	1393	1393
	Other: _____						
	TOTAL PERSONNEL SERVICES	**30,906**	**30,906**	**5,214**	**5,214**	**1,393**	**1,393**
Facility Expenses:	**Stove Oil**						
	Other:_____						
	Other:_____						
	TOTAL FACILITY EXPENSES	**0**	**0**	**0**	**0**		
Supplies:							
	Supplies	134	134	134	134		
	Postage						
	TOTAL SUPPLIES	**134**	**134**	**134**	**134**		
Other Operating Exper	**Gas**	931	931	931	931		
	Vehicle/Equip Maintenance/Supplies	20	20	20	20		
	TOTAL OTHER	**951**	**951**	**951**	**951**		
TOTAL SEWER BUDGET		**31,991**	**31,991**	**6,299**	**6,299**	**1,393**	**1,393**

TULUKSAK NATIVE COMMUNITY

LAUNDRY Budget Report

2016 Actual / 2017 Projected Budget

		CY 16 Actual	CY 17 Proj
Personnel Services:	**Payroll Taxes**	1,558	1,238
	Salaries	16,245	11,304
	Other: _____		
	TOTAL PERSONNEL SERVICES	**17,803**	**12,542**
Travel:	**Airfare**		
	Hotel		
	Per Diem		
	Registration Fees		
	Other:_____		
	Other:_____		
	TOTAL TRAVEL	**0**	**0**
Facility Expenses:	**Electric**	5,462	5,500
	Telephone		
	Fuel Oil		
	Equipment		
	TOTAL FACILITY EXPENSES	**5,462**	**5,500**
Supplies:	**Supplies**	445	450
	Freight	45	45
	TOTAL SUPPLIES	**490**	**495**
Other Operating Expenses:			
	Other:_____		
	TOTAL OTHER	**0**	**0**
TOTAL LAUNDRY BUDGET		**23,755**	**18,537**

equipment moved to Repair and replace

Lease Income subsidized Laundry $3812 for 2016

reduced budget:have to reduce costs because not sustainable

TULUKSAK NATIVE COMMUNITY

2016 Actual / 2017 Projected Budget

Repair and Replace Savings

	CY 16 Actual Budget	CY 16 Carry forward	CY 17 Proj Budget
Repair and Replace			
Utility	14,009		14,000
Water Plant	71		3,000
Laundry	1,492		1,000
TOTAL OTHER	**15,572**	**0**	**18,000**
TOTAL REPAIR & REPLACE BUDGET	**15,572**	**0**	**18,000**

FY 17 Actual Data

TULUKSAK NATIVE COMMUNITY

2017 Financial Report

Revenue & Expense Summary

December

LOCALLY GENERATED REVENUES:	**CY 17 Budget**	**Monthly**	**YTD**	**Balance**
Advance Fee Income	5,412	247	4,513	899
Fine Income			-	-
Fundraising- subsidized Gaming(Sewer Hauler)& Water Plant	171		100	71
Gaming	68,866	5,500	60,726	8,140
Laundry Income	33,800	2,295	29,325	4,475
Clinic Income	24,885		20,737	4,148
Post Office Income	24,879	2,073	24,879	-
Lease Income- subsidized Laundry	25,286	150	19,700	5,586
Sales Tax Income	13,683	4,229	15,724	(2,041)
State Revenue Sharing- pay bulk fuel loan	32,566		34,175	(1,609)
Sewage Hauler Income	22,030	2,050	22,329	(299)
Utility (Power) Income	209,283	13,350	206,069	3,214
PCE (Energy Assistance) - pay bulk fuel loan	118,918	966	63,073	55,845
Contract Support	36,358		36,358	-
General Other Income	26		15	11
Water Plant Income -subsidize sewer hauler	84,000	292	85,005	(1,005)
				-
TOTAL OPERATING REVENUES	**700,163**	**31,151**	**622,727**	**77,436**

EXPENSES:		**CY 17 Budget**	**Monthly**	**YTD**	**Balance**
Clinic	**Clinic Total**	**14,692**	**1,058**	**13,697**	**994**
Gaming :					
Operating expenses		**62,697**	**7,819**	**70,110**	**-7,412**
Donations:					
Sewage Hauler					
Other		2,648	110	3,914	-1,266
	Donations Total	**2,648**	**110**	**3,914**	**-1,266**
	Gaming Total	**65,345**	**7,929**	**74,024**	**-8,678**
Fundraising Donations:					
Sewer Hauler		175		100	75
Water Plant					
	Fundraising Total	**175**		**100**	**75**
General:					
Water Plant		48,437	4,653	44,414	4,023
Sewage Hauler (paid by collections)		22,030	2,050	22,329	-299
Sewer hauler (paid by water sewer)		14,431	825	13,013	1,418
Post Office		24,875	1,943	22,172	2,703
Teen Center		2,198		807	1,391
Utilities - Power (paid by collections)		218,870	21,199	206,069	12,801
Utilities-Power (paid by PCE)		63,073		63,073	
Utilities-Power (paid by rev sharing)		34,175		34,175	
Utilities-Power (paid by Water Plant)		13,809		13,809	
Laundry		24,033	3,072	28,507	-4,474
Police		98,163	8,968	88,681	9,482
General Admin		32,820	7,248	39,922	-7,102
Repair and Replace		21,888	393	9,590	12,298
	General Total	**618,802**	**50,350**	**586,562**	**32,240**
TOTAL OPERATING EXPENDITURES		**699,014**	**59,337**	**674,383**	**24,631**

Balance of Income Minus Expenses	**1,149**	**-28,186**	**-51,656**	**52,805**

Adjustments made to the YTD expenses/rev to reflect accurate totals & any changes in expenses/rev since the last report

State Revenue Sharing and PCE payments go to the state towards the Bulk Fuel Loans

Utility (power) Collections,PCE and Ampy payments not as high as estimated-
Water plant subsidized Utility(power) $13,809

Sewer Hauler subsidized by Water/Sewer instead of Gaming- used original budget amount will revise in 2018 budget

December

		CY 17 Budget	Monthly	YTD	Balance	Paid By Collections	YTD PD by Collections	Paid By Fundraising	YTD PD by Fundraising
Personnel Services:	**Payroll Taxes**	4,080	368	3,660	420				
	Salaries	32,045	2,692	28,442	3,603				
	Other: _____			0					
	TOTAL PERSONNEL SERVICES	**36,125**	**3,059**	**32,102**	**4,023**				
Facility Expenses:	**Electric**			0	0				
	Fuel Oil	0		0	0				
	Telephone			0	0				
	Donantion for Christmas to Church	500	500	500	0				
	TOTAL FACILITY EXPENSES	**500**	**500**	**500**	**0**				
Supplies:	**Supplies**	3,143	533	3,143	0				
	Postage/Freight	4,166	138	4,166	0				
	Fundraising expenses				0				
	TOTAL SUPPLIES	**7,309**	**671**	**7,309**	**0**				
Equipment:	**Gas**	25		25	0				
	Vehicle/Equipment Maintenance/Supplies				0				
	Inspection Fee			0	0				
	Personal vehicle mileage	153		153	0				
	TOTAL EQUIPMENT	**178**	**0**	**178**	**0**				
Other Operating Expenses:									
	Water Testing	699	200	699	0				
	Facility Repair			0	0				
	Dues/fees	685	123	685	0				
	Training	2,941	100	2,941	0				
	TOTAL OTHER	**4,325**	**423**	**4,325**	**0**				
TOTAL WATER PLANT BUDGET		**48,437**	**4,653**	**44,414**	**4,023**	**292**	**85,005**	**0**	**0**

Adjusted Budget to Balance

TULUKSAK NATIVE COMMUNITY

2017 Financial Report SEWAGE HAULER

December

		CY 17 Budget	Monthly	YTD	Balance	Paid by Collections	YTD paid by Collections	Paid by Water/Sewer	YTD paid by Water Sewer	Paid by Fundraising Donation	YTD paid by Fundraising Donations
Personnel Services:	**Payroll Taxes**	5,207	458	5,207	0						
	Salaries	29,948	2,341	28,829	1,119						
	Other: _____				0						
	TOTAL PERSONNEL SERVICES	**35,155**	**2,799**	**34,036**	1,119						
Facility Expenses:	**Stove Oil**	0		0	0						
	Other:_____			0	0						
	Other:_____			0	0						
	TOTAL FACILITY EXPENSES	**0**	**0**	**0**	0						
Supplies:				0	0						
	Supplies	311		311	0						
	Postage	60		60	0						
	TOTAL SUPPLIES	**371**	**0**	**371**	0						
Other Operating Exp	**Gas**	890	76	890	0						
	Vehicle/Equip Maintenance/Supplies	145		145	0						
				0	0						
	TOTAL OTHER	**1,035**	**76**	**1,035**	**0**						
TOTAL SEWER BUDGET		**36,561**	**2,875**	**35,442**	**1,119**	**2050**	**22,329**	**825**	**13,013**	**0**	**100**

Adjusted Budget to Balance

TULUKSAK NATIVE COMMUNITY

2017 Financial Report LAUNDRY

December

		CY 17 Budget	Monthly	YTD	Balance	Paid by Collections	YTD Paid by Collections	Subsidized by Lease Income	YTD Subsidized by Lease Income
Personnel Services:	**Payroll Taxes**	2,429	308	2,921	-492				
	Salaries	20,391	2,413	23,476	-3,085				
	Other: _____				0				
	TOTAL PERSONNEL SERVICES	**22,820**	**2,720**	**26,398**	**-3,578**				
Travel:	**Airfare**				0				
	Hotel				0				
	Per Diem				0				
	Registration Fees				0				
	Other:_____				0				
	Other:_____				0				
	TOTAL TRAVEL	**0**	**0**	**0**	**0**				
Facility Expenses:	**Electric**				0				
	Telephone	128		128	0				
	Fuel Oil				0				
					0				
	TOTAL FACILITY EXPENSES	**128**	**0**	**128**	**0**				
Supplies:	**Supplies**	377	352	1,070	-693				
	Freight	237		440	-203				
					0				
	TOTAL SUPPLIES	**614**	**352**	**1,510**	**-896**				
Other Operating Expenses:	**fees**	12		12	0				
	Vehicle Gas	144		144	0				
	Personal Milage reimbursement	315		315	0				
	TOTAL OTHER	**471**	**0**	**471**	**0**				
TOTAL LAUNDRY BUDGET		**24,033**	**3,072**	**28,507**	**-4,474**	**2,295**	**29,325**		

adjusted budget to balance

Expenses went over budget amount. However, Collections are higher than budgeted. They cover Dec expenses and YTD expenses

TULUKSAK NATIVE COMMUNITY

2017 Financial Report

December

Repair and Replace Savings

	CY 17 Actual Budget	Monthly	YTD	Balance
Repair and Replace				
Utility(Power)	17,028	269	7,607	9,421
Water Plant	3,000	124	124	2,876
Laundry	1,860		1,860	0
TOTAL OTHER	**21,888**	**393**	**9,590**	**12,298**
TOTAL REPAIR & REPLACE BUDGET	**21,888**	**393**	**9,590**	**12,298**

Adjusted budget to balance

balance stays in savings and is carryforward to next year balance

TULUKSAK NATIVE COMMUNITY

Fundraising Donations

2017 Financial Report

December

ACCOUNTS:	CY 17 Budget	Monthly	YTD	Balance
Sewage Hauler	175	0	100	75
Water Plant		0	0	0
Total Donations	**175**	**0**	**100**	**75**

FY 18 Budget Data

TULUKSAK NATIVE COMMUNITY

2018 Financial Report
Revenue & Expense Summary
January

LOCALLY GENERATED REVENUES:	CY 18 Budget	Monthly	YTD	Balance
Advance Fee Income	4,654	161	161	4,493
Laundry Income	31,110	1,522	1,522	29,588
Clinic Income	9,600			9,600
Post Office Income	27,879	2,073	2,073	25,806
Lease Income- subsidized Laundry	16,000			16,000
Sales Tax Income	16,200	1,834	1,834	14,366
State Revenue Sharing- pay bulk fuel loan	34,175			34,175
Sewage Hauler Income	22,123	894	894	21,229
Utility (Power) Income	212,700	16,396	16,396	196,304
PCE (Energy Assistance) - pay bulk fuel loan	72,000	6,747	6,747	65,253
Contract Support	36,538			36,538
General Other Income	18			18
Water Plant Income -subsidize sewer hauler	92,500	74	74	92,427
				-
TOTAL OPERATING REVENUES	**575,497**	**29,700**	**29,700**	**545,797**

EXPENSES:		CY 18 Budget	Monthly	YTD	Balance
Clinic	**Clinic Total**	**9,600**	**1,357**	**1,357**	**8,243**
General:					
Water Plant		40,459	2,348	2,348	38,111
Sewage Hauler (paid by collections)		22,123	894	894	21,229
Sewer hauler (paid by water sewer)		13,406	1,478	1,478	13,406
Post Office		22,069	1,808	1,808	20,261
Teen Center		967			967
Utilities		325,037	8,180	8,180	303,857
Laundry		28,330	1,772	1,772	26,558
Police		71,873	5,075	5,075	66,798
General Admin		38,048	12,643	12,643	25,405
Repair and Replace		3,000	336	336	2,664
	General Total	**565,312**	**34,535**	**34,535**	**519,255**
TOTAL OPERATING EXPENDITURES		**574,912**	**35,892**	**35,891**	**527,499**

Balance of Income Minus Expenses	**585**	**-6,192**	**-6,191**	**18,298**

Adjustments made to the YTD expenses/rev to reflect accurate totals & any changes in expenses/rev since the last report

State Revenue Sharing and PCE payments go to the state towards the Bulk Fuel Loans

TULUKSAK NATIVE COMMUNITY

2018 Financial Report Water Plant

January

		CY 18 Budget	Monthly	YTD	Balance	Paid By Collections	YTD PD by Collections
Personnel Services:	**Payroll Taxes**	3,591	188	188	3,403		
	Salaries	28,092	1,309	1,309	26,783		
	Other: _____						
	TOTAL PERSONNEL SERVICES	**31,683**	**1,497**	**1,497**	**30,186**		
Facility Expenses:	**Electric**				0		
	Fuel Oil	0			0		
	Telephone				0		
	Other:_____				0		
	TOTAL FACILITY EXPENSES	**0**	**0**	**0**	**0**		
Supplies:	**Supplies**	2,848	851	851	1,997		
	Postage/Freight	1,394			1,394		
	Fundraising expenses				0		
	TOTAL SUPPLIES	**4,242**	**851**	**851**	**3,391**		
Equipment:	**Gas**	27			27		
	Vehicle/Equipment Maintenance/Supplies	83			83		
	Inspection Fee				0		
	Personal vehicle mileage	167			167		
	TOTAL EQUIPMENT	**277**	**0**	**0**	**277**		
Other Operating Expenses:							
	Water Testing	544			544		
	Facility Repair				0		
	Dues/fees	614			614		
	Training	3,099			3,099		
	TOTAL OTHER	**4,257**	**0**	**0**	**4,257**		
TOTAL WATER PLANT BUDGET		**40,459**	**2,348**	**2,348**	**38,111**	**74**	**74**

TULUKSAK NATIVE COMMUNITY

2018 Financial Report SEWAGE HAULER

January

		CY 18 Budget	Monthly	YTD	Balance	Paid by Collections	YTD paid by Collections	Paid by Water/Sewer	YTD paid by Water Sewer
Personnel Services:	**Payroll Taxes**	5,181	367	367	4,814				
	Salaries	28,896	1,863	1,863	27,034				
	Other: _____				0				
	TOTAL PERSONNEL SERVICES	**34,077**	**2,229**	**2,229**	31,848				
Facility Expenses:	**Stove Oil**				0				
	Other:_____				0				
	Other:_____				0				
	TOTAL FACILITY EXPENSES	**0**	**0**	**0**	0				
Supplies:					0				
	Supplies	340			340				
	Postage	65			65				
	TOTAL SUPPLIES	**405**	**0**	**0**	405				
Other Operating Exp	**Gas**	888	93	93	795				
	Vehicle/Equip Maintenance/Supplies	158	50	50	108				
					0				
	TOTAL OTHER	**1,046**	**143**	**143**	**903**				
TOTAL SEWER BUDGET		**35,528**	**2,372**	**2,372**	**33,156**	**894**	**894**	**1,478**	**1,478**

Water sewer to subsidize Sewer Hauler

TULUKSAK NATIVE COMMUNITY

2018 Financial Report LAUNDRY

January

		CY 18 Budget	Monthly	YTD	Balance	Paid by Collections	YTD Paid by Collections	Subsidized by Lease Income	YTD Subsidized by Lease Income
Personnel Services:	**Payroll Taxes**	2,851	177	177	2,674				
	Salaries	22,979	1,388	1,388	21,592				
	Other: _____				0				
	TOTAL PERSONNEL SERVICES	**25,830**	**1,564**	**1,564**	**24,266**				
Travel:	**Airfare**				0				
	Hotel				0				
	Per Diem				0				
	Registration Fees				0				
	Other:_____				0				
	Other:_____				0				
	TOTAL TRAVEL	**0**	**0**	**0**	**0**				
Facility Expenses:	**Electric**				0				
	Telephone	780	182	182	598				
	Fuel Oil				0				
					0				
	TOTAL FACILITY EXPENSES	**780**	**182**	**182**	**598**				
Supplies:	**Supplies**	784			784				
	Freight	480			480				
					0				
	TOTAL SUPPLIES	**1,264**	**0**	**0**	**1,264**				
Other Operating Expenses:	**fees**	14	25	25	-11				
	Vehicle Gas	157			157				
	Personal Milage reimbursement	285			285				
	TOTAL OTHER	**456**	**25**	**25**	**431**				
TOTAL LAUNDRY BUDGET		**28,330**	**1,772**	**1,772**	**26,558**	**1,522**	**1,522**	**250**	**250**

TULUKSAK NATIVE COMMUNITY

2018 Financial Report

January

Repair and Replace Savings

	CY 18 Actual Budget	Monthly	YTD	CY 2017 Carryforward	Balance in Savings Account
Repair and Replace					
Utility	1,000	336	336	9,691	10,355
Water Plant	1,000			3,000	4,000
Laundry	1,000				1,000
TOTAL OTHER	**3,000**	**336**	**336**	**12,691**	**15,355**
TOTAL REPAIR & REPLACE BUDGET	**3,000**	**336**	**336**	**12,691**	**15,355**

balance stays in savings and is carryforward to next year balance

Appendix C
O&M Cost Calculations

ADMINISTRATION

System Data:

Washeteria / WTP bldg
Water storage tank
Water line to the school
Community watering point
Two wells
Sewage lagoon - single cell percolating

Operational Assumptions:

Avg burdened labor rate for admin staff	$16	/hr
Administrative labor	6	hr/wk
Average Daily Water Demand	4,350	gpd

Other Assumptions

Misc supplies	$500	/yr
Postage / freight	$1,000	/yr
Insurance (for the W / WTP bldg)	$7,500	/yr
Travel and training	$3,500	/yr

Total Estimated Annual Costs for Utility Administration

Labor		$4,992
Materials		$500
Electricity		$0
Heating Oil		$0
Miscellaneous		$12,000
R&R Cost (Short Lived Assets)		$0
	Total	**$17,492**

UTILITY CORE SITE 2005 WELLS

System Data:

Average Daily Demand	4,350	gpd
Number of wells	2	
Well pump size	1	hp
Well pump flow rate	20	gpm
Length of raw water transmission line	250	feet

Operational Assumptions:

Burdened labor rate for WTP operator	$18	/hr
Labor to operate and maintain the wells	1	hr/week
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	gallon
Operation of the well pump(s)	On-demand	
Operation of raw water circ pump	9	months/yr @ 24 hrs/day
Available energy of heating fuel	110,000	BTU/gallon
Heat loss for buried arctic pipe	3	BTU/ft/hr
Cost to clean and redevelop a well	$2,500	
Frequency of well cleaning/redevelopment	10	years
Misc materials and supplies	$100	/yr

Estimated Annual Costs

Electrical Demand:	Power	Average Usage (hrs/year)	Annual Demand (kwh)	Annual Cost
Submersible Pump	1.0 hp	1323	987	$533
Circ Pump	0.25 hp	6570	1,225	$661
			Total	$1,194

Heating Demand:	Hourly Demand BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
Raw water transmission line	750	4,925	45	$179
			Total	$179

Miscellaneous	Quantity	Cost	Frequency (years)	Annual Cost
Well Maintenance	2	$2,500	10	$500
			Total	$500

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
Submersible pumps (2)	$2,500	5 yr	$552
Raw water circ pump (2)	$1,000	5 yr	$221
Raw water heat exchanger	$3,500	15 yr	$314
Inflation rate	2 %	Total	$1,087

Total Estimated Annual Costs for the Wells

Labor		$936
Materials		$100
Electricity		$1,194
Heating Oil		$179
Miscellaneous		$500
R&R Cost (Short Lived Assets)		$1,087
	Total	**$3,996**

$ 0.0025 /gallon of water

WATER DISTRIBUTION SYSTEM

System Data:

Average Daily Demand	4,350	gallons
Pressure pump size	2	hp
Pressure pump flow rate	35	gpm
Operation of the pressure pumps	On-demand	
Water main circ pump size	0.25	
Water main circ pump flow rate	20	gpm
Operation of the water main circ pump	9	months/yr @ 24 hrs/day
Length of the water line to the school	1,400	feet

Operational Assumptions:

Burdened labor rate for an Operator	$18	/hr
Labor - Water distribution system	1	hr/wk
Misc materials and supplies	$100	/yr
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	/gallon
Available energy of heating fuel	110,000	BTU
Heat loss for buried arctic pipe	3	BTU/ft/hr

Estimated Annual Costs

Electrical Demand:	Power	Average Usage (hr/day)	Annual Demand (kwh)	Annual Cost
Pressure pumps	2 hp	2.1	1,128	$609
Water line circ pumps	0.25 hp	24	1,224	$661
Watering point heat trace	100 watts	24	657	$355
			Total	$1,625

Heating Demand:	Quantity	BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
Water line to the school	4,200		27,579	251	$1,003
				Total	$1,003

Miscellaneous		Cost	Frequency	Annual Cost
None	0	$0		$0
			Total	$0

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
Pressure pumps (2)	$4,500	10 yr	$549
Circulation pumps (2)	$1,500	10 yr	$183
Heat Exchanger	$3,500	15 yr	$314
Inflation rate	2 %	Total	$1,045

Estimated Annual Costs for Water Distribution

Labor		$936
Materials		$100
Electricity		$1,625
Heating Oil		$1,003
Miscellaneous		$0
R&R Cost (Short Lived Assets)		$1,045
	Total	$4,709

$ 0.0030 /gallon of water

POWER PLANT HEAT RECOVERY SYSTEM

System Data:

Estimated available heat	200,000	BTU/hr
Heating demands		
Raw water transmission line	750	BTU/hr
Water treatment plant building	33,648	BTU/hr
Raw water heat addition	99,600	BTU/hr
WST piping	250	BTU/hr
Water storage tank	472	BTU/hr
Water line to the school	4,200	BTU/hr
Dryer heating	101,025	BTU/hr
Dryer Makeup Air	31,590	BTU/hr
Water Heater - Washers	8,173	BTU/hr
Water Heater - Showers	1,877	BTU/hr
Lift station wet well	500	BTU/hr
Force main to the lagoon	7,500	BTU/hr
Peak heat demand	289,584	BTU/hr
Continous heat demand	47,320	BTU/hr
HR circ pump size	1.0	hp
Circ pump flow rate	25	gpm
Length of heat recovery lines	350	feet

Operational Assumptions:

Burdened labor rate for WTP operator	$18	/hr
Labor to operate and maintain HR system	1	hr/week
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	gallon
Operation of HR circ pump	12	months/yr @ 24 hrs/day
Available energy of heating fuel	110,000	BTU/gallon
Heat loss for buried arctic pipe		BTU/ft/hr
Misc materials and supplies	$100	/yr

Estimated Annual Costs

Electrical Demand:	Power	Average Usage (hrs/year)	Annual Demand (kwh)	Annual Cost
HR circ pump	1.0 hp	8760	6,532	$3,527
			Total	$3,527

Heating Supply from HR:	Quantity BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Savings
Continuous heat demand	47,320	310,721	2,825	-$11,299
Raw water heat addition	99,600	131,783	1,198	-$4,792
Dryer makeup air	31,590	78,849	717	-$2,867
Washers	8,173	20,400	185	-$742
Showers	1,877	4,684	43	-$170
			Total	-$19,870

Miscellaneous	Quantity	Cost	Frequency (years)	Annual Cost
None	0	$0		$0
			Total	$0

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
HR circ pumps (2)	$1,500	10 yr	$183
HR system heat exchanger (2)	$8,000	15 yr	$718
Inflation rate	2 %	Total	$901

Total Estimated Annual Costs for the HR System

Labor	$936
Materials	$100
Electricity	$3,527
Heating Oil	-$19,870
Miscellaneous	$0
R&R Cost (Short Lived Assets)	$901
Total	**-$14,406**

WATER TREATMENT SYSTEM

System Data:

Type of system: Oxidation with Conventional Filtration		
Design flow rate	20	gpm
Average Daily Demand	4,350	gpd

Operational Costs:

Burdened labor rate for an Operator	$18	/hr
Labor to treat the water	20	hr/week
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	/gallon
Available energy of heating fuel	110,000	BTU/gal
Raw water heat addition ($10^{o}F$)	83	BTU/gallon

Estimated Annual Costs

Electrical Demand		Average Usage (hrs/year)	Annual Demand (kwh)	Annual Cost
Oxidizer Pump	45 watts	1,323	60	$32
Polymer Pump	0.33 hp	1,323	326	$176
Chlorine Pump	45 watts	1,323	60	$32
Mixers(2)	0.33 hp	104	26	$14
Floc Drive	0.33 hp	1,323	326	$176
Filter Effluent Pump	0.75 hp	1,323	740	$400
Backwash Pump	3 hp	26	58	$31
Air Blower	2 hp	26	39	$21
			Total	$882

Heating Demand:	Hourly Demand BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
Raw water heat addition	99,600	131,783	1,198	$4,792
			Total	$4,792

Miscellaneous

Chemicals	Unit Cost w/ Freight	Annual Use (lbs/gallons)	Annual Cost
Potassium permanganate	$15.00 /lb	69	$1,029
Coagulants	$90.00 /gallon	13	$1,153
Calcium hypochlorite	$6.50 /lb	77	$498
		Total	$2,679

Water Quality Analysis:	Cost	Frequency	Annual Cost
Total Coliform	$50.00 /ea	1 /month	$600
Arsenic	$45.00 /ea	1 /yr	$45
TTHM/HAA5	$350.00 /ea	4 /yr	$1,400
Lead and Copper	$80.00 /ea	1 /yr	$80
Sample shipment	$50.00 /ea cooler	1 /month	$600
		Total	$2,725

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
Chemical Pumps (3)	$6,000	5 yr	$1,325
Mixers (2)	$3,000	10 yr	$366
Filter Effluent Pump	$3,500	10 yr	$427
Backwash Pump	$4,500	10 yr	$549
Air Blower	$4,000	10 yr	$488
Inflation rate	2 %	Total	$3,153

Total Estimated Annual Costs for Water Treatment

Labor	$18,720
Materials	$2,679
Electricity	$882
Heating Oil	$4,792
Miscellaneous	$2,725
R&R Cost (Short Lived Assets)	$3,153
Total	$32,952

$0.0208 /gallon of water

WTP / WASHETERIA BUILDING

System Data:

Average Daily Demand	4,350	gpd
WTP / Washeteria Building Area	2,592	sf
Number of unit heaters	8	

Operational Costs:

Burdened labor rate for the Operator	$18	/hr
Labor - Operation and maintenance of building	4	hr/wk
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	/gallon
Available energy of heating fuel	110,000	BTU/gal
Misc Materials and Supplies	$500	/yr

Estimated Annual Costs

Electrical Demand:	Power	Average Usage (hr/day)	Annual Demand (kwh)	Annual Cost
Building unit heaters	50 watts	8	1,168	$631
Building lights	0.4 watts/ft2	8	3,027	$1,635
Boilers	0.33 hp	6	539	$291
Boiler circ pump	0.17 hp	24	1,110	$600
Process circ pump	0.25 hp	24	1,633	$882
			Total	$4,038

Heating Demand:	Hourly Demand BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
WTP/W Bldg (maintained @ 68 F)	33,648	220,944	2,009	$8,034
			Total	$8,034

Miscellaneous	Quantity	Cost		Annual Cost
None	0	$0		$0
			Total	$0

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
Unit Heaters (8 total)	$6,000	15 yr	$538
Boiler circ pumps (2)	$1,000	10 yr	$122
Process circ pumps (2)	$1,500	10 yr	$183
Inflation rate	2 %	Total	$843

Total Estimated Annual Costs for the WTP/Washeteria Bldg

Labor		$3,744
Materials		$500
Electricity		$4,038
Heating Oil		$8,034
Miscellaneous		$0
R&R Cost (Short Lived Assets)		$843
	Total	$17,160

$0.0108 /gallon of water

WATER STORAGE TANK

System Data:

Average Daily Demand	4,350	gallons
Water Storage Tank Diameter	20	ft
Water Storage Tank Height	16	ft
Storage Volume	35,000	gallons
Length of WST piping	50	feet

Operational Assumptions:

Burdened labor rate for an Operator	$18	/hr
Operation and maintenance of WST	1	hr/wk
Misc materials and supplies	$100	/yr
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	/gallon
Available energy of heating fuel	110,000	BTU
Operation of raw water circ pump	9	months/yr @ 24 hrs/day
Heat loss for above grade arctic pipe	5	BTU/ft/hr
WST interior temperature	45	F
WST cleaning (interior)	$1,000	/ 2 years
WST coating inspection and repairs	$5,000	/ 5 years

Estimated Annual Costs

Electrical Demand:	Power	Average Usage (hrs/year)	Annual Demand (kwh)	Annual Cost
Water Circulation Pumps	0.15 hp	6566	734	$397
			Total	$397

Heating Demand:	Hourly Demand BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
WST piping	250	2,190	20	$80
Water storage tank	472	4,136	38	$150
			Total	$230

Miscellaneous	Cost	Frequency	Annual Cost
WST cleaning (interior)	$1,000	Every 2 yrs	$500
WST coating inspection and repairs	$3,000	Every 5 yrs	$600
		Total	$1,100

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
Water Circulation Pumps (2)	$1,000	10 yr	$122
Heat Exchanger	$2,500	15 yr	$224
Inflation rate	2 %	Total	$346

Total Estimated Annual O & M Costs for Water Storage

Labor		$936
Materials		$100
Electricity		$397
Heating Oil		$230
Miscellaneous		$1,100
R&R Cost (Short Lived Assets)		$346
	Total	$3,109

$ 0.0020 /gallon of water

LAUNDRY EQUIPMENT AND SHOWERS

System Data:

Number of washers	4	each
Number of dryers	4	each
Average number of washer loads each day	14	
Average number of dryer loads each day	12	
Washer load duration	0.5	hr
Dryer load duration	0.5	hr
Washer water use	28	gallons/load
Washer water temperature	65	F
Average number of showers taken each day	1.5	
Shower flow rate	2	gpm
Shower water temperature	105	F
Shower duration	10	minutes

Operational Assumptions:

Burdened rate for washeteria attendant/custodian	$14	/hr
Washeteria operation	8	hr/day
	7	days/week
Labor for washeteria attendant (~4hrs/day)	30	hr/wk
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	/gallon
Water	$0.0481	/gallon
Misc materials and supplies	$300	/yr
Washer and dryer maintenance	$1,000	/yr
Available energy of heating fuel	110,000	BTU
Dryer heating	134,700	BTU/hr
Makeup air per dryer	500	cfm

Estimated Annual Costs

Electrical Demand:	Load Amps	kwh/load	Average Usage (kwh/day)	Annual Usage (kwh/yr)	Annual Cost
20 lb Washers	3.6	0.37	5.2416	1,635	$883
30 lb Dryers	3.2	0.33	3.9936	1,246	$673
				Total	$1,556

Heating Demand:	Heating Demand (BTU/load)	Daily Demand (BTU/day)	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
Dryer heating	67,350	808,200	252,158	2,292	$9,169
Dryer makeup air	21,060	252,720	78,849	717	$2,867
Water heater - washers	4,670	65,386	20,400	185	$742
Water heater - showers	10,008	15,012	4,684	43	$170
				Total	$12,949

Miscellaneous	Quantity	Cost	Frequency	Annual Cost
Washer and dryer maintenance	1	$1,000	Each year	$1,000
			Total	$1,000

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
Washers (4)	$18,800	10 yr	$2,292
Dryers (4)	$21,600	10 yr	$2,633
Water Heater (1)	$3,500	10 yr	$427
Inflation rate	2 %	Total	$5,351

Estimated Annual Costs for Laundry Equipment and Showers

Labor	$21,840
Materials	$300
Electricity	$1,556
Heating Oil	$12,949
Miscellaneous	$1,000
R&R Cost (Short Lived Assets)	$5,351
Total	$42,996

Approximate Unit Costs for Laundry and Showers

Washer Load	$4.02
Dryer Load	$5.66
Shower	$9.43

WASTEWATER COLLECTION AND DISPOSAL

System Data:

Average Daily Demand	4,350	gallons
Washeteria wastewater flow	400	gallons/day
Backwash wastewater flow	6,790	gallons/week
Lift station pump size	5	hp
Lift station pump flow rate	100	gpm
Operation of the lift station pumps	On-demand	
Force main glycol circ pump size	0.25	
Force main glycol circ pump flow rate	10	gpm
Operation of the force main glycol circ pump	9	months/yr @ 24 hrs/day
Length of force main to the new lagoon	2,500	feet

Operational Assumptions:

Burdened labor rate for an Operator	$18	/hr
Labor - Wastewater collection system	10	hr/wk
Misc materials and supplies	$100	/yr
Electricity	$0.54	/kwh with PCE credit
Heating oil	$4.00	/gallon
Available energy of heating fuel	110,000	BTU
Heat loss for buried arctic pipe	3	BTU/ft/hr
Lagoon maintenance	$500	/yr

Estimated Annual Costs

Electrical Demand:	Power	Average Usage (hr/day)	Annual Demand (kwh)	Annual Cost
Lift station pumps	5 hp	0.2	311	$168
FM glycol circ pumps	0.25 hp	24	1,224	$661
			Total	$829

Heating Demand:	Quantity	BTU/hr	Annual Demand (MBTU)	Annual Demand (gal of fuel)	Annual Cost
Lift station wet well	500		3,283	30	$119
Force main to the lagoon	7,500		49,248	448	$1,791
				Total	$1,910

Miscellaneous	Quantity	Cost	Frequency	Annual Cost
Lagoon maintenance	2	$500	Each year	$1,000
			Total	$1,000

Capital Equipment Replacement:	Cost	Expected Equipment Life	Annual Cost
Lift station pumps (2)	$7,500	10 yr	$914
Circulation pumps (2)	$1,000	10 yr	$122
Heat Exchanger	$2,500	15 yr	$224
Inflation rate	2 %	Total	$1,260

Estimated Annual Costs for Wastewater Collection and Disposal

Labor	$9,360
Materials	$100
Electricity	$829
Heating Oil	$1,910
Miscellaneous	$1,000
R&R Cost (Short Lived Assets)	$1,260
Total	$14,460

$ 0.0091 /gallon of water

SEWER HAUL

System Data:

User Data

Wastewater Production	0.5	gpd
Total number of Homes	81	Households
Population (future)	447	People
Population (current)	367	people

System Data:

Haul Vehicle: Honda 400 Four-wheeler

Fuel Tank size	4	gallons
Fuel Efficiency	10	mpg
Distance traveled to empty Hopper	1	Mile (ave dist)
Estimated fuel usage	0.10	gallon per trip
Roundtrip time for scheduled sewage collection	20	Minutes
Roundtrip time for unscheduled sewage collection	30	Minutes
General maintenance of the system	5	minutes per trip

Servie Data

Honey Bucket Capacity	5	gallon
Hopper Volume	30	inches - bottom width
	40	inches - top width
	30	inches - depth
	200	gallons - Total hopper Folume
Number of Hoppers	20	Hoppers
	4000	Total Hopper Volume Available
Volume of waste Per day	224	Gallon waste generated per da
Frequency needed to empty Hoppers	0.06	Times per day

Operational Assumptions:

Burdened labor rate for Sewage Haulerr	$18	/hr
Labor to operate Sewer Haul Per day (2 people 4 h	8.0	hr/day
Labor to operate Sewer Haul Per Week (5 day weel	40.0	hr/week
Electricity	$0.54	/kwh with PCE credit
Gas	$5.85	gallon
Operation	12	months/yr
Available energy of heating fuel	110,000	BTU/gallon
Heat loss for buried arctic pipe		BTU/ft/hr
Misc materials and supplies	$500	/yr

Estimated Annual Costs

Fuel Demand	Miles	Average Usage (miles/year)	Annual Fuel Demand (gallons)	Annual Cost
	10.0 miles	3650	365	$2,135
			Total	$2,135

Miscellaneous	Quantity	Cost	Frequency (years)	Annual Cost
				$0
			Total	$0

R&R Costs (Short Lived Assets):	Cost	Expected Equipment Life	Annual Cost
ATV Honda 500 (1)	$8,000	5 yr	$1,767
Hoppers (20)	$20,000	10 yr	$2,438
Inflation rate	2 %	Total	$4,205

Total Estimated Annual Costs for the HR System

Labor	$7,488
Materials	$500
Electricity	$0
Gas	$2,135
Miscellaneous	$0
R&R Cost (Short Lived Assets)	$4,205
Total	**$14,328**

Appendix D
Current Infrastructure Details

Current Infrastructure Details

Water Source:

TNC uses groundwater as its water supply source, with a 6-inch cased well located outside the combined WTP/W building. The well is approximately 56-feet deep and has been in use for well over 20 years. Water from the well is high in iron and manganese. The well does not meet ADEC separation distance from fuel storage.

Water Treatment Plant and Storage:
The existing water treatment facility and system was built in 1982. The structures is in reasonable condition while the finishes, appliances, controls, and equipment are beyond the point of repair. The Class 1 system uses treatment with potassium permanganate to remove iron. Sodium hypochlorite is added to disinfect the water. Water is then filtered, settled in a 10,000 gallon indoor tank and held in another 10,000 gallon indoor tank before being pumped to the washeteria (which is used as a public watering point).The capacity of the treatment system with everything working properly is about 4,500 gallons per day (gpd). Current challenges with the system include:

- The raw water supply line from the well periodically freezes.
- The discharge line to the lagoon freezes at least once every winter.
- A broken or plugged manifold in the sand filter will not allow the media to be backwashed.
- Fuel shortages due to insufficient storage capacity and poor planning/management.
- Community power outages which disrupt the treatment process and are one of the causes for the water supply line freezing.

The two 10,000-gallon WSTs are 35-year-old uninsulated, bolted steel tanks. They have been repaired multiple times and, in 2003, were retrofitted with liners to limit leakage. Condensation from the tanks is a problem and is the cause for floor rot in the WTP.

Washeteria and Watering Point:
Homes and public facilities use self-hauled water from the Washeteria watering point or the river. The school, teacher housing, which consists of 6 to 8 buildings, and the Construction Camp/Hotel are connected to water and sewer. TNC operates the washeteria which has four functioning washing machines, two dryers, and one functioning toilet/shower room. Most customers purchase a dryer load for each washer load, but some residents do fewer dryer loads and hang their clothes at home to dry.

A review of the daily sales sheets for the washeteria indicates usage varies from four to 24 loads of laundry per day, with an average of about 14 loads per day. The facility has the capacity for about 40 loads per day. If every household in the community used the facility to wash two loads of laundry per week, the average daily usage would be about 27 loads per day. One explanation provided for the relatively low usage is that the facility has been so unreliable many homeowners have purchased their own washing machines (Danby brand or similar). Fees are collected by the Washeteria attendant and can be paid with cash.

Use of the watering point is low; sales average about 40 gpd for the entire population (367 people). The primary complaints about the water include; taste, chlorine smell, dirty looking (see Photo 1), makes people sick, and skin rashes.

Photo 2 – Drinking water sample from the WTP

Sewage Disposal:

Sewage from the WTP/W is discharged into an un-permitted single cell percolation lagoon, located 200 feet south of the community via a 4" gravity sewer main. Above ground sewer lines, force mains, and small lift stations convey wastewater from the school/teacher housing to a single cell un-permitted lagoon 100 feet from the east side of the school. The school and TNC each maintain their own wastewater collection lines to their individual lagoons. A water and a sewer service line to the Construction Camp/Hotel is maintained by TNC, the facility wastewater flows in to the village owned WTP/W lagoon.

The school, teacher housing, construction camp/Hhotel, and the washeteria have toilets. The rest of the community utilizes a honey bucket haul system where residents haul their waste in 5-gallon buckets to one of approximately 20 honey bucket hoppers (80-gallon high density polyethylene HDPE containers) scattered throughout the community. The TNC transports and dumps the hoppers in the honey bucket portion of the new Community Lagoon. Most of the hoppers have leaks, or their lids are missing, therefore raw sewage leaks/spills on the roads during transport. The areas around the hoppers are unsanitary and the hoppers are rarely cleaned. Some residents dump greywater next to their homes to reduce the amount of wastewater they have to haul and avoid the collection stations. The old honey bucket pit near the landfill is no longer used.

Power Plant:

A Powerhouse upgrade project was completed in 2004. The new facility meets current regulations and codes. The upgrade included the installation of new, fuel efficient generators, automatic load-sensing switchgear, used-oil blending equipment and the heat recovery equipment for a future water plant that will significantly reduce the amount of fuel imported into the village for years to come. Note that in the last few years, the TNC power plant has had frequent outages. On rare occasions the power is off for several days. Some generators have been damaged beyond repair. The quantity of fuel available is limited by the small storage volume of the tank farm. The school operates an independent power plant. TNC is not a member of AVEC.

Proposed Infrastructure Details

Water Source:
The proposed water source is groundwater from the two wells drilled near the Utility Core Site in 2005. Both wells are capable of producing up to 75 gpm, and the water is of relatively good quality.

Water Treatment:
The proposed water treatment system should be sized to provide at least 43,000 gallons per week (2038 design demand), without the need for the operators to work weekends or overtime. A flow rate of 20 gpm should meet this goal and not exceed the available heat from the Power Plant for raw water heat addition. The treatment facility should be designed for the removal of organics, iron, manganese, arsenic, and color. Conventional treatment with pre-oxidation and a packaged filtration unit was the recommended process from a previous water treatment study, and is the basis for the cost estimates in this report. Once the water is filtered, it will be disinfected with chlorine prior to entering the WST and distribution system.

Water Storage:
A 35,000-gallon WST is proposed to meet the maximum day demand and provide enough water for a few days use in event of an equipment failure. The tank would be constructed adjacent to the WTP/W facility at the Utility Core Site. The WST foundation will be a gravel pad with a corrugated metal ring wall. The height of the pad should be coordinated with the finish floor elevation of the WTP and be at or above the 100-year flood elevation. If the WTP is constructed in advance of a new WST, then the two existing, leaking, 10,000-gallon tanks in the washeteria could be used until the new tank is constructed.

Water Distribution:
New water distribution lines for service to the school and teacher housing, the Construction Camp/Hotel, Clinic, Store, and Teen Center are included in the proposed project.

Water Treatment Plant/Washeteria Building:
The new building will consist of five 14 -foot wide x 36-foot long x 14-foot high modules with a minimum of 8 inches of insulation in the exterior walls, and 12 inches of insulation in the floor and ceiling. The exterior walls of the modules will be constructed of corrugated metal or clad with metal siding and the tops of the modules will be covered with a site-built metal roof. The building foundation will be a post and pad foundation on a gravel pad. The finished floor elevation would be at least 2 feet above the estimated 100-year flood elevation of 30.23 feet.

The Washeteria would include four washers, four dryers, and three unisex bathrooms – one of which would be ADA compliant. The Washeteria would also include an office with room for storage. The WTP portion of the building would include a mechanical room, office/lab, chemical room, bathroom, and water treatment area with storage space. The water treatment area would include the filtration equipment and associated tanks and pumps, the water distribution system equipment, and the heat exchangers and pumps for the various water and glycol loops.

The pumps and motors should be as energy efficient as reasonably possible. The building thermostats should be programmable for automatic setbacks, and most if not all of the lighting fixtures should have LED lamps and be controlled with photocells or occupancy sensors as appropriate. Consideration should also be given to the installation air-source heat pumps, heat recovery ventilation units, and solar photovoltaic panels.

Wastewater Collection, Treatment, and Disposal:
Unless the community lagoon, lift station, and force main are completed and operational prior to construction of the new WTP/W, wastewater from the new WTP/W would be conveyed to the old WTP/W lagoon with the use of a pump station and two short sections of force main. The force mains would consist of a 3-inch HDPE wastewater line and two 2-inch HDPE glycol lines contained inside a 16-inch Arctic carrier pipe. The new force mains would be connected to the existing force main for the new sewage lagoon. The existing force main is a 6-inch HDPE pipe with two 2-inch circulating glycol lines for freeze protection. The existing lines would be cut, isolation valves installed, and the new force main and glycol lines connected to the existing ones. A similar scenario would occur at the proposed force main extension/outfall to the old WTP/W lagoon. The glycol would be heated and circulated from the new WTP/W building.

Waste-Heat Recovery:
The partially completed heat recovery system in the Power Plant would be completed and a heat recovery loop would be installed between the Power Plant and the new WTP/W building. Recovered heat from the Power Plant would be used to: pre-heat the water from the wells, heat the WST, heat the WST fill and draw piping, the water line to the school, the glycol lines for the force mains, the WTP/W building, and generate hot water for the washeteria.

Appendix E
Proposed Infrastructure Details

Proposed Infrastructure Details

Water Source:
The proposed water source is groundwater from the two wells drilled near the Utility Core Site in 2005. Both wells are capable of producing up to 75 gpm, and the water is of relatively good quality.

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The proposed water treatment system should be sized to provide at least 43,000 gallons per week (2038 design demand), without the need for the operators to work weekends or overtime. A flow rate of 20 gpm should meet this goal and not exceed the available heat from the Power Plant for raw water heat addition. The treatment facility should be designed for the removal of organics, iron, manganese, arsenic, and color. Conventional treatment with pre-oxidation and a packaged filtration unit was the recommended process from a previous water treatment study, and is the basis for the cost estimates in this report. Once the water is filtered, it will be disinfected with chlorine prior to entering the WST and distribution system.

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Appendix F
Resolutions and Contracts

Tuluksak Native Community

Federally-Recognized Tribe

P.O. Box 95

Tuluksak, AK 99679

Office: 907-695-6420 ~ Fax: 907-695-6932

tuluksak99679@gmail.com

Resolution #15-08-01

A Resolution for Tuluksak Native Community Buildings to pay for monthly Water and Sewer

WHEREAS, Tuluksak Native Community is a Federally Recognized Tribe, and

WHEREAS, Tuluksak Native Community is the

Whereas, the Environmental Protection Agency is the funder for the Tuluksak Sewer Lagoon Project, and

Whereas, the EPA has requested written assurance that the customers will pay their bills, and

Whereas, the sewer system is designed to serve the School, the Teen Center, the Clinic, the Washeteria, the Store, the Camp,

Whereas, TNC will pay the bills for the all but the School, and

Whereas, the monthly cost is expected to be $1,400 for the Teen Center, Clinic Washeteria, Store, and Camp,

Whereas, these costs are separate from the sewage haul system,

NOW THEREFORE BE IT RESOLVED THAT the TNC hereby confirms that TNC will pay the bill of approximately $1,400 every month when the Sewage lagoon is ready to operate.

Peter J Andrew

Peter Andrew, Tribal President

Elena D Gregory

Elena D. Gregory, Tribal Sec./Treasury

Tuluksak Native Community
IRA Village Council
P.O. Box 95
Tuluksak, Alaska 99679-0095
Phone: (907) 695-6420 Fax: (907) 695-6932

WATER SALES CONTRACT BETWEEN

Tuluksak Native Community IRA Council P.O. Box 95 Tuluksak, AK 99679-0095 (907) 695-6420	and	Yupiit School District P.O. Box 51190 Akiachak, AK 99551 (907) 825-3600

This Contract is between the Yupiit School District (YSD) hereafter referred to as YSD and the Tuluksak Native Community, hereafter referred to as TNC.

WHEREAS; the YSD desires to receive potable water which meets State and Federal drinking water standards; and

WHEREAS; the TNC possesses the capability of providing a limited amount of water meeting these standards.

THEREFORE, the district and TNC agree to the following

ARTICLE 1. SERVICES

A. TNC agrees to:
   1. Provide up to 3,000 gallons of potable water meeting State and Federal Standards for any given 24-hour period for which the District requests water service in Tuluksak.
   2. Supply pressured water greater than 30 PSI to the District Facilities including teacher housing units via a dedicated water service line from the TNC owned water treatment plant to the District facilities
   3. Circulate the dedicated District water service line during periods when the dedicated water service line may freeze.
   4. Be responsible for maintenance of TNC water service lines up to District property lines.
   5. Provide YSD monthly usage reports

B. The District agrees to:
   1. Pay TNC a total of $75,000 for 3000 gallons of potable water supplied to the District service line beginning at the Tuluksak schools and teacher housing property line
   2. Remit payments in quarterly installments of $18,750.00 each quarterly paid out on the first working day of each quarter
   3. Pay .12 cents a gallon for all water used above 3,000 gallons per 24 hour period.

ARTICLE 2: PERIOD OF PERFORMANCE

This Contract commences on July 1, 2017 and ends on June 30, 2018; This Contract can be extended in 1-year increments if both parties agree.

ARTICLE 3: TERMINATION

This Contract may be terminated at anytime by either party, provided a 60-day written notice is submitted.

ARTICLE 4: Disruption of Services

Reliable water and sewer service is essential to school operations and the needs to residents in YSD employee housing. A co-operative working relationship between TNC and YSD to ensure continuation of water services is desired and encouraged. YSD shall have no liability for assistance provided to TNC.

ARTICLE 5: ADITIONAL CONTRACT PROVISIONS

A. This Contract is subject to all applicable laws of the State of Alaska.

B. TNC agrees to protect, defend, indemnify and save harmless the District from and against any and all claims (no matter how meritless), demands and causes of action of any nature whatsoever, and any expenses incident to defense of any by the District therefore, for injury or death of persons or loss or damage to property arising out of the performance of this agreement by TNC.

C. The District agrees to protect, defend, indemnify and save harmless TNC from and against any and all claims (no matter how meritless), demands and causes of action of any nature whatsoever, and any expenses incident to defense of any by TNC therefore, for injury or death of persons or loss or damage to property arising out of the performance of this agreement by YSD.

D. Any dispute arising under this Contract with is not disposed of by agreement between the parties shall be subject to arbitration under the following procedures:

    1. Either party shall advise the other party that its arbitration of a dispute arising under the Contract.

    2. Within seven (7) days of receipt of the arbitration request, each party shall select one arbitrator panel member.

    3. Within seven (7) days of their selection, the two panel members shall select a third member. No more than three (3) days shall be used in selecting the third member. In the event agreement cannot be reached within the three days, the Federal Mediation and Arbitration Service shall be asked to select the third member.

    4. The decision of the arbitration panel shall be rendered in writing to both parties. The decision shall set forth the findings of fact, reasoning and conclusion of the panel. The decisions of the panel shall be final and conclusive.

E. The parties to this Contract shall not assign this Contract, nor any part thereof, except upon the mutual agreement of both parties to this Contract. A party may not unreasonably withhold its agreement to such an assignment.

The following parties mutually agree to abide by the provisions set out in this Contract, the Tuluksak Native COMMUNITY (TNC) and the Yupiit SCHOOL District (YSD) for water and sewer service.

FOR THE TULUKSAK NATIVE COMMUNITY

Printed Name	Title
Signature	Date

FOR THE YUPIIT SCHOOL DISTRICT

Rayna Hartz	Superintendent
Printed Name	Title
Signature	7/6/17
	Date