Appendix I

Business Plan

TUNTUTULIAK TRADITIONAL COUNCIL and TUNTUTLIAK COMMUNITY SERVICES ASSOCIATION (TCSA)

Tuntutuliak Traditional Council
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Water, Sewer, Solid Waste Business Plan

January 2005

DRAFT

Tables

Appendices

Section 2 Community Overview

Location

Tuntutuliak is on the Qinaq River, approximately 3 miles from its confluence with the Kuskokwim River, about 40 miles from the Bering Sea coast. It lies 40 miles southwest of Bethel and 440 miles west of Anchorage. It lies at approximately 60.343060° North Latitude and 162.66306° West Longitude. (Sec. 21, T003N, R077W, Seward Meridian.) Tuntutuliak is located in the Bethel Recording District. The area encompasses 119.2 sq. miles of land and 0.2 sq. miles of water. The village lies in the region of the Calista Corporation.

Population Served

The population is dominated by Yup'ik Eskimo Native Alaskans. During the 2000 U.S. Census, there were 97 total housing units, and 13 were vacant. At that time 99 residents were employed. The unemployment rate at that time was 14.66%, although 44.07% of all adults were not in the work force. The median household income was $25,500, per capita income was $7,918, and 23.03% of residents were living below the poverty level. The 2003 population State demographic estimate of the 2003 population indicates 381 people living in Tuntutuliak. The average housing occupancy rate is estimated at 4.54 per residence.

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As many as 3 operators are employed on an overlapping 2 weeks on, 1 week off, schedule to maintain 2 operators engaged at any given time. These operators are tasked with delivering treated water from the water treatment plant in 300-gallon tanker haul systems and pumping the water through a port in the side of each residence. The second operator is required to ensure the interior tanks do not overflow in the house. The same operators conduct sewage holding tank pump-outs using a different haul tank assembly, however, this operation requires only one operator. The operators are also responsible for equipment maintenance and the maintenance of the 2 haul garages. All of the operators engage in boardwalk maintenance and snow removal activities. The 3 operators also conduct residential maintenance of sanitation fixtures, at cost. The Water and Wastewater Transfer operators log their deliveries and maintenance work to the Bookkeeper so that customers may be billed for the services.

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Key Assumptions

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The Aged Receivables [Summary] (August 28, 2004) data (appendix D) indicates an increasing debt load in the community (Table 2). The receivables totaled $39,518 with 8% aged 0-30 days, 7.9% aged 31-60 days, 5.8% aged 61-90 days, and 78.3% aged 90+ days. This data indicates that customers are not being held accountable for their bills and management is not exercising a payment policy to with-hold services if debts exceed a certain amount.

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	6%	8%	5%	82%	100%
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100 total accounts					$39,519

Financial Assumptions

Predicting revenues is inherently difficult for haul systems in a community where residents utilize alternative water sources such as roof catchments, water recovery from ice mining, and self-hauling from tundra ponds or from the water treatment plant. If you cannot predict water usage you cannot predict sewage disposal. However, no one self-hauls sewage in Tuntutuliak from homes that have been provided with a haul system. Therefore, the sewage pumped is an indicator of water used, and by deduction, the amount of water used that is not purchased from

Revenue Estimate

Assumptions are made in regards to the currently active water and sewer delivery system utilization rates, sanitation accounts collection rate information, and Profit & Loss statements to develop a realistic estimation of revenue. These estimates are listed in Table 4.

Table 4. Revenue Estimates by Source

Revenue Source	Rate	Estimated Annual Units	Collection Rate	Total
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Sewage Pump & Haul (per haul)	$ 44	550	95%	$ 22,990
Solid Waste (per month)	$ 15	1200	60%	$ 10,800
Small Commercial Users				
Water Delivery (per haul)	$ 35	12	100%	$ 420
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Solid Waste (per month)	$ 100	12	100%	$ 1,200
Large Commercial Users				
Teacher Housing & School User Fees				
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Solid Waste (per month)	$ 15	27	100%	$ 405
School Solid Waste	$ 100	9	100%	$ 900
Washeteria Revenue				$ 45,000
			Sub-total	$ 97,845
Local Capital Contribution				$ 101,801
			Estimated Total Revenue	$ 199,646

Estimated Expenses

There are two cost categories that will be incurred in the ongoing operation and upkeep of the Water and Sewer Utilities – Operation and Maintenance (O&M) and Repairs and Replacement (R&R). All sanitation-related expenses are summarized in table 5.

Operations and Maintenance

To a large extent the cost estimates for Operations and Maintenance are based upon the current operating and financial data from 2003 and 2004 (appendix C). Operation and maintenance 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 following operations and maintenance estimates are extrapolated to represent a fully constructed Haul Water & Sewer and Solid Waste Utility.

Table 6. Major Equipment R&R Cost and Replacement Schedule.

Item	Number	X	Cost	÷	Useful Life	=	Depreciation
Tank-trailers w/o pumps	2	X	$11,800	÷	10	=	$2,360
Tank-trailer pump & engine	2	X	$1,200	÷	5	=	$480
6-wheel ATV	2	X	$12,000	÷	5	=	$4,800
Trash haul trailer	2	X	$2,500	÷	10	=	$500
Washing Machines	2	X	$1,000	÷	1	=	$2,000
Dryer electronics	4	X	$500	÷	10	=	$200
Dryer motor	4	X	$600	÷	8	=	$300
Boiler	2	X	$15,000	÷	20	=	$1,500
Water plant pumps	4	X	$400	÷	5	=	$320
Chemical feed pump	2	X	$600	÷	5	=	$240
Boardwalk material	1	X	$5,000	÷	1	=	$5,000
Small Track Loader	1	X	$75,000	÷	15	=	$5,000
Total amount that should be set aside annually for major R&R costs							$22,700

The existing washeteria was constructed in 1982 and uses a well that was drilled in 1979 to a depth of 201 feet. Typically a washeteria has a design life of 30 years. However, due to the population growth and more stringent water quality regulations, upgrades to the laundry side and the water treatment side of the facility are needed. Design and construction funding is available in 2004 to make these improvements and should extend the design life of the washeteria facility another 15 years or more.

Major Capital Replacement

Ultimately, the Village of Tuntutuliak Water and Sewer Utility will require major capital for system replacement. Given a system design life of 30 years, it would be necessary to obtain sufficient funds to replace each component of the water and sewer system by the end of 30 years. The reality is that few communities large or small can generate sufficient capital of this magnitude without the aid of grants. Future governmental investment rules may require a substantial capital match in order to obtain grant funds for rural Alaskan communities. Communities that prepare for grant opportunities will be able to respond ***when they are needed*** and not put their customers and systems at risk.

Usually, moderate to large–sized cities, boroughs, and counties have the capacity to generate matching funds by voting for the issuance of bonds to be repaid by tax revenues. So far, this is not so for small rural communities in Alaska. Alaska law also does not allow the capture of sinking funds for future investments through the utility rate structure. For these reasons, an equivalent annual capital cost (EACC), or annual sinking fund expense, is not included in expense tables. The EACC is not used to estimate profit and loss, or, the determination of user rates. The discussion is merely included as an advisory to the Village of Tuntutuliak.

Table 8. Operating Cash Analysis

CASH SOURCES	
Residential User Fees: Water & Sewer	$27,900
Residential User Fees: Solid Waste	$10,800
Large Commercial Users	$1,972
School Teacher User Fees	$6,042
School Solid Waste	$900
Washeteria User Fees	$45,000
Sub-total	$97,845
CASH USES	
Annual Operation and Maintenance Costs	$176,946
Annual Repair and Replacement Costs	$22,700
Total	$199,646
Excess (Shortage) of Cash Over Expenditures	($101,801)

Key Assumptions

The FY 2003 Job Profit & Loss Statement (appendix C) and an Aged Receivable [Summary] (appendix D) provide significant indicators of the soundness of this Business Plan. The FY2003 Job Profit & Loss Statement shows revenue data for water deliveries and sewage pump-outs, that when analyzed, indicates that a substantial amount of potential revenue is not realized from homeowners that otherwise collect their own water.

The applied financial assumptions are:

- 95% collection rate on water and sewer haul services
- 60% collection rate on residential solid waste services
- 100% collection rate on washeteria services
- A total of 77 service connections with 305 water deliveries and 550 sewage tank pump-outs are assumed to be made each year when the project is completed (prorated from actual 2003 data).
- A total of 3 service connections to school teacher housing with an estimated 63 water and 78 sewage pump-outs services per 9-month period: 100% collection rate.
- Aside from the cost, and the other alternative water supplies, the water quality currently achievable at the water plant is such that customer satisfaction is also a negative factor in sales of delivered water. Revenues may pick up when the WTP upgrades improves the water quality.
- Management at TCSA will strive to maintain separate accounting between the electrical and sanitation utilities. Cash-transfers between these business entities will be documented.
- A zero profit is inferred considering that the sanitation utilities are >50% subsidized.
- The EACC is not used to estimate profit and loss, or, the determination of user rates.

towed with a project-supplied snow machine to service homes until the boardwalks had been cleared.

Key Assumptions

Repair and replacement assumptions are:

- Repairs and maintenance will increase as the plant system ages and the plant size increases
- This analysis does not address a rebuild of the system at the end of its useful life or a failure of the system from design, product failure, or obsolesce
- Parts will be available.

Section 7 Interagency Relationships

Involvement in Construction Phase

Department of Environmental Conservation, Village Safe Water will fund and oversee the construction of the 14-residences Haul Water and Sewer System, to include remodel and upgrade of the washeteria, water plant, and sewage lagoon, as well boardwalk rehabilitation work.

Agency Providing Capital Replacement

The replacement of the utilities, at the end of the design life has not been considered in this business plan.

Regulatory Agencies

The primary regulatory agency for the water and wastewater project will be the State Department of Environmental Conservation (DEC). DEC regulates a wide array of environmental areas. Of concern to this water and wastewater project is the agencies regulatory authority over water quality, testing standards, wastewater disposal, operator training standards and engineering plan approval.

The Regulatory Commission of Alaska (RCA) is another regulatory agency that may be involved in the project. The agency 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 Tuntutuliak Community Services Association already have a certificate from the RCA to operate its electric utility system. The TCSA does not have a certificate for the Haul System.

Project Phases

The water and sewer haul system is substantially completed. Only 14 homes remain to be supplied with system fixtures in order to participate in the sanitation service. Building and implementing the haul system required the construction of a basic transportation infrastructure in the form of boardwalks. Additionally, both older and newer housing stock required retrofits of water supply and sewage discharge fixtures, and in many cases upgrades in the residential electrical systems. New housing has subsequently supplied these fixtures during initial construction. Table 9 lists the relevant projects that have directly or indirectly been associated with the construction and implementation of the sanitation systems in Tuntutuliak.

Section 8 Summary

Wrap-up

The Water and Sewer Haul System project will be considered complete when the remaining 14 homes have been served, the washeteria has been upgraded and remodeled, the failing sections of the boardwalk rehabilitated, and the water treatment systems have been upgraded to meet the new water quality standards. The Haul System project will serve 3 school teacher residences and 77 residential units as well as 1 commercial facility and the clinic. The associated boardwalk and landfill constructed for this project serves everyone in the community, including the school.

Timelines

The remaining elements of the project are scheduled to begin construction in June 2005. The 14 remaining homes to be served are expected to be completed by the end of September 2005.

The boardwalk rehabilitation work is expected to begin in June 2005 with the arrival of materials and is expected to be completed by the end of September 2005.

Upgrading and remodeling the washeteria (laundry facility) can proceed at any time of the year but it would be more cost effective to barge material in the summer months for construction in the fall or winter. The washeteria upgrade is expected to begin in the middle of 2005 and be completed by December 2005.

The water treatment systems upgrade project involves the construction of a small lagoon to treat wastewater from the washeteria. This wastewater is 99% comprised of laundry and backwash water effluent, and 1% black-water from the restroom facility. The lagoon must be constructed in the summer months whereas the treatment systems can be upgraded any time of the year. Funding for these improvements has not been confirmed so scheduling the construction can not be estimated.

Effect on Community

Based on the previous discussion of revenues and expenses, and a review of the resulting cash flow and operating income statement, the impact of the future capital replacement costs are significant. Aside from the replacement costs, the contribution through User Fees to the O&M of the sanitation systems (including the boardwalk) is a significant cost to the average resident's budget. Table 10 results from State and 2000 Federal census data and anecdotal information gathered from a representative of TCSA to describe the impact of this water and sewer project to the financial ability of the average resident.

Key Assumptions

Key assumptions related to community impact are:

- Household income from State of Alaska and Federal census statistics are correct
- There will be no significant increase in the cost of air and freight transportation
- Food costs include the household O&M of equipment used to gather the subsistence foods that comprise the majority of the household diet.
- The Haul System assumes a water use rate of 4 gallons per day per person
  - Household occupancy rate of 5 persons per home
  - 4 water hauls and 2 sewage hauls per month
- This document has not considered the effect of natural disasters such as fire, flood, and earthquake.

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Small Track Loader	1	X	$75,000	÷	15	=	$5,000
Total amount that should be set aside annually for major R&R costs							$22,700

The existing washeteria was constructed in 1982 and uses a well that was drilled in 1979 to a depth of 201 feet. Typically a washeteria has a design life of 30 years. However, due to the population growth and more stringent water quality regulations, upgrades to the laundry side and the water treatment side of the facility are needed. Design and construction funding is available in 2004 to make these improvements and should extend the design life of the washeteria facility another 15 years or more.

Major Capital Replacement

Ultimately, the Village of Tuntutuliak Water and Sewer Utility will require major capital for system replacement. Given a system design life of 30 years, it would be necessary to obtain sufficient funds to replace each component of the water and sewer system by the end of 30 years. The reality is that few communities large or small can generate sufficient capital of this magnitude without the aid of grants. Future governmental investment rules may require a substantial capital match in order to obtain grant funds for rural Alaskan communities. Communities that prepare for grant opportunities will be able to respond ***when they are needed*** and not put their customers and systems at risk.

Usually, moderate to large–sized cities, boroughs, and counties have the capacity to generate matching funds by voting for the issuance of bonds to be repaid by tax revenues. So far, this is not so for small rural communities in Alaska. Alaska law also does not allow the capture of sinking funds for future investments through the utility rate structure. For these reasons, an equivalent annual capital cost (EACC), or annual sinking fund expense, is not included in expense tables. The EACC is not used to estimate profit and loss, or, the determination of user rates. The discussion is merely included as an advisory to the Village of Tuntutuliak.

Table 8. Operating Cash Analysis

CASH SOURCES	
Residential User Fees: Water & Sewer	$27,900
Residential User Fees: Solid Waste	$10,800
Large Commercial Users	$1,972
School Teacher User Fees	$6,042
School Solid Waste	$900
Washeteria User Fees	$45,000
Sub-total	$97,845
CASH USES	
Annual Operation and Maintenance Costs	$176,946
Annual Repair and Replacement Costs	$22,700
Total	$199,646
Excess (Shortage) of Cash Over Expenditures	($101,801)

Key Assumptions

The FY 2003 Job Profit & Loss Statement (appendix C) and an Aged Receivable [Summary] (appendix D) provide significant indicators of the soundness of this Business Plan. The FY2003 Job Profit & Loss Statement shows revenue data for water deliveries and sewage pump-outs, that when analyzed, indicates that a substantial amount of potential revenue is not realized from homeowners that otherwise collect their own water.

The applied financial assumptions are:

- 95% collection rate on water and sewer haul services
- 60% collection rate on residential solid waste services
- 100% collection rate on washeteria services
- A total of 77 service connections with 305 water deliveries and 550 sewage tank pump-outs are assumed to be made each year when the project is completed (prorated from actual 2003 data).
- A total of 3 service connections to school teacher housing with an estimated 63 water and 78 sewage pump-outs services per 9-month period: 100% collection rate.
- Aside from the cost, and the other alternative water supplies, the water quality currently achievable at the water plant is such that customer satisfaction is also a negative factor in sales of delivered water. Revenues may pick up when the WTP upgrades improves the water quality.
- Management at TCSA will strive to maintain separate accounting between the electrical and sanitation utilities. Cash-transfers between these business entities will be documented.
- A zero profit is inferred considering that the sanitation utilities are >50% subsidized.
- The EACC is not used to estimate profit and loss, or, the determination of user rates.

towed with a project-supplied snow machine to service homes until the boardwalks had been cleared.

Key Assumptions

Repair and replacement assumptions are:

- Repairs and maintenance will increase as the plant system ages and the plant size increases
- This analysis does not address a rebuild of the system at the end of its useful life or a failure of the system from design, product failure, or obsolesce
- Parts will be available.

Section 7 Interagency Relationships

Involvement in Construction Phase

Department of Environmental Conservation, Village Safe Water will fund and oversee the construction of the 14-residences Haul Water and Sewer System, to include remodel and upgrade of the washeteria, water plant, and sewage lagoon, as well boardwalk rehabilitation work.

Agency Providing Capital Replacement

The replacement of the utilities, at the end of the design life has not been considered in this business plan.

Regulatory Agencies

The primary regulatory agency for the water and wastewater project will be the State Department of Environmental Conservation (DEC). DEC regulates a wide array of environmental areas. Of concern to this water and wastewater project is the agencies regulatory authority over water quality, testing standards, wastewater disposal, operator training standards and engineering plan approval.

The Regulatory Commission of Alaska (RCA) is another regulatory agency that may be involved in the project. The agency 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 Tuntutuliak Community Services Association already have a certificate from the RCA to operate its electric utility system. The TCSA does not have a certificate for the Haul System.

Project Phases

The water and sewer haul system is substantially completed. Only 14 homes remain to be supplied with system fixtures in order to participate in the sanitation service. Building and implementing the haul system required the construction of a basic transportation infrastructure in the form of boardwalks. Additionally, both older and newer housing stock required retrofits of water supply and sewage discharge fixtures, and in many cases upgrades in the residential electrical systems. New housing has subsequently supplied these fixtures during initial construction. Table 9 lists the relevant projects that have directly or indirectly been associated with the construction and implementation of the sanitation systems in Tuntutuliak.

Section 8 Summary

Wrap-up

The Water and Sewer Haul System project will be considered complete when the remaining 14 homes have been served, the washeteria has been upgraded and remodeled, the failing sections of the boardwalk rehabilitated, and the water treatment systems have been upgraded to meet the new water quality standards. The Haul System project will serve 3 school teacher residences and 77 residential units as well as 1 commercial facility and the clinic. The associated boardwalk and landfill constructed for this project serves everyone in the community, including the school.

Timelines

The remaining elements of the project are scheduled to begin construction in June 2005. The 14 remaining homes to be served are expected to be completed by the end of September 2005.

The boardwalk rehabilitation work is expected to begin in June 2005 with the arrival of materials and is expected to be completed by the end of September 2005.

Upgrading and remodeling the washeteria (laundry facility) can proceed at any time of the year but it would be more cost effective to barge material in the summer months for construction in the fall or winter. The washeteria upgrade is expected to begin in the middle of 2005 and be completed by December 2005.

The water treatment systems upgrade project involves the construction of a small lagoon to treat wastewater from the washeteria. This wastewater is 99% comprised of laundry and backwash water effluent, and 1% black-water from the restroom facility. The lagoon must be constructed in the summer months whereas the treatment systems can be upgraded any time of the year. Funding for these improvements has not been confirmed so scheduling the construction can not be estimated.

Effect on Community

Based on the previous discussion of revenues and expenses, and a review of the resulting cash flow and operating income statement, the impact of the future capital replacement costs are significant. Aside from the replacement costs, the contribution through User Fees to the O&M of the sanitation systems (including the boardwalk) is a significant cost to the average resident's budget. Table 10 results from State and 2000 Federal census data and anecdotal information gathered from a representative of TCSA to describe the impact of this water and sewer project to the financial ability of the average resident.

Key Assumptions

Key assumptions related to community impact are:

- Household income from State of Alaska and Federal census statistics are correct
- There will be no significant increase in the cost of air and freight transportation
- Food costs include the household O&M of equipment used to gather the subsistence foods that comprise the majority of the household diet.
- The Haul System assumes a water use rate of 4 gallons per day per person
  - Household occupancy rate of 5 persons per home
  - 4 water hauls and 2 sewage hauls per month
- This document has not considered the effect of natural disasters such as fire, flood, and earthquake.