City of Atka
Sanitation Facilities Study

Prepared for:

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EXECUTIVE SUMMARY

In 2000 the City of Atka (City) received a $155,000 grant for the completion of a sanitation feasibility study. Funding was received from the Alaska Department of Environmental Conservation Village Safe Water Program (VSW) and financed by Senate Bill 23, with $103,333 in EPA funds and $51,667 in State AHFC funds. VSW provided funding oversight and also served as the City's technical advisor. An engineering consultant, HDR Alaska Inc., was contracted to prepare the feasibility study. The final feasibility study was approved by the City Council on March 7, 2001 by Council Resolution 01-284 (see Appendix H).

The City of Atka is currently served by a piped water and sewer system. This type of system eliminates the need for a washeteria, watering points, and summer distribution system in the alternatives considered. A general list of water, sewer, and landfill alternatives was developed and presented to the community to consider, then shortlisted. From the shortlisted alternatives, a phased improvement plan was developed and accepted by the City of Atka. Resolution 01-277 was passed by the council identifying these items as the community's top priority.

Phase I improvements include a mixture of water, sewer, and landfill improvements. The bulk of the water improvements include a new water treatment plant facility and a new water impoundment structure. Sewer improvements include community and individual septic tank replacements, school sewer system upgrades, and replacement of an ocean outfall. Solid waste improvements include a fence, transfer site, burn box, and permitting.

Phase II improvements also include a mixture of water, sewer, and landfill improvements, but are a lower priority than phase I improvements.

Phase I and II capital construction costs are estimated at $1,671,000 and $1,030,000 respectively. Estimated operation and maintenance costs are tabulated below:

Summary of Suggested User Charges – Water and Sewer Service

User	Suggested Current Annual User Charge	Suggest Monthly User Charge
Residential:	$1006	$84[1]
School:	$1120	$125 (over 9 months)
Clinic:	$1006	$84
Nazan Inn:	$1006	$84
Fish Plant:	$3,840	$681 (over 3 months)

[1]Household charge depicts only 85% of residents paying for service.
Yearly cost for operating the water and sewer system is estimated at $31,935

Summary of Suggested User Charges – Garbage Services

User	Suggested Current Annual User Charge	Suggest Monthly User Charge
Residential:	$338	$28[1]
School:	$287	$32 (over 9 months)

Yearly cost for operating the landfill system is estimated at $10,900

1.0 SUMMARY AND RECOMMENDATIONS

In 2000, the City of Atka (City) received a $155,000 grant from Alaska Department of Environmental Conservation (ADEC) for completion of a sanitation facilities improvement plan. Village Safe Water (VSW) provided funding oversight and also served as the City's technical advisor. An engineering consultant, HDR Alaska Inc., was contracted to assist in the plan preparation.

The plan consisted of the following major components:

- Public and community involvement
- Assessment of existing facilities
- Planning
- Development and evaluation of alternatives
- Development of an improvement plan

Public and community involvement started with a kickoff meeting on May 18, 2000 that introduced the project and discussed the project goals. It also served as an information-gathering trip to collect first hand information on the water, sewer, and solid waste facilities in Atka. On this trip, community surveys were also given to solicit community feedback on the project and to identify the top priorities of the community.

The information gathered from the field visit, combined with other research, was used to develop Technical Memorandums (Tech Memo) 1 and 2. Tech Memo 1 discussed future planning issues, population projections, and developed design criteria. Tech Memo 2 discussed the existing facilities conditions as well as developed a list of specific needs for improvement.

The existing and future needs were identified and a list of general alternatives (Tech Memo 3) was developed addressing each of the needs. Tech Memo 3 was submitted to the City and VSW for review. Upon review and comment from the City and VSW, a shortlist of alternatives was developed and presented in Tech Memo 4, along with preliminary cost estimates. The recommended alternatives were then developed into a phased improvement plan, and sent to the City for approval. From this phasing plan, the information for the CIP funding application was developed and submitted to VSW on September 22, 2000. A utility rate study was completed for each phase of the project.

Also completed for the project during this time was a Surface Water Treatment Rule Memorandum (Tech Memo 5). This memo outlined the surface water treatment rule and its application in Atka. It evaluated the adequacy of the Atka system, and also gave recommendations for improvements necessary to comply with the rule. Tech Memo 5 was developed as part of a series of scope modifications approved by the City and is included in Appendix E.

Tech Memo 6 discussed a flow monitoring and leak detection program to resolve the apparently high per capita consumption found in Atka. The program included calibration of the existing meter and installation of new valves and meters on the existing distribution system. This

program was also developed under the project scope modifications. Tech Memo 6, along with figures, is included in Appendix F.

The improvement plan for the City of Atka was developed based on community input on the short-listed alternatives presented to the City. This improvement plan was then organized into phases. These phases are established as separate, fundable, stand-alone projects to be implemented by the City. The improvement plan is presented in the following table. The plan is discussed more thoroughly in Section 8 and shown in Figures 8.1 and 8.2. City of Atka Resolution 01-277 was passed by the council identifying these items as the community's top priority (see Appendix H).

Table 1-1. Improvement Plan[(1)]

Item No.	Description	Extension
Phase 1 Improvements		
Water System		
1	Water supply impoundment improvements (new dam structure, intake improvements, debris removal, slope stabilization)	$150,000
2	New WTP equipment	$150,000
3	Replace WTP building	$150,000
4	Construct separate process water line to fish plant (2200 lf)	$110,000
5	Install new fire hydrants (near school and where exist ones are inoperable 6 ea.)	$21,000
6	Replace galvanized steel water mains (to reduce rust in system and to increase size and fire flow) (1200 lf)	$96,000
7	Conduct water audit and leak detection program	$30,000
8	Complete misc. system repairs (storage tank leaks, hatch and screens, new valve at impoundment, meters on commercial users, etc.)	$20,000
	Subtotal	$727,000
Wastewater System		
1	New south community septic tank for old Atka village & inspect/repair portion of the outfall (assumes exist HDPE outfall is serviceable)	$50,000
2	New north community septic tank and outfall for old Atka village	$150,000
3	Excavate two septic tanks and lines at New Atka subdivision and compact, regrade	$20,000
4	New septic tank on sewer line from Nazan Inn to outfall	$20,000
5	New septic tank at fish plant	$20,000
6	School sewer system upgrades	$100,000
	Subtotal	$360,000
Solid Waste		
1	FAA waiver	$7,500
2	Burnbox	$10,000
3	Fence around septage disposal area (100 lf)	$4,000
4	Hazardous waste storage/transfer area	$5,000
	Subtotal	$26,500
	Subtotal	$1,114,000
	Contingency (25%)	$278,000
	Engineering/CM/Legal/Admin. (25%)	$278,000
	TOTAL PHASE 1	**$1,671,000**

Table 1-1. Improvement Plan(1) (cont.)

Item No.	Description	Extension
Phase 2 Improvements		
Water System		
1	Provide heat or freeze protection of valves at water storage tanks	$8,000
2	Install additional storage capacity to increase contact time in the water storage tanks	$300,000
3	Conduct hydraulic evaluation/replace mains to address low pressures.	$100,000
4	Obtain easements from property owners for existing mains	See Note 3
5	Install additional meters and valves to monitor flows to key areas of system	$19,600
	Subtotal	$428,000
Wastewater System		
1	Replace deficient manholes in Atka Village	$100,000
2	Sewer pipe at creek crossing	$25,000
3	Connect WTP to existing sewer collection lines	$50,000
4	Connect Safe House to existing sewer collection lines	$40,000
5	Identify wastewater system permit needs and required actions	$8,000
	Subtotal	$223,000
Solid Waste		
1	Relocate non-burnable items into new white goods storage area	$6,500
2	Additional clean up of landfill area	$8,000
3	Installation of a collection station at the Fish Plant and the new dock facility.	$20,000
	Subtotal	$34,500
	Subtotal	$686,000
	Contingency (25%)	$172,000
	Engineering/CM/Legal/Admin. (25%)	$172,000
	TOTAL PHASE 2	**$1,030,000**

(1) Cost estimates are concept level, rough order of magnitude for planning purposes and should be reviewed after preliminary design.

(2) Total is rounded to nearest thousand.

(3) The cost of obtaining easements will depend on a number of factors, including location length, width, and landowner compensation, which cannot be quantified at this time.

2.0 INTRODUCTION

The City of Atka (City) has expressed a desire to improve the sanitation facilities for its residents. This water, sewer, and solid waste facility assessment was prepared to assist the City in developing a long-term plan for providing safe drinking water, proper disposal of wastewater, and solid waste for its residents.

In 2000, the City received $155,000 from Alaska Department of Environmental Conservation (ADEC) to conduct this sanitation facilities assessment. Village Safe Water (VSW) provided funding oversight and technical assistance. The City retained the services of an engineering consultant, HDR Alaska, to assist in the preparation of the study.

The study primary goals were to:

- Identify existing and long-term needs,
- Evaluate alternatives to address those needs, and
- Prepare a phased plan to implement the recommended alternatives.

The plan was used to apply for funding for the improvements. Community involvement was an important part of the development and acceptance of the plan. The final plan was approved by the City Council.

3.0 PROJECT BACKGROUND

3.1 Location

The City of Atka is located along the central arc of the Aleutian Island chain, approximately 90 air miles east of Adak on Atka Island (see Figure 3.1). It is 1,100 air miles southwest from Anchorage. The approximate coordinates are 174°12' West Longitude by 52°12' North Latitude.

3.2 Climate

Atka is located in the maritime climate zone, with temperatures ranging from 20-60°F. The average summer temperature range is 44-60°F, and the average winter temperature range is 20-36°F. There are frequent severe storms in the winter, and calm, foggy weather in the summer. The average precipitation for the year is 60 inches. The design freezing index is below 2000-degree days and the thawing index is 2500-degree days. The heating index for the City of Atka are approximately 10,000-degree days.

3.3 Soils Conditions

A surface layer of compressible peat and organic silts blankets much of the area. Volcanic ash forms a silty sand and sandy silt that is intermixed with old topsoil horizons. The result is the near surface soils are a highly compressible material comprised of peat and organic silt with sand. The soils also have very high moisture content which precludes their use as a compacted material. Fill material or structures placed on these near surface materials will cause the organic soil to compress and settlement to occur. Groundwater was found in 1980 at depths varying from 6 inches to 4 feet.

Granular fill material is available from the existing borrow pit shown in Figure 3.1 and from the beach deposits. Degradation values for the quarried rock are reported to be about 20 for the material from the bedrock quarries. The beach gravel has a much better degradation value. The material from either source should still be suitable for general embankment fill.

3.4 Flood/Seismic Hazard

Atka is located in seismic zone 4. The northeast part of Atka Island encompasses the Atka Volcanic center and is the largest eruptive center in the central part of the arc of the Aleutian Island chain. The two largest volcanoes are Mount Kliuchef and Korovin Volcano. The latter has been active repeatedly during historic times. Several smaller, younger volcanoes surround these. Korovin, located approximately 13 miles north of the City of Atka, most recently showed activity in June 30 1998.

3.5 Economy/Financial Profile

The economy of Atka is largely based on fishing and subsistence. According to the Division of Community and Economic Development (DCED), 12 of the residents hold commercial fishing permits. Atka Pride Seafoods, a local seasonal fish processing plant serves the estimated 45-boat local fleet and provides direct employment for approximately 30 Atka residents from May through September. Year-round income opportunities in the village are limited to education and government-related work.

Currently the median household income is approximately $40,625, with 12 people below the poverty line, according to DCED Community Database. Of the 47 available workers (persons over 16 years of age) in the city, there are a total of 26 employed in the following occupations: fishing (3); transportation (2); retail trade (5); health services (3); education services (3); public administration (7); and, other professional services (3).

The DCED municipal finance report listed revenue of $2,271,348 for the City of Atka in 1998. Operating revenue totaled $264,949 from local sources (including taxes, service charges, enterprise, and other sources) and $37,838 from outside revenue (from state and federal sources). The capital project revenue totaled $1,968,516 in 1998.

3.6 Public Facilities/Housing

The public facilities available in Atka include:

- Piped water system serving all 50 homes
- Piped sewer system serving all 50 homes
- Wooden reservoir dam
- Dock and Port Facility
- State-owned 3,278-foot airstrip (paved)
- Russian Orthodox Church
- Public landfill with garbage collection twice a week
- Privately owned electric utility
- Atka Health Clinic
- State Village Public Safety Officer
- Volunteer Fire Department
- Community Hall
- School with gym and library
- Hotel
- Bulk fuel Storage
- General Store
- Post Office
- Snack Bar

Housing consists of approximately 50 homes, some of which are unoccupied. All of the occupied houses are connected to the piped water and sewer system and are plumbed.

3.7 Public Administration

Atka is incorporated as a second class city. A mayor and a 7-member City Council manage the city. Municipal employee positions consist of an administrator, city clerk, clinic maintenance, harbormaster, maintenance, maintenance supervisor, post office, and a water operator that is responsible for landfill operations and sewer. The village public safety officer (VPSO) works for the community but is an employee of the Aleutian/Pribilof Islands Community Development Association (APICDA).

3.8 Population

The current population of Atka is 105, as recently certified by the State. The population of Atka has remained steady for the past five years but has changed erratically during the course of its history. This trend can also be seen in neighboring communities. The fishing industry is expected to expand in the Atka area. The tourism industry has also increased, boosting the area's economy. For these reasons it is expected that the village and surrounding communities will grow in population and expand into new lands. Future population and growth rates are discussed in detail in Section 5.

4.0 SCHEDULED CAPITAL PROJECTS/COSTS

4.1 Existing and Proposed Capital Projects

The City of Atka is currently developing or will be completing the following projects, in addition to the sanitation project:

- Extension of the Atka Airstrip from 3,100' to 5,000'- work is tentatively scheduled for 2003 or 2004
- Reconstruction of the main road – work for 2004
- Hydro-electric plant – Funding in place, design and permitting underway
- Expansion of fisheries- expansion of existing processing plant and possible addition of new processing plant
- Bulk fuel facilities – Funding available to consolidate and reconstruct existing facilities, construction in 2002
- Replacement of health clinic building – preliminary assessments
- New community building – Discussion stage only
- Small boat harbor or vessel moorage – will become a necessity and a higher priority as there is an increase in the amount and size of local boats

5.0 EXISTING FACILITIES, PLANNING CONDITIONS, AND DESIGN CRITERIA

5.1 Existing Facilities

A review was completed of the City of Atka's existing sanitation and support facilities (see Figure 3.1). A preliminary utility location map was prepared and is shown on Figure 5.1. The locations of these facilities are taken from design and as-built drawings and should be considered as approximate until they are field verified. A summary of the facility review follows.

5.1.1 Water Supply

Residents of Atka obtain surface water from a reservoir constructed in 1977 by Public Health Service (PHS). The elevation of the reservoir is approximately 206'. The stream filling the reservoir reportedly originates in three small lakes of unknown size. The reservoir does not provide any significant storage capacity, as it is rather small, but does provide a suitable location for the raw water transmission line inlet. It is assumed that the lakes provide enough water for the City's water demand, because there have been no reported shortages.

City employees have been maintaining the reservoir diligently by thoroughly cleaning the basin and dam once a year and daily maintenance and cleaning of the intake structure. Mitigation of the erosion at the reservoir's earthen walls is also required. But, despite these efforts, the facilities are over 30 years old and time and weather have deteriorated the structure. The general condition of the reservoir and dam is poor. Although the dam and intake appear to be functioning properly, the wood is showing signs of deterioration. The dam itself is constructed of 4" x 12" Douglas Fir timbers and faced with 3/8" marine grade plywood on the waterside of the dam. A sluice gate is present in the dam and is constructed of similar plywood. A drain at the bottom of the reservoir is constructed of 24" corrugated aluminum pipe.

The sides of the reservoir began to slough after construction. Wooden retaining walls have been constructed to keep the earthen sides from sloughing off or eroding into the basin. These walls are failing under the soil pressure.

The area surrounding the reservoir is fenced. During high water or spring runoff grasses and weeds collect on the fence where it crosses the inlet stream. The grass accumulation can begin reducing the water flow into the reservoir, at which point City personnel clean off the fence.

The intake structure consists of 4" polyvinyl chloride (PVC) pipe and two short sections of intake screens which filter out large debris. During times of high water, it is necessary for the City employees to clean the intake screens twice or three times a day. There is a shut off valve downstream of the dam and an intake structure outside of the fence. This valve was once used to shut water off to the water treatment plant, but is no longer functioning.

According to City employees who work on the facility, the reservoir has never frozen over, nor has it gone completely dry in the summer. The major deficiencies described by the employees are the sloughing walls of the embankment and the deposition of grasses and weeds into the reservoir.

5.1.2 Water Treatment

The entire water system is supplied by gravity from the reservoir to the water treatment plant (WTP) via 4" PVC buried piping installed as a part of the 1977 PHS project. A valve to stop flow to the WTP from the dam is not functioning. Valving is also present which provides for bypassing the WTP to fill the storage tanks directly.

The WTP was constructed in 1978. The treatment building is an aged structure with an open front (the garage door is missing). The treatment room is kept locked and is fully enclosed. The inlet line enters at the back of the building and passes through two pressure mixed-media filters. The filters consist of 18" of filter sand (0.45-0.55 mm), 3" of F9 sand (1.0mm), 3" of No. 4 gravel, 3" of No. 3 gravel, 3" of No. 2 gravel, and finally 3" of No. 1 gravel.

The original chlorine and fluoride venturi have been replaced with a 1 Amp, LMI Model C-A741-150FS chlorine pump with a maximum output of 14 gallons per day (gpd) and 250 pounds per square inch (psi). This injects calcium hypochlorite into the water stream. Once the water has been chlorinated, it exits the building and enters the water storage tanks. All piping in the treatment area is schedule 40 black steel with 150 psi fittings, with the exception of an approximately 3' length of PVC pipe, where the injector is mounted.

There are two meters present in the WTP, one at the entrance of the supply line into the building, and one after the filters. Two pressure gauges are present on each filter to show the head loss through the filter media. The filters and piping inside the building are aging and rusting. City employees backwash the filters regularly (once or twice a day during high water or spring runoff). It is unclear whether the pressure gauges are functioning properly, and they are not used by the employees to determine when to backwash the filters.

It is unknown whether or not the media was ever replaced in the filters or if the filters are functioning properly. Residents have made complaints of chlorine taste and turbid water. Previous water quality data and flow data were acquired during the field visit. Flow records indicate significant water leakage. Quality data reported satisfactory water conditions with the exception of high turbidity likely due to runoff.

The main concerns of the WTP operators were the frequency of the backwash cycle, age of equipment and building, turbidity during high water, and the lack of a barrier filter.

An evaluation of the plant's conformance to the Surface Water Treatment Rule (SWTR) was conducted. The SWTR is a regulation which defines minimum disinfection and contact time requirements to inactivate viruses, bacteria, and other microorganisms which may be present in surface waters. The treatment plant was found to be not in compliance with the SWTR at this time.

The SWTR calls for a 3 log-removal of Giardia cysts. The water treatment plant is currently operating at approximately 2.8 log-removal. In order to achieve compliance, upgrades or replacements in the filtration and disinfection systems are necessary. Monitoring and reporting techniques should be improved as well. The City currently has a monitoring waiver for Synthetic Organic Contaminants (SOC) and Other Organic Contaminants (OOC), which expires in 2001. A tech memo containing details of the engineering evaluation and detailed information on the findings and background information on the SWTR is given in Appendix E, along with a copy of the SOC/OOC monitoring waiver from ADEC.

5.1.3 Water Storage

Two 30,000-gallon wood stave storage tanks provide treated water storage in Atka. Both tanks are 14' high by 20' in diameter and were installed by PHS. The first tank, which serves the old Atka village, was installed in 1977, along with the dam, transmission line, and WTP. The old village tank currently serves 9 houses, the store, clinic, City office, corporation office, and a bed and breakfast. The second tank serves the 18 home Atka subdivision and was installed in 1982.

The original design criterion established by PHS was 20,000-gpd total water usage. At this rate, the 2 tanks combined provide nearly 3 days emergency storage. The projected daily water demand is 32,000 gpd. Since a minimum of 3 day's storage is recommended, an additional 45,000 gal of storage is needed.

The tanks are fitted with Clayton Model 124 level control valves with a 12" operating range. Valving is also present to bypass the tanks if needed. Both tanks have air vents, which need new bug screens. The tanks are placed on 4" x 6" timber joists, which are laid across 4" x 12" mudsills. The tank foundations appear stable and no noticeable settling has occurred. The old subdivision tank is strapped down with anchor cables to withstand wind loads. The tanks appear to be in good shape and watertight, with several minor exceptions. A small leak is present on the side of the Atka subdivision tank. There is also a leak at one of the bungs on the bottom of the old subdivision tank, which the operator said would be fixed during the summer of 2000. The old subdivision tank is also missing the top access lid. This lid, along with bug screens should be replaced as soon as possible.

The tank interiors are typically drained and power washed at least once or twice a year to remove any algae and sediment that may have accumulated on the bottom and walls of each tank. According to the City employees, the tanks are performing adequately.

The main problem reported by employees regarding water storage is that there is not adequate water storage to serve all of town and the processing plant when it is operating. Also, both level control valves leak water, even after they have been shut off. This becomes a problem in the winter when the leaks tend to freeze the valves.

5.1.4 Water Distribution

Water is supplied to the homes in both the old subdivision and new Atka subdivision with 4" PVC piping from the storage tanks. In the old subdivision, there are differences between the PHS as-builts and the description of the construction of the facilities by those who worked on the project. The PHS as-builts describe a 2" PVC line branching off the main line and serving several houses in the old subdivision. According to Mark Snigaroff, an old existing 2" steel line, which was already serving the homes from an old dam, was saddled onto the new 4" main rather than a new PVC line. The Corporation has a building on this line that uses water filters. It was reported that the filters must be changed weekly, possibly due to rusty piping. Aside from the houses on this line, all service lines serving buildings are typically ¾" copper tubing with curb stops and key boxes allowing the shut off of water service to the home.

A total of 11 fire hydrants are located on the distribution mains around the city. The old subdivision line provides flow to 6 hydrants, and 3 are served by the Atka subdivision water line. There are also 2 hydrants connected to the transmission main from the WTP to the Atka subdivision tank to serve the fire house and fish plant. Water for the fire department, fish plant, and the Nazan Inn is also tapped directly into this distribution line and is not fed from a tank.

The major deficiencies with the water distribution system expressed by the City employees were:

1. Areas of town experienced water shortages and low pressure when the fish plant is processing.
2. Occurrence of low pressure and rusty water in the old subdivision.
3. Several fire hydrants may be leaking.
4. There are no hydrants near the school or WTP.
5. There is no metering capability for commercial users.

5.1.5 Sewage Collection and Disposal

There are 5 individual gravity wastewater collection systems presently functioning in Atka including:

- 2 systems serving the old subdivision
- 1 serving the Atka subdivision (which also serves the fire station and the Nazan Inn)
- 1 serving the fish plant
- 1 serving the school.

PHS constructed both systems serving the old subdivision system in 1978. One system consists of 7 manholes, which are linked by 6” PVC sewer main. The system currently serves 6 homes. The second system also consists of 7 manholes and serves 8 buildings with a 6” PVC main. The manholes are 4’ diameter corrugated metal pipe (CMP) with concrete lids and bases. There did not appear to be significant amounts of infiltration into the manholes. The metal sides appeared to be severely rusted and the bases were not well formed. Homes are drained with 4” PVC service lines that are saddled to the 6” main. There is no septic tank in place for either of these sewer systems. Raw sewage from both is discharged into Nazan Bay. The outfall line for the first system is approximately 130’ of 6” PVC coupled to 350’ of 6” high-density polyethylene (PE) pipe and appeared to be broken at or near the tide line. The second outfall consists of approximately 300’ of 6” ductile iron pipe (DIP) that it is coupled to approximately 650’ of 6” flanged PE pipe. This outfall is reported to back up into the last manhole. City employees also report that this outfall may be broken at the coupling.

The Atka subdivision system was constructed by PHS in 1982 and serves all 18 homes in the subdivision. Two branches of 8” sewer main connect 6 manholes. The manholes are concrete and have well formed bases and channels. Houses are connected to the system with 4” PVC service lines. Both mains tie together before emptying into two septic tanks. The septic tanks consist of a 4,000-gallon primary septic tank and a 2,000-gallon secondary tank connected with an 8” pipe. The PHS as-builts show the second tank emptying into a dosing siphon manhole through a 6” PE pipe, which discharges into the ocean outfall. Before the septic tank effluent line heads down the beach, it is reported to collect raw sewage from the fire department and the

Nazan Inn. There is a final manhole before the outfall runs down the beach. The ocean outfall is constructed of 6" PE and discharges into Nazan Bay approximately 1,000' from the top of the beach line.

The City employees pump the septic tanks serving the Atka subdivision at least once a year. Recently, crews have pumped it 3 times in the last 6 months. Work was done on the septic tank system in 1994 to repair a tank that had settled and had broken a line.

The fish plant system serves only the processing area and two bathrooms present on site. The system consists of a septic tank for the black water, which empties into a manhole. The septic tank has no visible vents or access points and has subsequently not been pumped. Another line also empties into the manhole, which then flows into an ocean outfall. Little else is known about the material or the construction of the fish plant sewer system.

The school system reportedly has two separate components. The first serves the teacher housing and consists of a septage pit with sidewalls supported by plywood. The second is a septic tank that serves the school building. There are no visible cleanouts for the septic tank, and it is assumed that it is connected to a leachfield.

Sewer deficiencies reported by City workers include:

1. There are no septic tanks in the old subdivision system
2. The last manhole experiences back up problems on the second system serving the old subdivision and outfalls may be broken.
3. The new Atka Subdivision tank must be pumped too often.
4. The school system and the fish plant have systems that cannot be maintained properly.
5. The ductile iron pipe used to span a creek in the old subdivision had sagged at a joint. The section of line did not appear to be in use and would need to be repaired if it were put into service again.

5.1.6 Solid Waste Disposal

Solid waste in Atka is collected weekly by City workers in a pickup truck and hauled to the solid waste landfill. This facility is located approximately 2.5 miles from the last pickup point in town and 3,000' from the nearest point on the runway. City workers also collect waste from the Fish Plant, the School, and the dock facility.

A chain link fence encloses the landfill. The landfill is surrounded by four small hills, which limit its exposure and visibility. The waste is burned once it is deposited in the landfill, and then pushed to the end of the landfill. It is covered monthly. At the time of the May 16, 2000 field visit, there appeared to be land area and capacity remaining for additional waste disposal.

According to City workers, the landfill used to be locked and only open during daytime hours of operation. This practice was stopped, however, when dumping began to occur outside the landfill after hours. The waste was dumped along side the access road and has since been scattered by wind and scavengers. The debris includes household waste, animal carcasses, and

nonburnable items such as metal drums. City workers plan to clean it up and place it into the landfill.

A white goods and salvage yard has been set up on the road exiting the landfill location. Present at the location are appliances, cars, and steel. Some of these types of items also exist in the landfill site as well, but will no longer be dumped there.

There are a number of metal barrels with unknown contents present at the landfill. City workers burn waste oil in a waste oil burner and also sometimes use it to help burn the landfill wastes. There were no designated battery or other hazardous waste collection areas onsite.

Septage waste pumped from the City septic tanks is also buried at the landfill. When the septic pumper is full, a hole is excavated in the corner of the fenced landfill large enough to fit the contents of all of the accumulated septage. Several loads from the pumper are emptied into the pit and then covered. A new pit is dug each time the tanks are pumped.

Several deficiencies were witnessed at the solid waste disposal site at the time of visit including:

1. It appears from the mapping that the landfill is less than the required 5,000' separation distance from the airport.
2. There is no burn box, and uncontrolled burning has caused several grass fires on the hillside near the landfill.
3. Septage pit is unfenced.
4. Uncontrolled dumping is present.
5. There is no facility to house hazardous wastes such as waste oil and batteries.
6. There is no stockpile fill onsite to cover the waste with once it is burned.

5.2 Planning Conditions

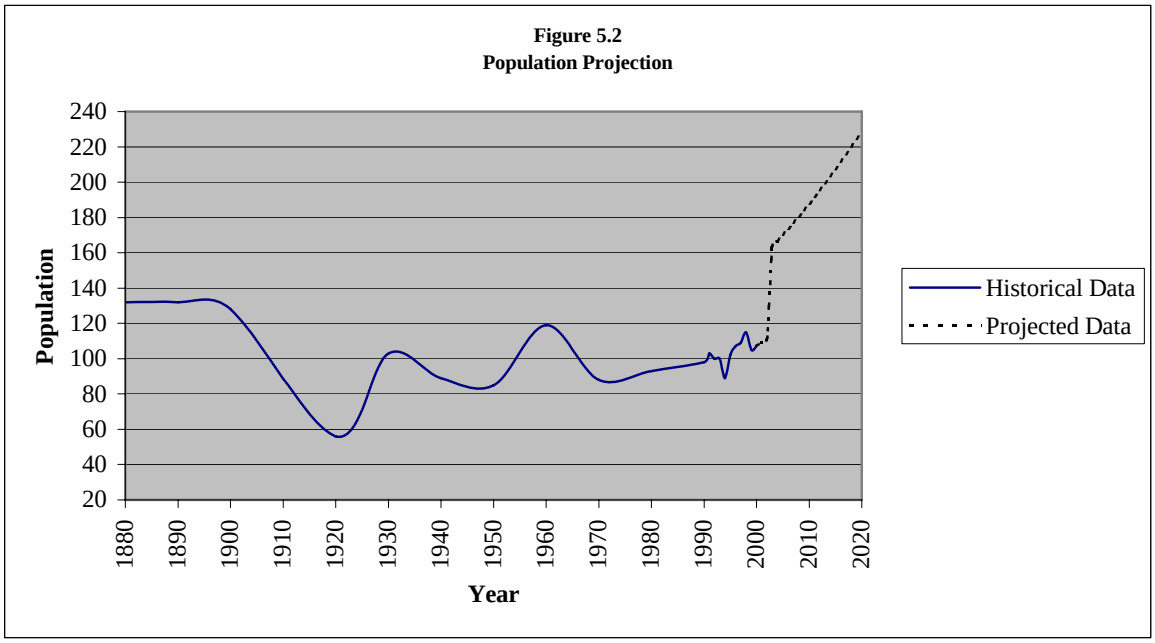
This section will provide an overview of future growth and development issues in the City of Atka. It will also present estimated growth rates and population projections for a 20-year planning horizon. The existing facility design criteria will then be evaluated and future design criteria established.

5.2.1 Population Growth Rates

The current population of Atka is 105, as listed by the DCED. The population of the City of Atka has remained steady for the past 5 years but has changed erratically during the course of its history.

This trend can also be seen in neighboring communities. The fishing industry is expected to expand in the Atka area. The tourism industry has also increased, boosting the area's economy. For these reasons it is expected that the village and surrounding communities will grow in population and expand into new lands.

A growth rate of 2% has been used to estimate the rate at which the population of Atka and the surrounding area will grow. Population projections for Atka are shown in Figure 5.2 below. The population spike is a result of projected fish plant expansion requiring more full time labor.



5.2.1.1 Residential Expansion

There are several vacant homes in the old village which have been vandalized in the last couple of years. All but three houses were built after the village was burned during World War II. Several years ago, six homes were renovated with BIA Housing Improvements funds. One is currently undergoing renovation to replace a bathroom sink and shower. The housing lots are generally crowded and utility lines are located on private lots with no dedicated easements. The available aerial photos are outdated and show buildings that are no longer existing, and do not show other newer improvements. There is consideration to dismantle some of the older homes and replace them.

The old subdivision site is near development capacity and any significant residential expansion will need to occur outside of this area. Council members identified land near the present Atka Subdivision as the most logical area to expand residential housing. During the May 16, 2000 field trip, a location for possible future expansion was identified in this area (see Figure 3.1). There appeared to be room for additional 15-18 homes at the indicated site.

5.2.1.2 Development of Fishing Industry

The local Atka economy is dependent largely upon commercial fishing. Since the 1980s, the community has developed a small-scale fish processing plant. The Community Development Quota (CDQ) for Atka was recently increased from 630,000 to 900,000 pounds. The CDQ

program has provided the resources to expand the fish plant and made larger boats available to local fisherman. The Atka Pride Seafoods, which currently processes halibut and black cod, would like to expand its operation to process other species of cod, as well as pursue aquaculture opportunities. There are plans to increase the plant to year-round operations.

Expansion of the Atka Pride Seafood operation in Atka will create an estimated increase in the number of seasonal workers residing in Atka during the processing season of up to 50 employees, if the new plant is constructed. Along with the plant, support services planned by Aleutian/Pribilof Islands Community Development Association (APICDA) for the fishing industry include a warehouse for dry goods storage as well as fuel services for the fishing fleet. To accommodate the expansion, it will be necessary to increase the water service. Since the plant water use is not metered it is unknown at this time what quantities are currently used and how much more will be needed. Based on previous water flow conditions, a water shortage is expected if the plant operates during the entire year.

The potential for Atxam Corporation to generate income for storage of crab pots in Atka was mitigated by the Aleut Corporation who recently lowered their storage costs in Adak. If this business is developed in Atka in the future, it could also place limited demands on the City's water system.

5.3 Design Criteria

At least two previous projects have been completed in Atka by PHS. A project completed in 1978 included the development of a water reservoir, water treatment building, water storage tank, water transmission lines, water service lines, fire hydrants, sewer collection lines, sewer service lines, manholes, and ocean outfalls. The design criteria for this project are shown in Table 5-1.

Table 5-1. 1978 Project Design Criteria

Design Criteria Description	Value
Individual water usage in gallons per capita per day (gpcd)	200
Overall water usage in gallons per day (gpd)	20,000
Sand filter flow rate @ 3 gpm/ft^2 (gpm)	21

No design criteria were listed for the wastewater flows.

A 1982 PHS project included the installation of a water storage tank, water transmission lines, water service lines, fire hydrants, sewer collection lines, sewer service lines, manholes, septic tanks, dosing siphon, and ocean outfall. The design criteria for this project are shown in Table 5-2.

Table 5-2. 1982 Project Design Criteria

Design Criteria Description	Value
Individual water usage in gallons per capita per day (gpcd)	75
Overall water usage in gallons per day (gpd)	7500
Individual average sewage daily flow rate (gpcd)	65
Overall sewer flow gallons per day (gpd)	6500

No design information has been found for the existing landfill.

5.3.1 Water Usage Rates

Water usage rates are important in maintaining the health of a community. As water consumption rates rise, there is a corresponding rise in the overall health of residents in the community.

The Cold Regions Utilities Monograph reports that as water availability increases, so does water consumption. It recommends a water usage rate of approximately 55-100 gpcd for communities with fully plumbed houses such as Atka. It further recommends a minimum rate of 15-20 gpcd for drinking, cooking, bathing, and laundry to maintain adequate sanitation. Another widely-used reference, Metcalf and Eddy, estimates typical municipal water use as 40 to 130 gpcd. The actual amount of usage depends on what type of appliances are present in the homes, such as dish washers and clothes washers, and what types of non-consumptive uses are practiced, such as car washing and lawn watering.

All of the residences in Atka are served by the community piped-water system. There are no service line meters installed to record individual water usage. Community-wide water use is measured by a flow meter at the WTP. This flow data is maintained in the City files. The data was examined to determine a per capita water consumption rate for the community. The baseline residential usage rate (calculated for a period when the fish plant is not operating) appears to be approximately 20,000 gpd, or 190 gpcd. This figure is very high and may indicate metering problems, faucets or hoses left running, or significant leakage in the water lines. Leakage may be difficult to pinpoint due to the porous soil conditions, lack of accurate as-builts, limited metering points, and limited valving in the system.

The average system annual daily usage is approximately 30,000 gpd, with the fish plant using approximately 10,000 gpd. If the fish plant future daily use is increased proportional to the CDQ increase, the future average daily use at the fish plant would be approximately 12,000 gpd.

From the information given in The Cold Regions Utilities Monograph, Metcalf and Eddy, and from design criteria developed for similar projects, a design value of 125 gpcd has been chosen as an appropriate usage rate for residential users. This figure still allows for reasonable system losses due to leakage or water wasting. Use of this figure for planning purposes assumes that the metering or excessive leakage/water wasting problems occurring in the present system would be resolved or mitigated. The 20-year design residential consumption for a population of 209 would be approximately 26,000 gpd.

The 20-year average day demand for residential and industrial users in Atka total approximately 38,000 gpd. Applying a maximum day factor of 1.5 results in a maximum day usage of approximately 57,000 gpd. This information may modified as the future of fish plant activities becomes more defined.

5.3.2 Sewage Disposal Rates

In rural communities like Atka, it is common to assume the base sewage disposal rate is similar to the water consumption rate (excluding leakage). This generally holds true because these smaller communities do not typically use significant quantities of water for non-contributing uses such as washing cars and watering lawns, as is common in larger cities. In addition, large quantities of water in Atka are used at the fish plant, which is not hooked up to the city sewer system.

Also when determining wastewater disposal rates for an underground gravity system with manholes, inflow and infiltration must be considered. To account for this, it is common to use a percentage of the water usage rate and add it to the wastewater disposal rate.

After reviewing The Cold Regions Utilities Monograph, considering the water usage design criteria, and taking into account inflow and infiltration, a rate of 95 gpcd for houses with conventional plumbing on a piped system is recommended. This figure should be confirmed before final design of improvements is begun. The fish plant has a separate outfall for waste, and is not included in this figure.

5.3.3 Solid Waste Generation Rates

Solid waste generation rates vary from community to community. Factors affecting generation rates include community size, accessibility to the community, economic makeup of the community, and seasonal activities such as fishing.

Isolated communities such as Atka tend to have lower waste generation rates than regional hubs, such as Dutch Harbor. The Cold Regions Utilities Monograph cites a waste generation rate of 4.5 pounds per capita per day for these smaller communities. The uncompacted, unburned density of solid waste for Atka is estimated at 200 pounds per cubic yard.

Other considerations are the commercial waste (not process wastes) generated by the fish plant and also waste collected from the new dock. This type of waste may contain commercial items such as boxing, crating, and containers as well as accumulated galley wastes from ships. A conservative estimate of 50% of the yearly waste generated by the population of Atka will be assumed for the waste generation for these two sources. This translates into approximately 235 pounds per day at the current population. Because Atka Pride Seafoods may begin taking other species of fish and processing nearly year round, the waste generation has been applied on a year round basis.

Burning and compaction are beneficial in landfill applications because it reduces the wind blown debris, reduces the volume required, and also reduces the problems caused by foraging animals. According to The Cold Regions Utilities Monograph, burning and compacting can reduce the generated waste to 25% of its original volume.

Once the waste has been burned and compacted, it is recommended that it be covered, which also affects the total volume required at the landfill. The Cold Regions Utilities Monograph reports that dirt fill and cover material increase the volume of the compacted and burned waste by 25%.

The following table summarizes the design criteria chosen from the information given:

Table 5-3. Final Design Criteria

Design Criteria	Value
Pounds of waste per capita per day generated:	4.5
Percentage of waste generated by fish plant and new dock per day:	50% of total
Pounds of waste per cubic yard (unburned and uncompacted):	200
Burn and compaction reduction factor:	0.3
Interim fill multiplier:	1.25
Project life:	20 years

Using the above design criteria, waste volumes were generated for the 20-year lifespan of the landfill. The projected landfill volume requirements are shown below in Table 5-4.

Table 5-4. Projected Landfill Volume Requirements

Year	Volume of Waste Generated (cy)	Cumulative Volume of Waste Generated (cy)	Final Volume with Interim Fill and Cover (cy)
2000	1,318	1,318	494
2005	2,122	11,520	4,320
2010	2,343	22,785	8,545
2015	2,585	35,220	13,200
2020	2,856	48,950	18,355

5.3.4 Summary of Design Criteria

The following table is a summary of design criteria proposed for planning of future sanitation facilities in Atka.

Table 5-5. Proposed Design Criteria

Design Criteria	Value
Planning period	20 years
Design population	209
Water	
Average daily per capita usage (gpcd)	26,000
Average daily fish plant usage (gpd)	12,000
Total average daily usage (gpd)	38,000
Total maximum daily usage (gpd)	57,000
Wastewater	
Average daily per capita flow (gpcd)	95
Total average daily flow (gpd)	17,800
Maximum daily per capita flow (gpcd)	130
Total maximum daily flow (gpd)	27,200
Solid Waste	
Average per capita daily production (pcpd):	4.5
See Table 5-4 above for waste volumes	

6.0 LAND STATUS

Atxam Corporation (Atxam) is the Native Village corporation in Atka, which incorporated and organized under Section 8 of the Alaska Native Claims Settlement Act (ANCSA). A total of 148 people are enrolled as shareholders in the Corporation, giving Atxam a land entitlement of 92,160 acres of land under ANCSA §12(a) and a 12(b) entitlement of 10,757 acres for a total of 102,917 acres. Atxam selected 12,500 acres of deficiency land around Canoe and Pavlof Bay (located on the Alaska Peninsula) to meet its total entitlement, since there was insufficient land on Atka Island to satisfy its total ANCSA selection. The corporation received title to the majority of its lands in 1979.

Executive Order 1733 dated March 3, 1930 withdrew 2,899,000 as a Wildlife Refuge in the Aleutian Islands, including Atka Island. This withdrawal was modified by ANILCA in December 2, 1980 but the area is still within the jurisdiction of the Aleutian Islands Wilderness Refuge.

In 1971, when ANCSA withdrew the land around the village of Atka for selection by the corporation, the Atxam Corporation selected all lands within the community with exception of .90 acres of land previously withdrawn under an Executive Order. This tract, USS 2015, was an Executive Order withdrawal (5289) on May 4, 1930 for a school. The school site was later transferred to the Atka IRA Council. See Figures 6.1 and 6.2 for property ownership and land status maps.

6.1 Property Surveyed by BLM

The only tract surveyed in Atka by BLM is USS 2015. Other tracts surveyed under special instruction from BLM for the purposes of transfer to the City under 14(c)(3) have been the dock and road from the airport to the dock. The State of Alaska Department of Transportation and Public Facilities surveyed the airport property.

6.2 14(c)(3) Conveyance Completed

Atxam is the owner of surface estate within and near the community of Atka and is required to transfer land to the City of Atka for community use and expansion pursuant to Section 14(c)(3) of ANCSA. The Bureau of Land Management in 43 CFR 2650.5-4 requires ANCSA Corporations to prepare and submit Maps of Boundaries depicting lands qualified as ANCSA §14(c) reconveyances to BLM. The process is near completion. Several tracts of lands were earlier conveyed to the State Municipal Land Trustee (MLT)/City of Atka in partial satisfaction of the Corporations obligation.

These tracts include land for a Clinic, Boat Repair/Carpentry Shop, Atka School and Fire Station, and were transferred to the State MLT under 14(c)(3) by a metes and bounds description since the land is not yet surveyed. When the City of Atka incorporated under State law, these tracts, with the exception of the school, (which was sold to the State Department of Education) were transferred to the City of Atka. Atxam also transferred land for the Airport Property to the State of Alaska under ANCSA Section 14(c)(4).

Additional land for the expansion of the airport will be conveyed to the City of Atka under ANCSA 14(c)(3). The corporation transferred land for public housing in the Atka Subdivision to the City in 1982 under 14(c)(3). The City transferred the land to the Aleutian Housing Authority. The Corporation transferred land for a Dock in 1996 and the roads from the airport to the Dock to the City of Atka under 14(c)(3) by a Quitclaim Deed in 1994. This deed conveyed the property interests in easements and rights-of-way to the City of Atka.

Atxam and the City of Atka have been working together to complete identification of present and foreseeable needs for land that would benefit all of the residents of Atka. A tentative 14(c)(3) agreement has been reached between the parties is intended to completely fulfill the Corporation's obligation under Section 14(c)(3) of ANCSA. The agreement will be finalized upon completion of this sanitation facilities feasibility study, and its approval by the Council. Additional needs for land identified for the upgrade of its water, sewer and waste disposal systems will be incorporated into the agreement and shown on the corporation's ANCSA 14(c) Map of Boundaries. When the land is surveyed and conveyed to the City of Atka, these lands will be held in public ownership.

6.3 Certificate of Allotment Issued

The designation of the Wildlife Refuge Status in 1930 closed the lands around Atka to occupation and entry. There are no Native Allotments on Atka Island.

6.4 Interim Lease

Interim leases were granted to the Atka IRA Council for the Clinic, Fire station and City Shop as an interim site control measure under the 14(c)(3) process. When the City of Atka incorporated, the lands were transferred to the City of Atka. These parcels will be surveyed along with other 14(c) parcels when the Corporation has completed its 14(c) obligation.

6.5 Municipal Lands Trustee Reviewed

The Municipal Land Trustee is no longer involved in Atka since the village incorporated as a City.

7.0 SANITATION FACILITY ALTERNATIVES

The City of Atka is currently served by a piped water and sewer system. This type of system eliminates the need for a washeteria, watering points, and summer distribution system in the alternatives considered. Sanitation facility improvements discussed below are, in general, upgrades to the existing system and repairs to address damage caused by age and weather.

7.1 General Alternatives

A list of general alternatives was compiled and presented to the City of Atka in Tech Memo 3. The no action alternative is not listed below, but is implied, as an alternative for each need.

7.1.1 Water

Need	Alternatives
1. Reservoir timber dam needs repair or replacement.	A. Relocate reservoir B. Reinforce existing structure C. Replace existing structure D. Investigate groundwater resources
2. Reservoir earthen sides need stabilization to prevent sloughing and erosion.	A. Relocate reservoir B. Cut or fill to modify side slopes C. Construct structural stabilization (retaining walls, gabions, etc.) D. Install vegetative, fabric, or other non-structural stabilization
3. Method needed to prevent/minimize grass accumulation on reservoir intake screen and fencing	A. Provide upstream removal/detention of debris B. Modify intake similar to infiltration gallery, allowing grasses to overflow dam C. Increase screen size to pass debris and remove grasses, etc. at WTP.
4. Raw water shutoff valve at reservoir needs repaired/replaced	A. Replace existing valve B. Repair existing valve C. Install new valve and abandon existing
5. WTP building is aged and in need of replacement	A. Upgrade and rehabilitate existing building B. Replace building with new
6. WTP equipment is aged, shows signs of corrosion, and possibly undersized for future demands	A. Upgrade existing equipment to meet demands B. Replace existing equipment with larger, newer units and components.
7. Pressure gauges need replacement	A. Replace with new gauges (it is not cost effective to repair existing gauges)
8. Treatment process needs evaluation to resolve consumer complaints of chlorine and turbid water, and to reduce frequency of backwash	A. Modify study scope/budget to include evaluation B. Conduct evaluation as separate work.
9. Treatment system needs a pre-filter to remove large particulates and debris	A. Improve removal of debris at water source (see 3A and 3B above) B. Install a manually-cleaned screen ahead of filters in WTP C. Install a self-cleaning screen ahead of filters in WTP
10. Old Atka village storage tank needs access hatch cover on top	A. Install hatch cover
11. Minor leaks in the Atka subdivision tank need repair to prevent freezing of valves	A. Repair leaks B. Provide heat for freeze protection of valves
12. Short supply of treated water when fish plant is operating	A. Evaluate separate process water line from source to fish plant B. Provide raw water storage for fish plant C. Increase treatment capacity at WTP D. Increase treated water storage
13. Corporation building filters require frequent changing due to rusty pipes, possibly in distribution piping	A. Determine causes and locations of rust in system then evaluate how to best address
14. Low pressure and rusty water reported in old Atka village	A. Conduct hydraulic evaluation to quantify locations, frequency, and extent of problems B. Add booster station to increase system pressures and reline existing pipes to reduce corrosion. C. Replace mains with newer, larger piping.

Need	Alternatives
15. Some leaking fire hydrants need repaired	A. Excavate, determine specific problems, and repair. B. Install new hydrants
16. Hydrants needed near school and WTP	A. Determine optimum location(s) and install new hydrant(s) B. Determine optimum location(s) and relocate existing hydrant(s)
17. Metering capability needed for commercial users	A. Install water meters on service lines B. Meter wastewater flows C. Install flow-limiting devices to control usage (would impact any fire protection systems in buildings)
18. Dedicated easements needed for water mains	A. Obtain easements from property owners B. Purchase property and re-plat rights-of-way (ROW) C. Relocate mains into ROWs
19. System needs to be evaluated for compliance with SWTR	A. Modify study scope/budget to include evaluation B. Conduct evaluation as separate work.
20. Need to resolve high per capita usage (possibly due to excessive leakage in the distribution system or metering problems)	A. Conduct field check of existing meters B. Conduct leak detection program C. Install additional meters to monitor flows to key areas of system
21. Need to resolve future lands needs through 14.C.3 process	A. Sanitation facility land requirements to be identified by this study.
22. New bug screens needed in storage tanks	A. Install new screens

7.1.2 Wastewater

Needs	Alternatives
1. Several metal manhole risers in old Atka village are severely corroded and inverts are not well formed (which increases maintenance costs).	A. Replace existing risers and form new inverts B. Replace with new manholes
2. Septic tanks, or other forms of treatment, are needed for 2 outfall lines in old Atka village.	A. Provide 2 separate septic tanks B. Tie outfalls together and install a single treatment facility C. Collect and pump wastewater to new lagoon
3. The old Atka village ductile iron outfall may be broken at the coupling and backs up into the last manhole	A. Repair coupling and determine if back-up problem is corrected B. Conduct TV inspection of line to determine condition and cause before attempting repair
4. Treatment needed for sewage from the Nazan Inn and the fire department since it enters the Atka subdivision outfall downstream of the septic tanks	A. Reroute line to tie in upstream of existing tank (may require lift station or pressure sewers) B. Place treatment on existing line prior to joining outfall
5. Fish plant septic tank needs vents or access so it can be maintained properly	A. Install vents and access on existing tank B. Install new tank with needed features
6. School sewer system needs upgrades so it can be maintained properly	A. Install new system with needed features. B. Locate existing tanks and provide access.
7. Sewer line creek crossing in old Atka village needs sagged joint repaired prior to being put into service	A. Repair existing joint and provide support B. Cut pipe and install single span section so that new joints are not in unsupported length. C. Determine if pipe is needed and remove.

Needs	Alternatives
8. Dedicated easements needed for sewer mains	A. Obtain easements from property owners B. Purchase property and replat rights-of-way (ROW) C. Relocate mains into ROWs
9. No ADEC permits were identified for sewer systems	A. Discuss permit needs and required actions with ADEC

7.1.3 Solid Waste

Need	Alternatives
1. Landfill location may not meet FAA separation requirements	A. Determine if separation issue exists B. Coordinate w/ FAA for a waiver if needed C. Relocate landfill to comply with separation distance if needed
2. Absence of a burnbox has resulted in uncontrolled fires at landfill	A. Install burnbox or incinerator at landfill B. Install burnbox or incinerator in City area C. Discontinue burning and control access to landfill
3. Uncontrolled dumping occurs at landfill	A. Conduct public education and awareness program B. Control access to landfill C. Have operator monitor landfill activities during open hours
4. Limited quantities of cover material available at landfill	A. Excavate fill material from new cells at landfill B. Import cover material from outside sources
5. Septage disposal area does not have controlled access	A. Fence septage area to prevent entry B. Have operator monitor and control access to septage area during landfill hours
6. Lack of facilities for storing/disposing hazardous wastes	A. Provide proper storage facilities B. Evaluate disposal methods and alternatives
7. Appliances and other non-burnables should be removed from the landfill and placed in the recently designated white goods and old vehicle storage area	A. Relocate as required. B. Haul large items out of Atka and dispose of at larger landfill.

7.2 Short-listed Alternatives

The general alternatives above were submitted to the City for review and comment. Shortlisted alternatives were then selected to address the sanitation facility needs of Atka.

7.2.1 Water System

Alternative 1 - Replace existing structure at water supply impoundment.

The existing impoundment consists of a wooden structure approximately 60 ft long and 7 ft high at its deepest, which impounds a small stream. The impoundment has a surface area of approximately 200 sf and the maximum water depth in the impoundment at the wooden structure is approximately 5 ft.

A replacement structure could be constructed of wood, concrete, or earthen fill. The following table discusses advantages and disadvantages of these materials.

Material	Advantages	Disadvantages
Wood	• Ease of construction • Cost	• Service life
Concrete	• Service life • Strength	• Cost • Construction would require form boards, shoring
Earthen	• Cost • Use of local material	• Erosion concerns • Maintenance

The recommended concept replacement is a wooden structure at or near the current location. The structure should be tied back to anchors upstream of the structure so that fill placed against the upstream side of the structure helps to resist overturning forces. The estimated concept-level cost for this structure is $50,000.

Alternative 2 - Construct slope stabilization at water supply impoundment.

Earthen slopes around the impoundment are unstable and slough off into the impoundment. Approximately 100 lf of 7 ft high stabilization is needed on the slopes. A retaining wall could be constructed of timber, concrete, or sheet pile. An economical timber retaining wall could be constructed using the tie-back method to stabilize the slopes. The estimated cost for a timber retaining wall is approximately $80,000. Concrete and sheet pile walls could provide a longer service life but would be approximately 5 to 10 times as expensive as timber. Another alternative is to use slope stabilization fabric in a layered fashion to retain the soil. However, this method would require a significant amount of earthwork to cut the slopes back and install the fabric.

Some areas with flatter slopes could be stabilized with non-structural means such as vegetation or erosion-control mat. Approximate costs for traditional mulch and seeding is $4.50/sy. An erosion control mat, such as North American Green is approximately $10.00/sy. The mulch and seeding are more susceptible to washout until the vegetation is established and growing.

Alternative 3 - Provide upstream removal/detention of debris.

Removal of debris, primarily grasses, can be accomplished by improving the intake screening, configuring the intake to allow clear passage of grasses through the impoundment area, or providing a self cleaning screen at the water treatment plant (WTP).

Intake screening improvements could include:

- A new pre-screen upstream of the intake piping
- A more accessible and more easily cleaned manual screen at the intake
- A self-cleaning screen at the intake.

A new pre-screen upstream of the intake piping and a more accessible manual screen at the intake would both require frequent visits to the intake for inspection and maintenance. A new pre-screen upstream of the intake would not provide any significant advantages over a screen at

the intake. The cost of a manually-cleaned screen at the intake, complete with access platform, is approximately $10,000.

An intake improvement could consist of a surface skimmer with submerged sump. This device would allow debris contained in the water column to bypass the intake, which would only catch the floating debris. Disadvantages of the surface skimmer include freezing problems and flow limitations, based on depth of submergence. Another intake improvement could consist of a submerged intake with the screen located in a flume-type structure. The flow velocity would increase in the vicinity of the screen, causing grasses and debris to be carried past the screen by the higher velocity. The cost for either of these structures is estimated at $10,000.

A self-cleaning screen requires electrical power or water pressure to remove collected grasses and debris. The cost of running power or a pressurized water supply to the intake, as well as constructing an enclosure, makes this option too expensive. A self-cleaning screen could be provided at the WTP, upstream of the filters, for a more economical application. A self-cleaning screen at the WTP would cost approximately $20,000.

Alternative 4 - Replace existing valve or install new valve at water supply impoundment.

The existing valve does not function and is needed to isolate the raw water supply line from the intake to the treatment plant. The costs to install a new valve in a different location, or replace the existing valve, are similar. Leaving the existing, non-functional valve in place could result in future leakage and possibly operational difficulties if an operator misidentifies, or is unfamiliar with the status of, the non-functional valve. The cost of installing a new valve is approximately $2,000.

Alternative 5b - Replace WTP building.

The existing structure is a 960 sf 2x4 wood frame structure. The facility is aged and in need of replacement. The new building will need to be approximately the same size as the existing building with an office area, bathroom, an operator work area, and a treatment room. The treatment room must be of adequate size to house the new filter equipment. The cost of replacement of the WTP is approximately $150,000.

Alternative 6 - Replace existing WTP equipment.

The existing WTP filter equipment appears to be adequately sized to meet the 20-year demands (provided the fish plant processing line is separated from the potable water system, or the potable water storage is increased). However, the equipment is aged and shows signs of severe corrosion. Gauges and other appurtenances are not functional. In addition, the filter media may be from the original facility construction and does not provide adequate treatment (in reducing turbidity). Improvements, such as addition of a coagulant, may be needed to meet Surface Water Treatment Rule (SWTR) requirements.

The estimated cost to install 2 ea. 30 gpm mixed media pressure filters with piping, valving and controls, flowmeter, turbidimeter, instrumentation, and hypochlorite and coagulant chemical feed systems is approximately $150,000.

Alternative 7 - Replace pressure gauges at WTP.

Headloss across the pressure filters, and backwash pressure and flow, are important tools to assist WTP operators in producing quality potable water. The existing pressure gauges are not functioning properly and should be replaced to provide the operators with this important information. The estimated cost to replace 5 ea. ½-inch tap pressure gauges (with 3-inch face) is $1,000.

Alternative 10 – Miscellaneous repairs to water storage tank

Water storage tank hatch covers protect treated water inside the tank from contamination due to animals, bird droppings, foreign objects, and other debris from entering the tank. It is important that they are in place and secure. The estimated cost to install a new 30-inch-diameter access hatches on top of both 30,000-gal wood tanks is approximately $2,000. The cost to drain, clean, and repair leaks in the wooden structures could cost as much as $10,000 depending on how the repair was performed and extent of damage to the tank walls.

Alternative 11 - Provide heat or freeze protection of valves at water storage tanks.

Freeze protection of the valves could be provided by an electric heat trace or by placing them inside the tank. Placement of the valves inside the tank is not a common practice and increases their potential for corrosion, as well as operational difficulty. It also requires draining the tank to access the valves for repair or replacement. Electric heat tracing is the preferred method. The cost to extend 110 V power supply 100 lf and connect to 15 lf of 5 W/ft self limiting heat trace is estimated at $8,000. Another alternative involves insulating the tank roof the retain more of the water's thermal mass within the tank.

Alternative 12a - Evaluate separate process water line from source to fish plant.

The fish processing facility in Atka currently uses potable water for processing in the facility. This places capacity burdens on the City's treatment and storage facilities, and increases system operation and maintenance costs. The estimated average daily breakdown between potable and process water is 20,000-gal potable and 10,000 gpd process.

Fish processing water is governed under 18 AAC 34.080. This regulation states that a processing water supply must, in general:

- Be approved by the Department of Environmental Conservation
- Maintain a measurable residual of free chlorine
- Meet maximum contaminant levels for total coliform bacteria
- Meet testing requirements for other contaminants, if directed by the department
- Meet minimum sampling and reporting requirements.

The City of Atka could realize potentially significant cost savings by treating only potable water used for consumption, and bypass the treatment facility with water used for fish processing. The process water could be transported directly to the processing facility via a dedicated pipeline, and then chlorinated at the fish processing facility. This approach is used in other fish processing facilities in Akutan and King Cove.

It is estimated that approximately 2,200 lf of 4-inch diameter, uninsulated HDPE SDR 11 pipeline would be required. The depth of bury would be approximately 5 ft. The estimated capital cost to construct the dedicated process water supply line is $100,000, and a hypochlorite feed system is approximately $10,000.

Alternative 12b - Increase treatment capacity at WTP.

Another approach to meeting future water demands is to increase treatment capacity. While this would save money by not constructing a dedicated process water line or additional storage tanks, it would require capital investment of approximately $50,000 to add more treatment units, or replace the existing units with larger ones. It would also increase O&M costs linearly, or by about 30%.

Alternative 12c - Increase treated water storage capacity.

Increasing treated water storage capacity is an alternative to constructing a separate process water line, or increasing treatment capacity. The average daily potable water demand in Atka is approximately 30,000 gpd. The Cold Regions Utilities Monograph recommends up to 3 days of average daily use as the minimum storage volume. Given the remoteness of Atka, it may be prudent to provide 5 days storage to allow for weather delays or other logistical problems in getting spare parts or equipment to the Village. The estimated cost to install an insulated 150,000 gal bolted steel storage tank on steel ringwall foundation is $300,000.

Alternative 13 – Evaluate reports of rust in distribution system.

During the construction of the 1978 water upgrades to the old Atka village, approximately 1,200 lf (according to sources on the construction crew) of old 2-inch diameter galvanized steel piping was left in place rather than being replaced by the new PVC piping that was called for in the plans. This piping starts on Atax way and serves the Atka IRA council buildings (the old school) as well as several surrounding homes.

There are approximately nine connections on this line. Concerns have been voiced by residents about finding rust in fixtures on this line. The piping is very old (it is believed to have been installed circa World War II) and may have significant interior corrosion. The line should be excavated, inspected, and replaced if found to be corroded or is introducing rust to the potable water. Replacement of this pipe and its appurtenances is estimated at $100,000.

Alternative 14 - Conduct hydraulic evaluation/replace mains to address low pressures.

Reports of low pressure have been received for localized areas in the old Atka village. Occurrences of low pressure can be caused by piping restrictions or high demands. Available information indicates that the low pressure occurrences are likely due to pipe restrictions, as the reports of low pressure are located on the old, small-diameter galvanized steel line. It is not uncommon for pipe inner diameters, especially smaller diameter pipe, to be reduced over time due to scale buildup and corrosion. These flow restrictions decrease the level of customer service and also inhibit the City's fire protection capabilities.

After the steel mains are excavated, an inspection will determine whether or not they are restricting flow. It is likely that the problems addressed in Alternatives 13 and 14 are related and

caused by the same conditions. The 2-inch diameter galvanized steel pipelines should be replaced for the reasons stated here and in Alternative 13 above. If low pressure conditions persist, then an more extensive hydraulic evaluation of the distribution system is warranted.

Alternative 15 – Replace fire hydrants.

It has been reported that approximately four existing fire hydrants are leaking or in other states of damage or disrepair. The unit cost for replacing a single pumper dry barrel fire hydrant is $3,500 installed, or $14,000 total.

Alternative 16 - Install new hydrants near school and WTP.

Two new fire hydrants are needed for fire protection at the school and the WTP. The total cost for these fire hydrants is approximately $7,000 installed.

Alternative 17a - Install water meters on commercial service lines.

There are approximately six commercial users in Atka. Installing water meters on these commercial users will help the City to recover costs of operating the potable water and wastewater collection systems. Since the service line sizes for commercial users are not known, a 2-inch size is assumed. The estimated cost to install 2-inch meters on commercial connections is $600 per connection.

Alternative 17b - Meter commercial wastewater flows.

Metering wastewater flows is more expensive, and more time consuming, than metering water flow. Solids and debris in the sewer system tend to catch on meter propellers, etc., and create flow obstructions. Other meter types are more easily scoured and linings are more easily damaged by gravel, sand, and other solids in the wastewater. Wastewater meters are also more susceptible to freezing and can create unfavorable conditions for access and inspection. In addition, the quantity of wastewater discharged is, in most cases, nearly equal to that of water supplied to the facility. An exception may be the fish processing plant where the process water is discharged directly to the ocean, and is not collected and disposed in the wastewater system. Metering of wastewater flows is not recommended in Atka.

Alternative 18 - Obtain easements from property owners for existing mains.

It is important for the City to have legal access to water and sewer mains for maintenance and repairs. Most water and sewer mains in Atka are not currently located in easements or rights-of-way (ROWs). The mains could be relocated into existing easements or ROWs, or the City could obtain easements for lines in their current locations. Relocating existing mains into ROWs and reconnecting all services would be expensive and time consuming, and could possibly result in significant disruptions to service. This approach would be most feasible in areas where other factors favor relocation or replacement of the pipes, such as the areas with small diameter galvanized steel mains.

Typical costs of obtaining easements include survey, landowner approval, recording, and compensation to landowners. Landowner compensation varies from location to location. Many rural Alaska villages negotiate with landowners to pay for on-lot improvements, such as

installing or replacing a service line, in exchange for a mainline easement across that lot. An additional cost in Atka would be to first field locate the pipelines, determine their true location, and then prepare the survey plats for landowner consent and recording. The cost of obtaining easements will depend on knowing the actual locations of lines and what compensation is acceptable to the landowners.

Alternative 19 – Evaluate system compliance to Surface Water Treatment Rule.

This alternative was addressed in this assessment, and a summary was provided in Section 5.1.2.

Alternative 20a - Conduct leak detection program.

Atka currently has a very high per capita consumption of potable water. Existing meter readings indicate a per capita value in Atka of nearly 200 gpcd, as compared with 50 to 75 gpcd for other rural Alaska villages. This high value indicates excessive leakage, water wasting, or inaccurate meter readings, the result of which are increased O&M costs for the City. A program should be implemented to do the following:

1. Calibrate and adjust as needed each meter in the system.
2. Add meters on key system branches to determine water use in specific areas of the village. The actual water use should be compared against the expected use based on the number of users on each branch.
3. Conduct late night shutdowns and monitoring of the system to determine if water leakage or water wasting is occurring in specific areas.
4. Conduct an ultrasonic leak detection program if significant leaks can be pinpointed to specific areas.
5. Implement a program to question users on water consumption habits, and to educate the public on the benefits of responsible water use, if needed.

The estimated range of costs for this program is $15,000 to $30,000, depending on the final approved plan and schedule for implementation.

Alternative 20b - Install additional meters to monitor flows to key areas of system.

The ability to monitor flows in specific areas of the system is important to locate existing leaks, as well as to monitor water use in the future. Based on the City's current water system configuration, a total of 8 meters are recommended. The installed cost for these meters is approximately $9,600.

Alternative 21 - Install new screens on water storage tanks.

The water storage tanks in Atka are used to store treated water. Water flows directly from the tanks to consumers for drinking, eating, cooking, and other uses. Tank vent screens are important in keeping insects, birds, and other small animals out of the tank, where they would contaminate the drinking water.

The City should install new stainless steel screens in each tank vent. The screens should be 2 layers, an outer coarse screen for birds and an inner fine-mesh screen for bugs). The estimated cost for these screens is approximately $800 installed.

7.2.2 Wastewater System

Alternative 1 - Replace deficient manholes in Atka village.

Approximately 13 manholes in the area of the old Atka village are constructed with 48-inch diameter corrugated metal pipe (CMP) risers and concrete, or no, bases. All of the bases are poorly formed, or have deteriorated, allowing gravel and other material to enter the sewage collection system. These also tend to cause material to become stuck, creating sewer line backups. The CMP risers are severely corroded in some places, creating safety hazards for those entering the manhole, and decreasing the overall integrity of the system. These deteriorated manholes and bases should be replaced with well-formed concrete bases and precast concrete risers. Assuming a typical depth of 8 ft, the estimated cost to replace the 10 manholes currently in use is approximately $100,000.

Alternative 2 - Install treatment facilities in Atka village for two outfalls.

Upon inspection of the as-builts, it does not appear that combining the two existing outfalls into one facility is possible with out the installation of a lift station. Instead of installing a lift station, septic tanks can be installed up stream of the outfall and downstream of the last user. These septic tanks would perform primary treatment through the settlement of solids out of the effluent. The tanks would require pumping once per year. The cost to install two community septic tanks is estimated at $50,000 each.

Alternative 3 - Repair/Replace north outfall in Atka Village.

Upon inspection, the north outfall appeared to be broken. Closer inspection of this outfall is required to determine if it is still intact. This may require diving to inspect the sections below the tide line. A cost of $100,000 has been estimated to install a new outfall from the proposed septic tank.

Alternative 4 - Repair Atka village south outfall coupling and determine if back-up problem is corrected.

City crews have reported chronic maintenance problems with the south outfall in old Atka village. The problem appears to occur at the coupling that connects the ductile iron segment to the HDPE segment. The outfall coupling should be dismantled and the pipe ends inspected for protrusions or other conditions that would create blockages. When the pipe is replaced, care should be taken to ensure no reverse grades are present. The estimated cost to complete the repair is $10,000. This is assuming a diver finds the break in the line and a repair clamp can be installed.

Alternative 5 - Place treatment on Nazan Inn line prior to joining outfall.

Sewage from the Nazan Inn enters the outfall downstream of the community septic tank near the HUD subdivision. Existing topography does not allow the line to be relocated upstream of the septic tank. This condition results in untreated sewage discharging to Nazan Bay. The most straightforward remedy would be to place a septic tank on the line prior to its connection with the outfall. The cost to install a 2,000-gal septic tank is approximately $20,000.

Alternative 6 - Install new septic tank at fish plant.

A septic tank is reported to be installed at the fish plant, but no vents or access ports are visible. No reports of tank maintenance have been found. The tank is believed to be an older unit and it is not likely that baffles are present. A new 2,000-gal tank with baffles and access points should be provided to allow proper operation and pumping of the unit. The estimated cost installed is $20,000.

Alternative 7 - Install new wastewater system at school.

According to School superintendent Joe Beckford, the teacher housing in Atka is receiving a new septic system consisting of two 1000-gallon tanks and two leachfields. He also indicated that the school may be interested in connecting to the piped system serving the new Atka Subdivision.

This alternative would require the installation of a grinder pump and low-pressure sewer system. This would pump sewage 1,500 feet from the school and dispose of it in the HUD subdivision gravity sewer at the first manhole upstream of the first septic tank. A concept-level cost allowance of $100,000 would be adequate for an onsite disposal system, or a grinder pump and low-pressure sewer.

Alternative 8 - Sewer pipe at creek crossing.

It should be decided if the sewer line above the noted stream crossing will be placed in use some time in the near future. If so, that section of line should be removed and replaced by a span of arctic pipe. This pipe would be positioned to span from bank to bank without any joints exposed. If this arrangement is not possible, the joint is to be supported adequately so no sags will appear at the joint. The estimated cost for this repair is $25,000.

Alternative 9 - Obtain easements from property owners for existing mains.

Easement issues are previously discussed in water system Alternative 18 above.

Alternative 10 - Identify wastewater system permit needs and required actions.

Currently, none of the wastewater outfalls for the City of Atka are permitted. The outfall for the new Atka Subdivision expired on May 1, 1999. Another permit for wastewater discharge expired January 1, 1989. To acquire approval from DEC and have all of the wastewater outfalls permitted may require system upgrades. These upgrades have been outlined in the earlier alternatives. It is recommended that the improvements are completed first, and then the necessary information is collected and the permits are applied for.

Alternative 11 - Connect WTP to existing sewer collection main.

The WTP currently has a bathroom connected to a septic tank and a gray water discharge. It is unknown if the tank is connected to a leach field. This alternative would consist of connecting the WTP to the existing sewer collection mains serving Atka village. This would require installation of one manhole and approximately 400 of sewer mainline for an estimated cost of approximately $50,000.

Alternative 12 – Connect Safe House to existing sewer collection main.

The Safe House is not currently plumbed for a bathroom, but input from the village indicates that it may be plumbed in the future. If the village decides to install a bathroom, it will require a means to dispose of the waste. This alternative would consist of connecting the Safe house near the water storage tank to the existing sewer collection mains serving Atka village. This would require installation of one manhole and approximately 300 of sewer mainline for an estimated cost of approximately $40,000.

7.2.3 Solid Waste System

Alternative 1 - Obtain FAA waiver for separation distance.

FAA regulations require a 5,000-ft separation distance between airports for propeller driven aircraft and landfills. Waivers can be obtained if there is a valid reason why a new landfill can't be constructed. The distance between the airport and the landfill is approximately 3,000 feet. It is anticipated that the application for a FAA waiver would cost approximately $5,000 to complete. Once completed, it is the decision of the FAA whether or not the waiver will be granted and what the terms for granting the waiver are.

Alternative 2 - Install burnbox or incinerator at landfill.

Installation of a burnbox or burn cage would greatly reduce the amount of waste at the landfill to be covered. These products are of simple construction and are used to provide a controlled place to burn the waste and to aid in containing the ash produced from burning. Burning also reduces the onsite rodent and bird problems. The estimated cost for shipping and placing a burnbox is $10,000.

Alternative 3 – Cover material at landfill.

The amount of cover currently necessary at the landfill to cover existing waste was estimated from aerial photography to be approximately 500 cy. The waste to be covered would be all inside the landfill with the exception of items to be transported to the white goods storage area. All empty drums must be empty to be buried. If barrels are not empty, they must be set aside and DEC must be contacted to determine the proper means of disposal. An empty barrel consists of less than an inch of product remaining.

The amount of cover necessary on hand to cover all of the new waste is approximately 250 cy. Combining the two quantities and adding surplus for compaction yields approximately 1,000 cy of cover material. The estimated cost to excavate, haul, and place this material is approximately $10/cy or $10,000.

Alternative 4 - Fence septage area to control access.

A dedicated septage disposal area is needed to provide proper disposal of septage removed from septic tanks. An area is currently used in the Atka landfill for this purpose, but it is open and accessible to anyone visiting the landfill. Access to the Atka landfill is currently uncontrolled. An uncontrolled septage disposal area creates unsanitary conditions and health hazards. The

septage disposal area should be enclosed with a chain-link fence and locked gate. The cost to provide 80 lf of fence with a gate is approximately $4,000.

Alternative 5 - Provide proper storage facilities for household hazardous wastes.

Often in rural villages, Conex trailers are used as receptacles for household hazardous wastes such as paint, solvents, thinners, and batteries. The trailer should be fitted with a locking door and placed on a level pad. Inside the trailer large plastic totes (fish totes often work) are placed and the bottoms are covered with absorbent pads. The wastes are placed in the totes, which are shipped to a landfill with facilities designed for such wastes. The estimated cost to ship and place a storage facility is $10,000.

Alternative 6 – Relocate appliances and large non-burnables to white goods area.

The removal of white goods from the landfill is recommended. The cost to move all appliances, vehicles, and other non-burnables is approximately $6,500.

Alternative 7 – Additional cleanup of landfill area.

It was noticed that garbage, including carcasses, had been dumped outside the fenced landfill area. It was voiced by a City representative that it would be desired to clean the area and deposit any collected refuse in proper location. This is estimated to cost $8,000.

Alternative 8 – Collection stations at fish plant and the new dock facility.

For large volumes of waste produced in the future by the fish plant or the new dock, a solid waste collection station is recommended. This station would consist of a pad and a conveniently located dumpster. The dumpster would need to be compatible with a forklift, which would be used to transport and dispose of the waste. The estimated cost of the pads and dumpsters is $10,000.

8.0 IMPROVEMENT PLAN

An improvement plan was developed for the selected alternatives and the items listed in the plan were phased for the City of Atka.

8.1 Phase 1

The Phase 1 improvement plan consists of the priority items that the City Council would like to have addressed with approved funding for the project. This first phase (see Figure 8.1.) consists of an estimated $1,671,000 in upgrades to the water, sewer, and solid waste systems. A breakdown of the costs are included in Table 8-1.

Table 8-1. Improvement Plan Phase 1[(1)]

Item No.	Description	Extension
Phase 1 Improvements		
Water System		
1	Water supply impoundment improvements (new dam structure, intake improvements, debris removal, slope stabilization)	$150,000
2	New WTP equipment	$150,000
3	Replace WTP building	$150,000
4	Construct separate process water line to fish plant (2200 lf)	$110,000
5	Install new fire hydrants (near school and where exist ones are inoperable 6 ea.)	$21,000
6	Replace galvanized steel water mains (to reduce rust in system and to increase size and fire flow) (1200 lf)	$96,000
7	Conduct water audit and leak detection program	$30,000
8	Complete misc. system repairs (storage tank leaks, hatch and screens, new valve at impoundment, meters on commercial users, etc.)	$20,000
	Subtotal	$727,000
Wastewater System		
1	New south community septic tank for old Atka village & inspect/repair portion of the outfall (assumes exist HDPE outfall is serviceable)	$50,000
2	New north community septic tank and outfall for old Atka village	$150,000
3	Excavate two septic tanks and lines at New Atka subdivision and compact, regrade	$20,000
4	New septic tank on sewer line from Nazan Inn to outfall	$20,000
5	New septic tank at fish plant	$20,000
6	School sewer system upgrades	$100,000
	Subtotal	$360,000
Solid Waste		
1	FAA waiver	$7,500
2	Burnbox	$10,000
3	Fence around septage disposal area (100 lf)	$4,000
4	Hazardous waste storage/transfer area	$5,000
	Subtotal	$26,500
	Subtotal	$1,114,000
	Contingency (25%)	$278,000
	Engineering/CM/Legal/Admin. (25%)	$278,000
	TOTAL PHASE 1	**$1,671,000**

(1) Cost estimates are concept level, rough order of magnitude for planning purposes and should be reviewed after preliminary design.

(2) Total is rounded to nearest thousand.

(3) The cost of obtaining easements will depend on a number of factors, including location length, width, and landowner compensation, which cannot be quantified at this time.

8.2 Phase 2

The Phase 2 improvement plan consists of the items that the City Council would like to have addressed with subsequent funding for the later phases of this project. This second phase (see Figure 8.2.) consists of an estimated $1,030,000 in upgrades to the water, sewer, and solid waste systems. A breakdown of the costs are included in Table 8-2.

Table 8-2. Improvement Plan Phase 2 (1)

Item No.	Description	Extension
Water System		
1	Provide heat or freeze protection of valves a water storage tanks	$8,000
2	Install additional storage capacity to increase contact time in the water storage tanks	$300,000
3	Conduct hydraulic evaluation/replace mains to address low pressures.	$100,000
4	Obtain easements from property owners for existing mains	See Note 3
5	Install additional meters and valves to monitor flows to key areas of system	$19,600
	Subtotal	$428,000
Wastewater System		
1	Replace deficient manholes in Atka Village	$100,000
2	Sewer pipe at creek crossing	$25,000
3	Connect WTP to existing sewer collection lines	$50,000
4	Connect Safe House to existing sewer collection lines	$40,000
5	Identify wastewater system permit needs and required actions	$8,000
	Subtotal	$223,000
Solid Waste		
1	Removal of non-burnable items and placing them in white goods storage area	$6,500
2	Additional clean up of landfill area	$8,000
3	Installation of a collection station at the Fish Plant and the new dock facility.	$20,000
	Subtotal	$34,500
	Subtotal	$686,000
	Contingency (25%)	$172,000
	Engineering/Admin. (25%)	$172,000
	TOTAL PHASE 2	**$1,030,000**

(1) Cost estimates are concept level, rough order of magnitude for planning purposes and should be reviewed after preliminary design.

(2) Total is rounded to nearest thousand.

(3) The cost of obtaining easements will depend on a number of factors, including location length, width, and landowner compensation, which cannot be quantified at this time.

9.0 UTILITY RATES

This preliminary Rate Analysis is based upon the description of the Atka system contained in Tech Memos 1 - 4, as well as supplemental information provided by the City and HDR.

This Rate Analysis should be considered as a “discussion framework” to provide an outline for how the City can track consumption, allocate costs to the various users, and recover revenue from users, if desired, to offset the costs of operating the system.

It should be emphasized that the following estimates of water consumption by the various users should be regarded as only a very rough estimate, because historically, the various users have not been metered. Planned system improvements should include the installation of water meters that will permit a record to be kept of actual water consumption by the different users. This will become particularly important if the Fish Plant moves to year round operation (with a corresponding significant increase in water use), as mentioned in Tech Memo 1.

Table 9-1 provides an estimate of the annual water consumption, in gallons, by various users, and Table 9-2 summarizes current and estimated future consumption, as a percentage of the total, by user. These are the estimates that are utilized in this Rate Analysis:

Table 9-1. Estimated Annual Water Consumption (Current and Future)

User	Estimated Current Consumption	Estimated Future Consumption	Comments
Residential Current population 105 (27 residences + 4 other buildings (Store, IRA, p/h))	20,000 gal/day x 365 days = 7,300,000 gals	20,000 gal/day x 365 days = 7,300,000 gals	No overall increase in future consumption – assumed per capita usage will decrease with system improvements, offsetting population increase.
School including school residences (currently 20 students, 3 staff)	3 staff @ 125 gpd x 250 days = 95,000 gals + 20 students @ 50 gpd x 200 days = 200,000 gals. Total = 295,000 gals	= 450,000 gals	Assume 50% growth in school as population grows.
Clinic	250 gpd x 5 days/wk x 52 weeks = 65,000 gals	= 97,500 gals	Assume 50% growth in clinic usage as population grows
Nazan Inn (4 rooms)	100 gals/room x 4 rooms x 365 days @ 75% occupancy = 109,500 gals	= 109,500 gals	Unknown future expansion plans
Atka Pride Seafoods, Fish Plant	12,000 gpd x 90 days = 1,080,000 gals	12,000 gpd x 300 days = 3,600,000 gals	Assumes change to year-round operations
Total Estimated Annual Water Consumption	8,849,500 gals *say* 9,000,000 gals/yr.	11,557,000 gals *say* 12,000,000 gals/yr.	Assumes expansion of Fish Plant. With no expansion, annual total will be about 9,500,000 gals

Table 9-2. Summary of Current and Future Water Usage (%)

User	Current Usage (% of annual total)	Future Usage (% of annual total) *With* Fish Plant expansion	Future Usage (% of annual total) *Without* Fish Plant expansion
Residential:	82%	63%	81%
School:	3.5%	4%	5%
Clinic:	1%	1%	1%
Nazan Inn:	1%	1%	1%
Fish Plant:	12%	31%	12%

Percentages may not total 100% due to rounding

9.1 Allocating Operating and Maintenance Costs

Currently, no revenues are collected from users of the water and sewage system. The following provides a suggested framework for the City to consider.

It is recommended that the City implement some form of cost recovery for the water and sewage utility to allow for equipment replacement, cost recovery for heavy equipment (HE) and City truck usage. Additionally, if the City intends to apply for VSW funds for system improvements, they will require both an operating budget as well as a Utilities Ordinance, which typically include provisions for charging users.

There are currently 31 "residential" household units. From Table 9-2, it is assumed these residential users are to bear 82% of the cost of the system (which will be reduced to between 63% and 81% in the future, depending upon the expansion plans of the Fish Plant).

This yields a per unit cost allocation of 82%/31 units = 2.6% per residential unit.

It is assumed that the School is to bear about 3.5% of system costs.

For simplicity, the Nazan Inn and the Clinic should bear approximately a residential rate.

The Fish Plant should bear about 12% of the current cost.

Current expenditures on the water system are about $12,000 per year. Current expenditures on the sewage system are unknown and may be included with the water system expenditures. Current expenditures for the garbage services are about $5,250 per year.

There are no charges or budgets for equipment replacement, spare parts, equipment charges (garbage services and sewage pump-outs) or contributions to City administration costs (i.e., an indirect rate).

We have assumed that the City is current with respect to laboratory testing; however there are additional requirements that the City may not be current with. Every five years it is estimated that an additional $2,000 in testing will be required for a "sanitary survey" ($400 per year on an

annual basis) and preparation of periodic waiver applications, which can reduce additional testing requirements.

A recommended minimum budget for the water/sewage system is as follows. It represents an increase over the current budget, largely due to an increase in the labor hours deemed proper to run the water and sewer systems.

Table 9-3. Suggested Annual Budget – Water/Sewage System

Labor	$21,285	allows for 28 hours per week @ $13/hour + 12.45%
Repairs/Maintenance	$1,000	allowance for parts, repairs and spares
Equipment	$1,000	allowance for replacement of equipment
Training & Cert.	$3,000	training and certification of operators
Testing	$1,900	lab and freight costs ($1,500 annually + sanitary survey)
Electricity	$750	
Heating fuel	$500	assumes no heating of water
Supplies (Cl)	$1,000	
HE usage	$1,000	sewage truck and HE costs
Misc.	$500	
Total	$31,935	

The cost per user for this budget will be as follows:

Table 9-4. Summary of Suggested User Charges – Water/Sewage System

User	Suggested Current Annual User Charge	Suggest Monthly User Charge
Residential:	$1006	$84[1]
School:	$1120	$125 (over 9 months)
Clinic:	$1006	$84
Nazan Inn:	$1006	$84
Fish Plant:	$3,840	$681 (over 3 months)

[1]Household charge depicts only 85% of residents paying for service.

Annual amounts may not total budget due to rounding.

"Future" allocations and rates have not been calculated. However, if the Fish Plant is expanded, the rates should be reassessed based upon actual costs and consumption. In any event, Council should monitor costs, consumption and revenues, and make adjustments to user charges from time to time.

9.2 Garbage Service

A recommended minimum budget for the garbage service is as follows. It represents only a minimal increase over the current budget:

Table 9-5. Suggested Annual Budget – Garbage Service

Labor	$6,100	Allows for 8 hours per week @ $13/hour + 12.45%
HE usage	$4,800	HE costs – 4 hrs per month @ $100/hour for 12 months
Total	$10,900	

It is not known if garbage is picked up from the Fish Plant and the School. Assuming that garbage service is provided to these users, the Table 9-6 is based upon the following number of users:

Number of residential users 31
School users 4
Clinic.....1
Nazan Inn.....1
Fish Plant 1

Table 9-6. Summary of Suggested User Charges – Garbage Services

User	Suggested Current Annual User Charge	Suggest Monthly User Charge
Residential:	$338	$28[1]
School:	$287	$32 (over 9 months)
Clinic:	$287	$24
Nazan Inn:	$287	$24
Fish Plant:	$287	$96 (over 3 months)

[1]Household charge depicts only 85% of residents paying for service

Annual amounts may not total budget due to rounding.

Once again, these budgets and monthly user costs should be regarded as suggestions for discussion. If the City chooses to implement a system of user fees, the revenue will help the City maintain, repair and upgrade the system on a more regular basis.

It should also be emphasized that actual consumption by different users should be monitored and costs reallocated, if need be, every few years.

10.0 POTENTIAL FUNDING SOURCES

10.1 Funding Opportunities for all Sanitation Projects

10.1.1 Grants for all Sanitation Projects

Community Development Block Grant Program (CDBG)

The US Department of Housing and Urban Development (HUD) and the Alaska Department of Community and Regional Affairs (DCRA) manage this grant program to provide financial resources to communities for public facilities design and construction and planning activities. Specific project activities may include water and sewer facilities construction, landfill construction, acquisition of property, relocation and demolition, and rehabilitation of structures. Community development and planning activities which address health and safety needs are the priority for funding. Municipal governments (except Anchorage) are eligible for this program. In addition, the applicant must show that at least 51% of the persons who benefit from a funded project are low and moderate-income persons. The CDBG applications are distributed to eligible municipalities in September or October. Applications must be submitted around December or January (details in application) and awards are made the following spring.

Contact
Jo Cooper, Block Grant Administrator
Department of Community and Regional Affairs
209 Forty Mile Ave.
Fairbanks, AK 99701-3110
Phone: (907)452-4468 Fax: (907)451-7251
E-mail: jo_cooper@dced.state.ak.us
http://www.dced.state.ak.us/mra/mradcdbg.htm
http://www.hud.gov/progdesc/cdbg-st.html

Municipal Water, Sewerage, and Solid Waste Grant Program
The Alaska Department of Environmental Conservation (ADEC) manages this grant program to provide incorporated municipalities with partial grants and engineering assistance for water, sewer and solid waste projects. Grant funds range from 50% to 85% of eligible costs, depending on the size of the community. A local match must make up the remaining portion of project costs. The local match can include other federal funds or loans funds acquired through ADEC's Municipal Grant and Loan Program.

Grant funds can be used for planning, design, and construction costs. The ADEC mails a grant application to eligible communities in late July, with an application due date of September 1. ADEC scores the grant applications and provides a ranked list to the Office of Management and Budget to allocate funding. The final list is subject to Governor and State Legislature approval. Grant funds are typically available by July.

Contact
Dan Garner, Acting Program Manager
Department of Environmental Conservation
Division of Facility Construction and Operation
Municipal Grants and Loans Unit
410 Willoughby Avenue
Juneau, AK 99801
Telephone: (907) 465-5144
Fax Number: (907) 465-5177
Email Address: dan_garner@envircon.state.ak.us
http://www.state.ak.us/dec/dfco/dec_dfco.htm#Operations
http://www.state.ak.us/local/akpages/ENV.CONSERV/dfco/mgr_form.htm

Public Works and Development Facilities Program
The US Department of Commerce Economic Development Administration (EDA) manages this grant program to assist in the creation of public facilities needed to initiate and encourage permanent jobs in the private sector in areas where economic growth is lagging behind the rest of the country. Grants from $200,000 to $2,000,000 are awarded to Tribal governments, cities, municipalities, boroughs, and public or private nonprofit organizations in an area experiencing economic distress. Funds can be used for water and wastewater treatment systems, access roads to industrial parks or sites, port improvements, and tourism projects.

Contact
Bernhard E. Richert Jr.
Economic Development Representative
550 W. 7th Ave Suite 1700
Anchorage, AK 99501
Phone: (907)271-2272 Fax: (907)271-2274
E-mail: brichert@doc.gov
http://www.doc.gov/eda

USDA Water and Waste Disposal Grants
The USDA Rural Development provides grants to reduce water and waste disposal costs to a reasonable level for rural users. The funds can be used to construct, repair, modify, expand, or otherwise improve water supply and distribution systems and waste collection and treatment systems, including storm drainage and solid waste disposal facilities. Additionally, legal and engineering fees can be funded when necessary to develop the facilities. This program is available to rural communities with a population of 10,000 or less (priority given populations under 5,500), municipalities, boroughs, Alaska Native villages, and non-profit corporations.

Detailed information and applications are available through the USDA Rural Development office at the address listed below.

Contact
Ronald W. Abbott, Unit Manager
800 W Evergreen, Suite 201
Palmer, AK 99645
Phone: (907)745-2176 Fax: (907)745-5398
E-mail: rabbott@rdmail.rural.usda.gov
http://www.usda.gov/rus/water/programs.htm#PROGRAMS

Water Quality Cooperative Agreements
The EPA funds this program to support the creation of unique and new approaches to meeting combined sewer outflows, sludge, and pretreatment requirements. Project grants are $25,000 to $500,000 and a match is encouraged. Tribes, nonprofit institutions, state water pollution control agencies, local public agencies, among others are eligible for the funds. Proposal forms are usually available on the internet.

Contact
Steve Torok, Senior Alaska EPA Representative
410 Willoughby Ave., Suite 100
Juneau, AK 99801
Phone: (907)586-7658; Fax: (907)586-7015
E-mail: torok.steve@epamail.epa.gov
http://www.epa.gov/OWOW/watershed/wacademy/fund.html
http://www.epa.gov/OWMfinan.htm

10.1.2 Loans for all Sanitation Projects

Alaska Clean Water and Drinking Water Revolving Loan Funds
The ADEC, Division of Facility, construction and Operation, Municipal Grant and Loan Program, uses two different funding sources to provide low interest loans to municipalities for financing drinking water, wastewater and solid waste projects. Certain privately owned utilities and all publicly owned utilities are eligible to apply for loans. The low-interest loans assist in securing or matching federal grant funds. Along with the loan, the project is assigned an engineer to assist with project planning, budgeting, design, construction, and addressing regulatory issues.

The loans support planning, design, and construction of publicly owned wastewater treatment facilities, sewer collection systems construction or rehabilitate costs, studies of non-point source pollution, estuary management, protection of groundwater, and combined sewer control measures. Loans originate from two specific funding sources. Questionnaires are sent to qualifying utilities in late February, with applications due in March. After scoring, review, and a public comments period, loan funds typically become available between September and October.

Contact
Dan Garner, Acting Program Manager
Alaska Department of Environmental Conservation
Division of Facilities Construction and Operation
Municipal Grants and Loans Unit
410 Willoughby Ave. Suite 102
Juneau, AK 99801-1795
Phone: (907)465-5144; Fax: (907)465-5177
E-mail: dan_garner@envircon.state.ak.us
http://www.state.ak.us/dec/dfco/dec_dfco.htm

Alaska Municipal Bond Bank Authority (AMBBA)
State of Alaska Department of Revenue makes loans to Alaskan municipalities to assist with financing capital projects. The funding can be used for any capital project. The applicant must complete an application for a loan by contacting the AMBBA contact below.

Contact
Deven Mitchell, Acting Executive Director
Alaska Municipal Bond Bank Authority
PO Box 110405
Juneau, AK 99811-0405
Phone: (907)465-2388 Fax: (907)465-2902
E-mail: ambba@revenue.state.ak.us
http://www.revenue.state.ak.us/treasury/ambba/ambba.htm

USDA Water and Waste Disposal Loans
The US Department of Agriculture (USDA) Rural Development gives loans to develop water and waste disposal (including solid waste disposal and storm drainage) systems in rural areas.

Rural communities with a population of 10,000 or less (priority to population under 5,500), municipalities, boroughs, Tribes, and nonprofit corporations that are unable to obtain needed funds from conventional lenders at reasonable rates and terms are eligible for the loans. The loans can be used to construct, repair, modify, expand, or otherwise improve water supply and distribution systems and waste collection and treatment systems, including storm drainage and solid waste disposal facilities. Additionally, legal and engineering fees can be funded when necessary to develop the facilities. Detailed information and applications are available through the USDA Rural Development office at the address listed below.

Contact
Ronald W. Abbott, Unit Manager
800 W Evergreen, Suite 201
Palmer, AK 99645
Phone: (907)745-2176 Fax: (907)745-5398
E-mail: rabbott@rdmail.rural.usda.gov
http://www.usda.gov/rus/water
http://www.usda/gov/rus/water/programs.htm

10.2 Funding Opportunities for Water and Wastewater Projects

10.2.1 Grants for Water and Wastewater Projects

Clean Water Act Indian-Set Aside (CWA-ISA) Grant Program
The EPA funds this grant program to assist Tribes with planning, designing, and construction of wastewater facilities. The program has a history of funding, sewage lagoons, ocean outfalls, community washeterias, sewer system rehabilitation, and other wastewater treatment facilities common in rural Alaska. Alaska Native communities, in which 50 % of the population is Native, with a specific community-approved wastewater project, are eligible for this grant program. The program uses the IHS' sanitation deficiency system (SDS) for selecting projects to fund. The applicant is placed on the SDS list according to points achieved through a established scoring process. The EPA uses this system to identify priority wastewater projects for funding. The EPA ISA coordinator, in cooperation with the IHS Area Program Director, select eligible projects for funding from the SDS list.

Contact
Judy Fey, CWA ISA Coordinator
EPA Region 10
1200 Sixth Ave. M/S OW-136
Seattle, WA 98101
Phone: (206)553-1302 Fax: (206)553-0165
E-mail: fey.judy@ epa.gov
http://www.epa.gov/owm/indian.htm
http://www.epa.gov/owm/finan.htm
http://www.tucson.ihs.gov/
http://www.ihs.gov/FacilitiesServices/AreaOffices/Alaska/AK.asp

Drinking Water Infrastructure Grant Tribal Set-Aside Program

The EPA manages this program for Tribes to promote public health and compliance with the Safe Drinking Water Act. The program funds public drinking water system improvements. Funding priority is given to projects that address serious public health risks. To be eligible for the program the applicant must be a federally recognized Tribe. However, the IHS may accept projects on a Tribe's behalf. This program uses the IHS Sanitation Deficiency System (SDS) to identify priority projects for funding. The applicant is placed on the SDS list according to points achieved through an established scoring process.

Contact

Dennis J. Wagner, P.E.
US EPA, Alaska Operations Office
222 W. 7th Ave #19, Room 537
Anchorage, AK 99513
Phone: (907)271-3651 Fax: (907)271-3424
E-mail: wagner.dennisx@epamail.epa.gov
http://www.epa.gov/OGWDW/tribes.html
http://www.epa.gov/safewater/tribal/tribsrf.htm

Water Quality Cooperative Agreements

The EPA funds this program to support the creation of unique and new approaches to meeting combined sewer outflows, sludge, and pretreatment requirements. Project grants are $25,000 to $500,000 and a match is encouraged. Tribes, nonprofit institutions, state water pollution control agencies, local public agencies, among others are eligible for the funds. Proposal forms are usually available on the Internet.

Contact

Steve Torok, Senior Alaska EPA Representative
410 Willoughby Ave. Suite 100
Juneau, AK 99801
Phone: (907)586-7658 Fax: (907)586-7015
E-mail: torok.steve@epamail.epa.gov
http://www.epa.gov/OWOW/watershed/wacademy/fundppc.html
http://www.epa.gov/OWM/finan.htm

10.2.2 Loans for Water and Wastewater Projects

Alaska Drinking Water Fund

The EPA and ADEC provide low interest loans to municipalities (incorporated political subdivisions) and publicly-owned community water systems for planning and design of drinking water projects and drinking water system upgrades. Questionnaires mailed to eligible communities in February are due by mid-March.

Contact
Terriann Lowell
Alaska Department of Environmental Conservation
Division of Facilities Construction and Operation
410 Willoughby Ave. Suite 102
Juneau, AK 99801-1795
Phone: (907)465-5146 Fax: (907)465-5177
E-mail: Tlowell@envircon.state.ak.us
http://www.state.ak.us/dec/deh/water/home.htm

Municipal Loan Program
The ADEC provides loans and engineering assistance to public and certain privately owned utility systems for drinking water and wastewater projects. The low-interest loans assist in securing or matching federal grant funds. Along with the loan, the project is assigned an engineer to assist with project planning, budgeting, design, construction, and addressing regulatory issues.

Contact
Dan Garner, Program Manager
Department of Environmental Conservation
Division of Facility Construction and Operation
Municipal Grants and Loans Unit
410 Willoughby Avenue, Suite 303
Juneau, AK 99801
Telephone: (907) 465-5144
Fax Number: (907) 465-5177
Email Address: dan_garner@envircon.state.ak.us
http://www.state.ak.us/local/akpages/ENV.CONSERV/dfco/dec_mlns.htm
http://www.state.ak.us/local/akpages/ENV.CONSERV/dfco/dec_mlns.htm#SUCCESS

10.3 Funding Opportunities for Solid Waste Projects

10.3.1 Grants for Solid Waste Projects

Alaska Solid Waste Management Demonstration Grants
The Rural Alaska Sanitation Coalition (RASC) funds $2,000 to $10,000 grants to Alaska Native Tribes demonstrating a need and documenting community support and commitment for a solid waste project. Eligible projects can range from developing a community wide solid waste management plan to supporting activities for properly closing a c dumpsite. Creative projects that may become models other communities may use are encouraged.

Contact
Rural Alaska Sanitation Coalition
Alaska Native Health Board
4201 Tudor Centre Drive, Suite 105
Anchorage, Alaska 99508

Phone: (907) 562-6006
Fax: (907) 563-2001
Email: RASC@anhb.org
http://www.anhb.org/sub/rasc/solidwaste.html

10.4 Funding Opportunities for Sanitation Planning

10.4.1 Grants for Sanitation Planning

Alaska Science and Technology Foundation Grants
The Alaska Science and Technology Foundation provides grants up to and over $20,000 for the study and planning innovative sewage and water treatment technology projects (as well as other projects). The research projects must result in direct and significant benefits to the state of Alaska.

Contact
Alaska Science and Technology Foundation
4500 Diplomacy Drive, Suite 515
Anchorage, Alaska 99508-5918
1-907-272-4333/telephone
1-907-274-6228/fax
info@astf.org

10.4.2 Funding Opportunities for Training and Technical Assistance

104 (g) Wastewater Assistance Program
Through training and technical assistance, the ADEC Division of Facility Construction and Operation Operations Assistance Unit and the EPA provide funding to protect public health and extend the average useful life of wastewater facilities by ensuring that the treatment plant and collection system are properly operated and maintained. To be eligible for this program, a community must have a publicly owned treatment plant (above 5 million gallons per day) and a cooperative water operator. The program provides:

- On-site evaluation of wastewater system;
- Operation and maintenance technical assistance;
- Assistance to operators with preventive maintenance and operational problems;
- Research on equipment and parts for treatment plant or collection system;
- Assistance to operator with discharge permit issues and laboratory testing.

The interested community must send a letter requesting assistance to the contact below.

Contact
Van Madding, 104 Assistance Provider
Department of Environmental Conservation
410 Willoughby Ave., Suite 105
Juneau, AK 99801-1795
Phone: (907)465-5142 Fax: (907)465-5177
E-mail: van_madding@envircon.state.ak.us
http://www.state.ak.us/dec/dfco/dec_dfco.htm#Operations

Operator Training and Certification Program
The ADEC has developed training programs to certify operators of community water and sewerage systems. The program provides classroom and on-site training; technical assistance; maintains a library of training videos, textbooks and reference materials; provide correspondence courses for operator advancement; plans, coordinates, and develops statewide training; and provide a forum for operator concerns through the Governor's Water/Wastewater Works Advisory Board. The ADEC should be contacted for additional information.

Contact
Ken Smith, Certification Officer
Department of Environmental Conservation
410 Willoughby Ave. Suite 105
Juneau, AK 99801-1795
Phone: (907)465-5140 Fax: (907)465-5177
E-mail: ken_smith@envircon.state.ak.us
http://www.state.ak.us/dec/dfco/dec_dfco.htm#Operations

10.5 Additional Sanitation-Related Information

Alaska Department of Environmental Conservation Facilities Construction and Operation Division. 1999. Resource Guide to Financial and Technical Assistance for Water and Wastewater Projects; a Resource for Rural Communities.

Alaska Technology/Training Assistance Center (ATTAC)
University of Alaska Southeast
1332 Seward Ave.
Sitka, AK 99835
Phone (888) 750-3823 Fax (907) 747-7753
www.geocities.com/~water-alaska/

Rural Utility Business Advisory (RUBA) Program
Department of Community and Regional Affairs
333 W Fourth Ave. Suite 220
Anchorage, AK 99501-2341
Phone: (907)269-4500 Fax: (907)269-4539
E-mail: michael_black@dced.state.ak.us
www.dced.state.ak.us/mra/Mradruba.htm

11.0 POTENTIAL PERMITS REQUIREMENTS

This list of permits and authorizations is tentative. Further planning, design, and meetings with permitting agencies, typically through a pre-application conference, may change the list of needed permits. In addition to various federal and state permits, the Alaska Department of Environmental Conservation must complete engineered plan approvals prior to any changes public drinking water systems and wastewater systems.

11.1 Local Permits

- No local permit requirements expected.

11.2 Federal Permits

- **Section 404 of the Clean Water Act (Wetlands) Permit,** issued by the US Army Corps of Engineers, will be required if the project impacts regulated wetlands.

- **National Pollution Discharge Elimination System (NPDES) Permit,** issued by the US Environmental Protection Agency, will be required if the project disturbs more than five acres of natural vegetation.

11.3 State Permits

- **Coastal Zone Management Consistency Determination**, issued by the State of Alaska Office of the Governor Division of Governmental Coordination, is required for all major projects in Atka.

- **State of Alaska Title 16 (Fish Habitat) Permit**, issued by the Alaska Department of Fish and Game Habitat Division, will be required if the project involves crossing salmon streams.

- **General permit to discharge wastewater into rivers, lakes, or the ocean**, issued by the Alaska Department of Environmental Conservation Division of Environmental Health Drinking Water and Wastewater Program, will be required.

- **General permit to discharge sewage solids onto land**, issued by the Alaska Department of Environmental Conservation Division of Environmental Health Drinking Water and Wastewater Program, will be required.

- **General permit to discharge filter backwash (non-domestic water discharge**), issued by the Alaska Department of Environmental Conservation Division of Environmental Health Drinking Water and Wastewater Program, will be required.

- **Class III Municipal Solid Waste Permit**, issued by the Alaska Department of Environmental Conservation Division of Environmental Health Solid Waste Program, will be required for construction of a landfill.

- **Notice of Closure of a Class III Landfill**, issued by the Alaska Department of Environmental Conservation Division of Environmental Health Solid Waste Program, will be required to close the landfill.

- **State Fire Marshall Permit**, issued by the State Fire Marshall will be required to ensure new buildings, or modifications to existing buildings, meet applicable codes.

11.4 Plan Approval

- Public Drinking Water Class A System Engineered Plan Approval completed by the Alaska Department of Environmental Conservation, will be required.

- Wastewater System Engineered Plan Approval completed by the Alaska Department of Environmental Conservation, will b required.

11.5 Existing Permits

- COE Landfill Permit (#8521-BA023)

- Wastewater Disposal Permit (#9440-DB005-W3) expired May 1, 1999.

- Wastewater Disposal Permit (#8221-DB101) expired Jan. 1, 1989.

- EPA Public Water System ID# AK2260058

APPENDIX A
Water Quality Data

APPENDIX B
Well Logs/Soil Survey

APPENDIX C
House-to-House Survey Results

Village Survey Results

Community Involvement in Public Meeting

In preparation for the City Council meeting, a draft questionnaire, an agenda, and a public notice were prepared. Although, the flight left on Tuesday, May 16th, the PenAir flight did not leave for Atka until the morning of Thursday, May 18th due to mechanical problems.

The meeting was held on May 18, 2000 at 6:00 p.m. in the City Council office. The notice of the meeting was faxed to several local organizations. Although the public was invited, none were present. During the City Council meeting, McClintock Land Associates participated with CH2M HILL/VSW and HDR in facilitating a meeting with representatives of Atxam Corporation and the City of Atka.

During the meeting, preliminary maps were displayed which depicted the land status, property owners, locations of existing utilities and easements to serve as the point of discussion for evaluation of existing facilities, need for expansion of services and discussion of future needs. Todd Bethard of HDR explained that this study would result in a long-range plan based on needs and community direction. He said that the planning process would help Atka plan for where they want to be in 20 years. An application for funding for the design to the construction will be submitted and the planning done will give more points to the village in their request. The Council members nodded in agreement when it was explained that the community would need facilities that are reliable, safe and cost effective to operate and maintain. It was explained that the recommendations made for needed improvements as a result of this study would be shown on the base maps. Todd Bethard and Tom Wolf, representing VSW, defined the study criteria, the needs assessment and the evaluation alternatives.

A summary of the planning decisions made through previous and ongoing ANCSA §14(c)(3) negotiations between the Atxam Corporation and the City of Atka was provided. The purpose of these negotiations was to identify land needs for existing and future public facilities, rights-of-ways and other community expansion needs. The community began their planning efforts by creating a rough draft map of the main town and concluded by preparing a base map that incorporated all private and public used lands. ANCSA refers to this Map as the "Map of Boundaries" whose purpose is to be submitted to the Bureau of Land Management for eventual survey.

The project study is timely according to the City Council members present at the meeting. Many of the current needs will impact future growth in a number of areas, and the development prospects in the fishing industry and need for improved services to address development opportunities will need to be considered in final planning efforts of the community. It is important to the City and Corporation to take this opportunity provided by the study funds to obtain the necessary professional expertise to incorporate the specific land needs into the final ANCSA §14(c)(3) map and agreement. The advantage to the community is that the identified lands providing for existing and future public needs will be transferred into public ownership to the City of Atka. An explanation of the technical process to provide site control for needed improvements through the ANCSA §14(c)(3) process was provided. The improvements

identified during this study will assist the City and Corporation to finalize the agreement and provide the site control needed for future land needs and improvements.

Community Questionnaire

A questionnaire was prepared to obtain information from each household about local sanitation needs, household consumption of water, water sources, waste disposal, adequacy of present water and disposal systems and the ability of resident to pay for services. In a meeting with the City Administrator, Julie Dirks, it was stated that at the current time the City of Atka does not charge a fee for sewer, water and solid waste disposal services. If improvements are made, Mrs. Dirks would like residents to know that the services provided by the City "cost something" and municipal revenues are declining. She believes that the people do not understand that the City does not receive funds from outside of Atka to pay for the support of these services. The City must absorb the cost of labor, supplies, fuel, and equipment, and due to the cost of required water tests, increased labor and maintenance costs, and due to this the City incurs a cost that they may have to pass on to consumers.

The Council members reviewed the questionnaire and made some recommendations for rewording questions and adding other questions. In the morning following the meeting, a packet was prepared that included 40 questionnaires, maps, and a typed memo of instructions for Agnes Thompson, who had previously agreed to perform the house-to-house surveys. Agnes Thompson was trained on how to obtain information and fill out the questionnaire.

Questionnaire Results

Interviews were conducted for all households in Atka during the several weeks following the public meeting. Many local residents are involved in commercial fishing activities from late May until October, so the house-to-house interviews were conducted over the course of several weeks. The fish plant, school, and church did not fill out any questionnaires, so the City was requested to obtain them. Information was provided that the Russian Orthodox Church building is not connected to the current sewer and water system, and the Atka Subdivision has their own septic system separate from the community. A brief summary of results of the survey is shown in the table below and complete survey results from each residence and business is shown in the table at the end of this appendix.

City of Atka Sanitation Improvement Study Survey Compilation

	Yes	**No**	**Other**
Water			
Is house connected to city water system?	34	0	
Is piped water supply adequate for needs?	33	1	
Does the water supply ever run low?	26	6	2
Generally like the taste of the tap water?	12	18	4
Ever experience broken pipes?	11	23	
Sewer			
Ever had problems with existing sewer system?	7	27	

	Yes	No	Other
Solid Waste			
Do you take your own garbage to the landfill?	19	15	
Is the existing landfill adequate?	6	28	
Community System			
Are you willing to pay a reasonable price for water, sewer, and garbage service?	27	7	

* Specific community comments can be found in the village survey summary provided by McClintock Land Associates, Inc.

Since commercial enterprises and governmental entities had varying consumption levels of water and sanitation needs than residential households, the results were separately noted on the tally sheet as a business (B) or residence (R).

House-to-House Interviews

The intent of the questionnaire was to obtain information from every household about the community water system, sewer and solid waste (landfill) systems. The City of Atka needed this information to study ways to improve the sanitation facilities in Atka. The study will result in a long-range plan to address needed improvements that will enhance the quality of life in the community.

A total of thirty-four (34) questionnaires were completed. Of this total, six questionnaires were completed by businesses, with the remainder completed by residential households.

Land Ownership

Of 28 homes in Atka, 23 homes are owned by original 1971 ANCSA occupants, or their descendents. Of this number, 15 families are in the process of purchasing their homes from original ANCSA occupants. The remaining seven were original owners, while one home was a School District teacher apartment. Of the six businesses, the City of Atka owned three buildings, the Atxam Corporation was leasing their building from a private owner, and the IRA Council owned two buildings, one of which is the Atka Native Store.

Adequacy of Plumbing

Out of 34 questionnaires, 25 total respondents considered their existing plumbing system to be adequate for their needs, while nine did not consider their plumbing system adequate.

Businesses

The IRA Council building located in the old village stated that they needed better and newer pipes. The building plumbing is made up of the original galvanized pipes that are now rusty. In the Atka Native Store, also located in the old village, the water freezes in the winter if they do not run the water. Other businesses located in the old village: Clinic, City of Atka office building, the City's Chlorine Building, and the Atxam Corporation office reported no major deficiencies.

Two businesses reported that they each had one kitchen sink, one business had three sinks and two did not have kitchen sinks. The IRA building had three bathroom toilets and three bathroom sinks. None of the businesses had washing machines, but all had hot water heaters. None of the businesses had dishwashers, and only the Clinic reported that their building had in-house treatment equipment for their water consumption.

All businesses are connected to the City water system. All businesses except the IRA Village Council considered the water supply adequate for their consumption. The Council stated that they run out of water during the wintertime, when the dam gets plugged up and the tank gets empty.

Residences

All homes reported that they had one kitchen sink, one bathroom sink, a shower or tub, a flush toilet, a washing machine, and a hot water heater. No homes had dishwashers installed. One home had a garbage disposal. Only two homes have installed in-house treatment equipment. One home had a sediment filter underneath the house.

A home in the old village is undergoing remodeling and presently lacks plumbing in the bathroom. While the waterline is being fixed, there is no water to the shower, basin, and sink. The only water comes from the kitchen sink. Four homes in the old village cited galvanized pipes as being problematic. Two homes had galvanized pipes, which had to be replaced or soldered because of holes and corrosion. One household said their plumbing was all messed up because they still have the old galvanized pipes. Chlorine reportedly went through a corroded galvanized pipe underneath the porch of a home.

A home in the Atka Subdivision commented that a rear discharge toilet was installed in their home and they did not like it. They wanted a floor discharge toilet. Another home in the Atka Subdivision had to replace plumbing under the sink. One home in the Atka Subdivision said that their bathroom plumbing is inadequate and the shower and sink in their bathroom experiences low water pressure.

Water Supply

All residences are connected to the City water system and consider the piped water supply adequate for their household needs.

In response to the question whether there were times of the year when the water supply runs low, 26 respondents answered “yes,” six answered “no,” one didn’t notice because they aren’t home that much, and one didn’t notice at all. The majority of homes experienced low water supplies during all seasons of the year. There were several reasons provided: Low water supplies in the spring and summer is caused when the water tank gets low or dry, during the winter when water filters aren’t cleaned or the tank runs dry (twice a year), in the winter time when the dam gets plugged, in the summer after it rains and the filter gets clogged, when the fish plant is running and when the water hydrants are operating. Fourteen responses noted that the low water supply occurs most frequently during the winter. The low water supplies are experienced in both the old village and the Atka Subdivision.

Out of the 34 respondents, 28 stated that their water pressure is in the "medium" range, while four respondents stated they have high water pressure. Of the four, one home was located close to the water tank. One business whose building is located in the old village on high ground experiences low pressure. Twenty respondents stated that they experience a change in the water pressure. Eleven homes experienced no change in pressure while three didn't notice or didn't answer the question. The reasons given for the change in pressure were: because the water tank level gets low or runs dry, mostly during the winter, during times when the fish plant or fire hydrants are running, and when it rains and the water filters get dirty. It was also noted by one respondent that that low pressure is experienced during the mornings.

In response to the question, "Do you generally like the taste of your tap water?" 18 said "no," 12 said they liked the taste of the tap water, while two didn't notice, one didn't use the water because they used spring water and another said that it depended upon how much chlorine is used.

The reason most often cited for the general dislike of the taste of the tap water was the taste of chlorine, which many considered "too much." One respondent said the water sometimes smells of chlorine and another said that during the fishing season, the water is kind of warm. One respondent commented that they notice the difference between spring and tap water, and they preferred using the spring water in their coffee and juice. Another individual stated they also get their own spring water for personal consumption. One individual whose home is connected by old galvanized pipes said that their water tastes moldy and stale. Another said he couldn't drink the water because of excessive amounts of chlorine. It gave him heartburn. One household commented that their children itched after taking baths. Three households commented that they installed filters because of the chlorine taste in their water. One respondent said the water tastes better than Anchorage water. Two respondents didn't notice and one didn't mind the taste at all.

The amount of gallons of water each family consume per day for household use ranged from 10 to 300 gallons. Fifteen households used from 10-60 gallons, three used from 60-100 gallons, 11 used from 100-150 gallons, four used from 200-250 gallons, and one used 300 gallons.

In response to a question asking if the respondent has ever experienced broken water pipes, 11 said "yes" and 23 said "no." The respondents that answered "yes", cited various reasons for the cause of their broken pipes. Two homes experienced damage to their pipes during an earthquake, four said their pipes broke during the winter, and one home commented that their water pipes broke inside of their house. One household's boiler system didn't work for five months and the family had to keep water running to keep it from freezing. Two stated that they did their own plumbing and did not have any problems. One household reported broken stove coils.

In response to the question of how much money do households currently pay per month for water service, all answered, "none." A follow up question asked if households would be willing to pay a reasonable amount of money per month for safe, reliable, water piped to their home. Twenty-seven out of thirty-four answered, "yes." Of these respondents, four stated that yes they would pay if improvements to the water system were made. One said that, "If we have to, we will."

Another said, “Yes, depending on income and upkeep of the service.” One said, “Yes, $20.00 per month.” Two responded, “Yes, if it was reasonable” and another said that “Yes, I think you need it.” Of the remainder who answered “no,” one said “No, not really.”

There were many suggestions for improving the City water system. Fourteen respondents commented that the water tank should be scrubbed. Some said the tank should be scrubbed twice a year, every year, and one said every three months. Several stated that the water tank hasn’t been scrubbed for 1-3 years. Another commented that the pipes are dirty and they should run the water once in a while because there is a funny taste in the water. Several respondents stated that a new filtering system in the pump house is needed. Another said there are a need for two chlorine pumps, one for the Atka Subdivision and one for the old village. Another suggestion was for the City to install an industrial size filtration system. The water system needs update because the “78-79” system is pretty old. The water system isn’t keeping up with local demand. Many commented that a larger reservoir and a new dam are definitely needed. One respondent stated that the dam is too small and a drain is needed because the dam becomes clogged. During the summer, the fish plant uses a lot of water. Many respondents complained of the inadequacy of the galvanized pipes and a new piping system was badly needed for the old village. One respondent commented on the underwater well system and how they didn’t want to deal with the dirt. The City needs to moderate the amount of chlorine and fluoride in the water system.

Wastewater/Sewer System

All homes are served by a piped sewer system. The School and school apartments are not connected to the city sewer system.

In response to the question, “Have you ever had any trouble with your sewer system?” seven respondents out of 34 said, “yes.” The respondents gave various explanations for the problems. “It always backs up when the outfall lines get clogged by a storm. There are parts available for fixing the outfall, but a wetsuit is needed. The septic tank tipped during an earthquake and the system doesn’t flush like it use to when it was new. There are three homes located on a lower level than Lot 20 in the old village that experience back up of sewage in their pipes. The broken outfall gets plugged up with sand and gravel.” A house located in Lot 12, Block 1, Atka Subdivision has experienced a backed up sewer system, while another house located on Lot 6, Block 1, of the same subdivision has sewer pipes that plug up during the summer. Two other homes have trouble with leaky toilets.

In response to the question asking what condition individual sewer lines are in, eighteen responded that their lines are in “good shape, ok, or good condition.” Residents that purchased homes from original 1971 claimants did not know generally what shape their pipes are in. Several commented that the plastic PVC pipes are in good shape. Another commented that the homes located in the lowest part of town in the old village experience frequent sewer back ups. Several commented that the sewer pipes in the old village are old. On the school property, a respondent commented that the sewer is backing up at the septic tank. Others did not know what condition their sewer pipes were in since they were buried underground. Two respondents mentioned that their galvanized pipes in the old village are in poor condition. Others responses

include, “I think they’re alright”, “pretty good yet”, “ask City about that one”, “probably good”, or “no problem with it.”

Two respondents out of thirty-four have experienced sewer lines that froze or broke in the winter. Most homes did not have any problems and one home places heat tape on all of their plumbing.

There were many comments provided about untreated wastewater flowing into Nazan Bay. Six respondents stated that the community should have a septic tank installed in the old village. Many commented that the outfall was broken and the pipe keeps plugging up. Another said that “It’s ok, the current takes it out.” Another said that the “untreated wastewater should be treated,” and “it pollutes the food we eat and I don’t think its good for the fish.” Several people commented that they “can’t do anything about it, it’s the only choice we have, not a whole lot you can do about it unless they build a septic system, its expensive, and it’s the only system we have, it’s okay, there’s a septic tank, not as many people in this side of village, and I think it is alright the way it is.” About seven respondents thought it was “ok.” One respondent said, “I don’t think it is any good, it should be treated,” while another said, “I don’t like that. There are all kinds of cleaning chemicals being flushed.” One never thought about it, another didn’t know, another asked if it was harmful, and one respondent said it is not harming anything that he could see.

The question asking for suggestions for improving the sewer system received many responses. Respondents agreed that improvements for the sewer system are definitely in order. Nine respondents recommended that the outfall line should be fixed. Seven respondents complained that the old system plugs up. The majority of the respondents stated that a bigger, newer septic tank is needed in the old village. Several respondents recommended that the sewer tank should be flushed or pumped out once in awhile, at least twice a year. Residents living in the Atka Subdivision said “Put in a sewer waste treatment, need to check pipes between manhole and septic tank because it plugs up for some reason, improve flushing of settling tanks because the sewer stinks in the subdivision in the summertime, there needs to be treatment for the sewer, sewer system is slow and the manholes get plugged and stinks, need to take better care of the system, it stinks in the summertime and the system gets plugged up and it smells bad at summertime.” Residents of the old village commented most frequently about the need for a new system. They recommended getting a septic tank for the old village, flushing out the current tank, fixing the outfall, and getting new sewer lines altogether. One person said the system is “ok.” A recommendation was also made to hook up the school and apartment to the City sewer line.

Garbage

In response to the question about how many bags of garbage does your family generate per week, the average amount estimated for the whole village is about 85 gallons a week per family. This translates to approximately 151,424 gallons of garbage per year. There is currently no charge for garbage collection by the City of Atka. Only one individual commented that if the City charged for garbage service, he does not want to pay for the service and would take it to the landfill himself. Most families relied on the City of Atka garbage service for pickup. Out of the 34 respondents, 19 stated they do take their own garbage to the landfill, sometimes to dump

garbage that needed to be dumped right away or during major cleanups. Fourteen said that they do not take their garbage to the landfill at all. The majority of residents are willing to pay a reasonable amount per month for this service.

There were many comments on the adequacy of the landfill. These comments included statements such as: "It's small and things fly out of there, and it's dirty. Plastic and paper flies all over. There's paper scattered all over the place. We need a bigger landfill and the current landfill needs to be moved further away. It's ok sometimes, but they need to plow the garbage. The landfill is too close to the village, if the garbage catches on fire. The landfill needs to be organized. Need to get rid of the old airport matting. Garbage blows around when the wind blows. Need to cover the garbage with sand. It's too close to the airport and ocean. It's too close to the (Atka) Subdivision, and it needs to be moved further. Move it further and make it bigger. They need to bury garbage every time so birds and rodents can't get to it. There's debris all over the place. Someone should watch the garbage burn. It stinks."

Six respondents said that the landfill was adequate. "It was all right. There's nothing wrong with it so far. It's good enough for now, but someday they'll have to find another place. Another said it was ok, especially after they push it (garbage) back. It's ok."

There were many suggestions for improving the City's landfill. Many commented on the need to expand the existing landfill. "The fence around the landfill should be higher. It needs to be plowed once in awhile. Need to expand it after 15 years, and fence off a larger area. Need a new one, there's trash all over the place. There's garbage all over outside of the landfill. Need a better, taller fence around the landfill. The present landfill is overflowing. It would be nice to have it located away from the public roads. We need a bigger landfill and coverage. The ravens are making a big mess. Put something over it when they burn it so it doesn't blow around so much. Build a cover over it. Need a burner. "

The majority of respondents complained about the haphazard dumping of old cars, oil drums, used oil, bicycles, refrigerators, and even a bulldozer. Several recommended installing a burn box at the landfill. Some comments were: "The cars should be stacked in one place instead of being scattered. They should put old cars and old bikes in a hole and cover it up. Put old cars in one place or bury them in the old dumpsite. There's some at WATS (White Goods and Storage). Ship out old cars, old drums, old refrigerators and old oil for scrap metal. They plow it once in awhile, but they should have another area for the old cars. Put them in a big ditch and cover them up. Needs to be organized-metal (old cars and refrigerators) need to be shipped out. Bury old cars or sell them for scrap metal. They could bury old cars. Need to do something about the old cars and old drums that are lined up by the road. Make it like Dutch Harbor, recycle old cars or sell them to junkyards. They need to use the landfill more adequately. Bury old cars or sell them for scrap metal. We need a compressor. Get rid of old cars. Ship them off on Coastal for scrap metal or bury them. Need a burner, dig a hole and bury old cars. Move old cars etc. in one place instead of being scattered. Dump old cars inside the landfill. Old vehicles should get hauled out as scrap metal. It's already full. They need recycling for cans."

Waterline/Sewer Easements

In response to the question, "As a lot owner, are you willing to allow easements for water and sewer utilities through your lot so that the City of Atka could provide better service and maintain the utility lines?" All but one respondent said, "yes." One said, "Deal with the Aleutian Regional School District."

APPENDIX D
Project Contacts

APPENDIX E

Surface Water Treatment Rule Technical Memorandum

APPENDIX F

Leak Detection/Flow Monitoring Technical Memorandum

APPENDIX G
SHPO Requirements

SHPO Requirements

Alaska Historic Preservation Act Requirements

According to the Department of Economic Development Alaska Community database, Atka Island has been occupied by Aleuts for at least 2,000 years. Recent archaeological evidence indicates that the present village site may have had human use since prehistoric times. The first contact with Russians occurred in 1747, and Atka became an important trade site and safe harbor for Russians. In 1787 a number of hunters were enslaved and relocated to the Pribilofs to work in the fur seal harvest. The townsite was settled in the 1860s. After the end of the sea otter hunting era in the late 1800s, Atka had no viable cash economy. During the 1920s, Atka became relatively affluent due to fox farming. After the Japanese attacked Unalaska and seized Attu and Kiska in June 1942, the U.S. Government evacuated Atka residents to the Ketchikan area. Atka was burned to the ground to prevent Japanese forces from advancing. Residents were allowed to return in 1944, and the U.S. Navy rebuilt the community.

By State regulations AS 41.35.070 under the Alaska Historic Preservation Act, before public construction or public improvement of any nature is undertaken by the state, a governmental agency, the Alaska Office of History and Archaeology State Historic Preservation Office (SHPO) may survey the affected area to determine if the area contains historic, prehistoric, or archeological values. If the office determines that historic, prehistoric, or archeological sites, locations or remains will be adversely affected by the public construction or improvement, the proposed public construction or improvement may not be commenced until the office has performed the necessary investigation, recording, and salvage of the site, location or remains. However, according to the regulations, all investigation, recording, and salvage work should be performed as quickly as possible so that the project will be unduly impaired, impeded or delayed.

The review of a project area under the State Historic Preservation Act should be completed as follows:

1.) Project planners should identify potential and possible historical and archeological sites within the project area by reviewing the Alaska Heritage Resources Survey (AHRS) maintained by the Office of History and Archaeology and existing literature. Additionally, project planners will gather information from area tribes, Alaskan Native corporations, and other area Alaskan Native organizations.

2.) Documentation of any historical and archeological sites in the project area or the lack thereof and all conversations and meetings with tribal entities should be formally communicated to the SHPO through a letter. The letter should state that there are no historical properties affected by the project *or* that historical property are affected by the project and asked for the SHPO concurrence. If there are no effects on historic or archeological sites, there is no further work to be completed under the Alaska Historic Preservation Act.

3.) However, if historical properties may be affected by the project, an assessment of adverse effects must be completed. The project planners, together with the SHPO, must determine whether the site(s) are eligible for the National Register of Historic Places and whether there will be adverse effects on the sites. Finds of no adverse effect should be communicated to

the SHPO for their concurrence. No further consultation is required if a finding of no adverse affects

4.) If the parties cannot agree or they find that there are adverse effects, the project planners must consult with the SHPO to determine ways to avoid, minimize, or mitigate the adverse effects.

If during construction, historic, prehistoric, or archeological sites, locations, remains, or objects are discovered, the SHPO must be notified by the contractor. The SHPO will survey the area to determine whether the sites should be preserved in the public interest as expeditiously as possible. The SHPO will collect and preserve historic data from a site if it is determined the data has exceptional historic, prehistoric, or archeological significance, if the data should be collected and preserved in the public interest, and if the data can be feasibly to collected and preserved.

APPENDIX H
City Resolution

APPENDIX I
Cost Estimate Information