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# **CITY OF ATKA, ALASKA**

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## **2008 Update to the 2001 Sanitation Facilities Study**

**(March 2001 Original Study)**

**MAY 2008**

RESOLUTION ADOPTING  
BUSINESS PLAN FOR WATER  
AND SANITATION UTILITIES,  
May 29, 2008



# City of Atka

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## RESOLUTION 05-470

### A RESOLUTION IN SUPPORT OF THE CITY OF ATKA BUSINESS PLAN FOR WATER AND SANITATION UTILITIES

**WHEREAS**, the City of Atka is recognized as a second class city, with the duly elected Atka City Council as governing body, and;

**WHEREAS**, this existing Business Plan required an update to incorporate changing conditions, increased costs, and improved design to meet community needs in FY2009, and;

**WHEREAS**, the City Council made corrections and/or changes to the City of Atka Business Plan for Water and Sanitation Utilities;

**NOW BE IT FUTHER RESOLVED**, that the City Council accepts the 2008 update to the Atka Business Plan for Water and Sanitation Utility; and

**BE IT FURTHER RESOLVED**, that the City Council will honor the provisions of the City of Atka Business Plan for Water and Sanitation Utilities in managing and operating the community sanitation facilities.

#### CERTIFICATION:

Adopted at a duly convened City Council meeting of the City of Atka at which a quorum was present on the 29<sup>th</sup> day of May 2008.

Signed,

Lawrence Prokopeuff  
Mayor

Attest:

Vasha Nevzoroff, City Clerk



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### APPENDICES

Appendix A – City of Atka Sanitation Facilities Study, HDR, 2001.

Appendix B – Project Design Plans

Appendix C – Atka Business Plan

Appendix D – Funding Needs Summary (bar chart)

Appendix E – City Resolution

Figure 5.1 –Existing Sanitation System Layout

## 1.0 EXECUTIVE SUMMARY

This 2008 update of the March 2001 Sanitation Facilities Study for the City of Atka follows the format of the original study and only includes those items that require modification. The original study is appended as Appendix A for reference.

The City of Atka has a small, stable population served by a piped water and sewer system. Neither the water nor the sewer system meets current state and federal regulations. The water system does not meet the Interim Enhanced Surface Water Treatment Rule; the wastewater collection system discharges untreated sewage to the beach and Nazan Bay. The purpose of this Sanitation Facilities Study Update is to confirm the remaining need, and propose construction and funding phases that will meet the total need of the City of Atka:

The Old Village water main and service lines were replaced during the spring of 2008 to control unsustainable leaks in the old dilapidated distribution system. The water treatment plant, although inadequate, can now meet normal system demand for water. Although there are no reliable meters in the water plant the reduction in water demand is estimated to be 80,000 gallons per day.

During design of the Old Village area wastewater upgrades, it became apparent that the design for the northern most outfall is neither practical to access for septage removal, nor for construction of an underwater outfall. Funding a portion of the Old Village wastewater improvements is being requested in FY 2010.

The existing southern outfall will be replaced in the fall of 2008 and primary treatment tank installed. The soil near the project area is potentially contaminated with petroleum products. In June 2008, a consultant will be hired to define the contamination, and to revise the current design as appropriate.

The improvement plan in the City of Atka Sanitation Facilities Study, HDR, 2001 anticipated that all Atka sanitation needs could be met with \$2,701,010. This figure has proven inadequate. To date, several grants have been awarded to Atka, as listed after Table 1.2. An additional \$6,539,912 over the next three years is required to bring Atka's water and wastewater systems into regulatory compliance.

The current need for funding and proposed phasing is shown in Table 1.1 below.

Table 1.1: Summary of Atka Capital Improvements and Estimated Cost from 2008 to 2011

Item	Capital Improvement	Estimated Cost	Funding Status	Anticipated Construction
✓ 1	Old Village Septic Tank & Outfall Upgrade	\$ 180,000	Funded	2008
✓ 2	Vacuum Truck	\$ 125,000	Funded	2008
✓ 3	New Water Treatment Plant	\$ 1,800,000	Funded	2009
4	Old Village Atxax Road Wastewater Collection System Improvements	\$ 242,000	Unfunded	2009
5	Old Village Water Storage Tank, 100,000 Gal., (\$4.00/Gal)	\$ 500,000	Unfunded	2009
6	New Water Treatment Plant Yard Piping, 1250 LF 6" HDPE	\$ 187,500	Unfunded	2009
7	Impoundment Structure Replacement and Reservoir Improvements	\$ 849,585	Unfunded	2010
8	New Village Water Storage Tank and Access Road, 60,000 Gal	\$ 914,827	Unfunded	2010
9	Water Transmission Main Upgrade (1,800 LF) and Metering Structure along Atxax Road	\$ 643,500	Unfunded	2011
✓ 10	New Village Septic Tanks and Outfall Upgrades (new diffuser assembly)	\$ 25,000	Unfunded	2011
11	Water Transmission 4000' Water Transmission Line Upgrade	\$ 660,000	Unfunded	2011
12	New Village School Service Reconfiguration	\$ 412,500	Unfunded	2011
	<b>Total Estimated Cost</b>	<b>\$ 6,539,912</b>		
	<b>Total Unfunded Estimated Cost</b>	<b>\$ 4,434,912</b>		

The required funding, by fiscal year, to complete the proposed sanitation improvements are presented in the Table 1.2 below.

Table 1.2: Required Sanitation Funding

Required Funding by Year			
Funding Cycle	Project Phase	Anticipated Construction	Amount
FY10	Phase IV	2009	\$ 929,500
FY11	Phase V	2010	\$ 1,764,412
FY12	Phase VI	2011	\$ 1,741,000
<b>Total Funding Required</b>			<b>\$ 4,434,912</b>

The following grants have been awarded to date:

Grant 00EB51 / 491282, Amount: \$155,000

Source of Funding: State and EPA/IG Funds

Scope: This grant was awarded to finance preparation of a sanitation improvement feasibility study to assess water and sewer system needs and make recommendations for system upgrades and expansion. A sanitation feasibility study was prepared in 2001

Grant 04EB50 / 49230, Amount: \$1,379,000 (Phase I)

Source of Funding: State and EPA/IG Funds

Scope: This grant was awarded to provide a new south community septic tank for Old Village, to provide new water treatment plant equipment, to replace the 25-year old water treatment plant building, to install a new north community septic tank and outfall for Old Village, to make school sewer system connections, and to replace galvanized steel water mains to reduce rust and increase size and flow. This scope was not completed. This grant was spent primarily for the 95% water and sewer design plans, and purchase of heavy equipment.

Grant 06EI83 / 71095, Amount: \$2,200,000 (Phase II)

Source of Funding: State and EPA/IG Funds

Scope: The original grant scope included several sanitation upgrades with a cost exceeding the awarded funding. The grant scope was reduced to Phase II. Phase II consists of 1) construction the upgrade of the Old Village water distribution system, 2) the wastewater upgrades in Old Village, and 3) a value engineering analysis of the 95% plan set prepared in 2006 for a water treatment plant, water storage tanks, a

transmission main to The Subdivision, and an impoundment upgrade. The mobilization costs for a barge was also included.

An amount of \$700,000 has been dedicated in 06E183 as match funds for Grant 08NJ CPA.

The remaining budget, of approximately \$300,000, will be released when a redesign of the outfall has been approved for construction.

Grant 08NJ8 CPA Amount: \$1,076,685 (Phase III)

Source of Funds: Indian Health Service

Scope: A water treatment plant and sewage pump truck. The cost of yard piping is being requested in Phase IV.

Proposed Planning Grant, Amount \$100,000

Source of Funds: VSW/EPA

Scope: This grant is for sanitation planning. Because the needs are essentially unchanged, an award will be made from this grant for the City to obtain a rate study and other assistance in improving the managerial and financial capacity of the water and sewer utility.

## 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. A final study was adopted by the City council March 2001.

The primary goals of the original study and update were to:

- Identify sanitation needs for the community,
- Evaluate alternatives to address those needs, and
- Prepare a phased plan to implement the recommended alternatives.

By 2008, in response to a grant funding requirement that feasibility studies be reviewed within the last five years, the changes that have occurred since the original 2001 plan are being described in this document for the review of the City and funding agencies. Only those sections that have been modified are included in this update.

The original plan and this update should be used together to guide the community as they upgrade their utility system and secure funding to complete the identified sanitation improvements. Community involvement was an important part of the development and acceptance of both the plan and this update as adopted by the City of Atka through a Council resolution provided in Appendix E.

### 3.0 PROJECT BACKGROUND

*No changes made on Sections 3.1 to 3.7.*

### 3.8 Population

The current population of Atka is 73 (DCCED Certified 2006). Demographic predictions are unreliable for any small population (per conversation with Greg Williams, State Demographer). The following are potential reasons for growth:

- 1) APICDA has been planning for a brown crab fishery, which would increase employment at Atka Pride Seafoods;
- 2) An anticipated lower cost of living when the hydroelectric project is complete may attract residents;
- 3) Air access will be more reliable after the airport upgrade;
- 4) Some family members are now returning to Atka;
- 5) Atka's ecosystem creates a potential for tourism;
- 6) Seasonal construction and fish processing jobs will be available for local workers and workers from neighboring communities;
- 7) Atka has historically had a small but stable population base.

The following are potential reasons for a potential population decrease:

- 1) Changes in the climate, which may affect the fishery;
- 2) Migration to urban Alaskan areas has been a trend in the Aleutians,
- 3) Any loss of jobs in the community;
- 3) Atka will be affected as the cost of fuel rises,
- 4) Some residents may move away to live with family in other communities or find better paying work.

The community has requested that the 20-year planning horizon consider a design population of 250 people. This would require a nearly 7% growth rate every year for the 20 year planning period. The generally accepted planning growth rate for rural Alaska is 2% which would predict a design population of 140.

#### **4.0 SCHEDULED CAPITAL PROJECTS/COSTS**

##### **4.1 Existing and Proposed Capital Projects**

The current status of the City of Atka and the Native Village of Atka projects are as follows:

##### **Projects Completed**

- New Bulk Fuel facilities were constructed in 2004.
- Power Plant Upgrade was completed in 2005.
- Nazan Bay Inn Renovation: This itinerant housing was upgraded by Aleutian Pribilof Island Community Development Association (APICDA).

##### **Projects in Construction Phase**

- Atka Water Distribution and Outfall This project, funded by VSW and EPA/IG, is under construction in 2008 and 2009. The water distributed is completed. Funds to procure material for the outfall will not be released until a redesign of the outfall is approved for construction (the original design was not constructible.)
- Atka Septage Haul Truck This grant funded purchase will be made in 2008.
- Extension of the Airstrip. This project, administered by the Department of Transportation and Public Facilities project, is designed. Construction by a contractor will begin in June 2008. The scheduled completion is October 2009.
- Hydroelectric Plant. The City of Atka was awarded a combination of grants and loans to continue this project to completion. Construction by contract and by force account is planned for 2009 and 2010.
- Atka Store replacement This project funded in part with a loan from ANICA is under construction in 2008. The prefabricated store was delivered to the Native Village of Atka in May 2008. The VSW water and sewer project coordinated with the community to mutually reduce costs by serving the facility prior to arrival of the store.

##### **Projects in Design Phase**

- Atka Water Treatment Plant Upgrade. The original design is in review for value engineering. Indian Health Service awarded funds to construct the water treatment portion of this upgrade.

- Soil Contamination in Atka – Old Village Area. The Native Village of Atka has retained a firm to assess the extent of petroleum contamination in Old Village.
- Dancing Creek Culvert. The project has reached 100% design, but has not been permitted. Installing a fish ladder in the culvert is a requirement to mitigate environmental effects for reconstruction of the hydroelectric plant. The Native Village of Atka is the grantee, and the Aleutian Island Pribilof Association is monitoring the grant.
- Atka Pride Seafood Plant Expansion. This project is currently at design, under the direction of the Aleutian Pribilof Island Community Development Association (APICDA) and Atka Pride Seafoods.
- Reconstruction of the Main Road. This project design was completed in 2007, but construction is not fully funded. The grantee is the Native Village of Atka.
- Aleutian Housing Authority Duplex. This project will build housing for the Village Public Safety Officer and a Health Aide. AHA is exploring the most economical methods to transport and construct the building, and the preferred lot for the structure. This project shared data from their soils testing with the VSW project.

#### Projects in Planning Phase

- New Health Clinic. Funds are being requested from the Denali Commission. A study was prepared in the early 1990's, but the standard design was considered to large to be selected for funding.
- Community Center and City Office. This project was originally planned to be a combined building with the health clinic; the community is still seeking funds for this project.
- Wind Power. A grant request is being prepared for 2009 to consider this energy alternative.
- US Army Corps of Engineers. The Corps is planning additional removal of World War II debris.
- Small Boat Harbor. Plans for a small boat harbor in Nazan Bay adjacent to the Old Village area are being developed.

## **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. A utility location map was prepared and is shown on Figure 5.1. A summary of the facility review follows.

### 5.1.1 Water Supply

*No changes made.*

### 5.1.2 Water Treatment

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.

### 5.1.3 Water Storage Tank

The condition of the wood stave water storage tanks has worsened dramatically since 2001. The roofs on both tanks are rotten and the sidewalls are leaking. The 60,000 gallon tanks are also too small to meet the current community demand and water treatment requirements.

In 2008, the wooden tanks, both permit-required confined spaces, are no longer safe to enter, although debris has accumulated and the tanks need internal cleaning. There is no side hatch for safe entry and exit. It would not be possible to rescue a worker because the rotting wood roofs cannot support a second worker. The remote maintenance worker, the construction management engineer, and a sanitarian have confirmed this condition in 2008. Replacement and upgrade of the Old Village tank is proposed in 2009 and The Subdivision Tank in 2010.

The final sizing of the storage tanks may vary but a 100,000 gallon tank for the Old Village Tank (to meet required chemical contact time, see the table below) and a 60,000 gallon supplying The Subdivision distribution system.

CT CALCULATOR		CASE 1	CASE 2	CASE 3
(0 to 25° C)	Water Temperature (°C)	3.0	3.0	3.0
(6.5-8.5)	pH	7.0	7.0	7.0
(NLT .2)	Free Chlorine Residual (mg/l)	0.2	0.3	0.4
(0 to 3)	Log Inactivation Required	1.0	1.0	1.0
$CT = \text{Log Inactivation} * 5.057 * e^{(a+b+c)}$ $a = -0.0693 * \text{temp}$ $b = 0.361 * \text{pH}$ $c = 0.113 * \text{Free Cl Residual}$				
		(0.21)	(0.21)	(0.21)
		2.53	2.53	2.53
		0.02	0.03	0.05
	REQUIRED CT (min/(mg liter))=	53	53	54
	Required Contact Time (min) = CT / (Free Cl Residual) =	263	177	134
	Design Flow Rate (gpm)	40	40	40
	CT Storage Volume (gal)	110,000	75,000	60,000
	Baffle Factor (0.1 to 1.0)	0.1	0.1	0.1
	Effective Storage (gal) = (Storage * Baffle Factor)	11,000	7,500	6,000
	Storage Time (min) @ Flow Rate = Eff. Storage / Des Flow Rate	275	188	150
	Excess contact time (mins) = (Storage Time - Contact Time)	12	10	16
<p><i>Note: Excess Contact Time must be positive under all operating conditions!</i></p>				

No funding to replace the water storage tanks has been awarded at this time.

### 5.1.4 Water Distribution

Water is supplied to the homes in both the Old Village and The Subdivision areas with 4-inch and 6-inch HDPE piping from the storage tanks.

The water distribution in the Old Village area is provided by a 6-inch HDPE, SDR 11 water distribution main and 1-inch HDPE service lines to each served home. Six "single pumper" hydrants are provided in this area. Each service line is equipped with a corporation stop and isolation valve (curb stop) at the structure served.

The water transmission main from the water treatment plant to The Subdivision water storage tank serves three customers and is equipped with two hydrants. During regular high flow conditions, water supplied to Atka Pride Seafoods, the Fire Hall and the Nazan Inn does not receive the required chemical contact time for disinfection and inactivation

of viruses and Giardia Cysts. Because of this deficiency, a "boil water notice" has been issued to utility customers.

The Subdivision 4-inch HDPE water distribution system is supplied via gravity from the existing water storage tank. All service lines are typically constructed with 3/4-inch soft copper tubing with curb stops. There is no convenient way to shut-off a water service at the house.

The current status of the 5 deficiencies noted in 2001 is:

	2008 Status	2001 Deficiencies
1	Now that the Old Village water main has been replaced, all of the identified leaks will have been repaired. However, water shortages are expected to continue. Small water storage tanks and a limited ability to filter and treat water, Atka cannot meet extended periods of high water demand.	Areas of town experience water shortages during periods of high demand during the summer.
2	The majority of the Old Village rusty water supply problems have been corrected with installation of a new HDPE watermain piping and service lines. However, older houses still have galvanized steel interior piping that the homeowner is responsible for.	Occurrence of low pressure and rusty water in Old Village
3	All identified leaks have been repaired.	Several fire hydrants may be leaking
4	No change. This deficiency has not been addressed.	There are no flushing hydrants near the school or water treatment plant
5	No change.	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:

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

The current status of the five wastewater system deficiencies noted in 2001 is as follows:

	<b>2008 Status</b>	<b>2001 Deficiencies</b>
1	New septic tank(s) are scheduled to be installed in the fall of 2008 to address this deficiency.	There are no septic tanks serving the 13 occupied residences in Old Village.
2	Correction of this situation is an extremely high priority. Both Old Village outfalls have failed. Untreated wastewater is being discharged directly on to the beach causing an acute public health threat.	The last manhole experiences back up problems on the second system serving old village.
3	Vacuum collection equipment to pump The Subdivision septic tank annually has been funded and will be procured and shipped to Atka in 2008.	The new Atka Subdivision tank must be pumped too often.
4	This has since been corrected by the Aleutian School District and Atka Pride Seafoods.	The school system and Atka Pride Seafood have wastewater systems that can not be managed properly
5	No Change. Funding to correct this deficiency is being sought.	The ductile iron piped spanning a creek in Old Village has sagged.

### 5.1.6 Solid Waste Disposal

The current status of the 6 deficiencies noted in 2001 is:

	<b>2008 Status</b>	<b>2001 Deficiencies</b>
1	No change.	The landfill is less than 5000 feet from the airport
2	The City now has a burn box.	There is no burnbox. Uncontrolled burning has caused grass fires on the hillside
3	Corrected by the City. The city periodically disposes of septage in trenches excavated at the landfill facility. The trenches are covered shortly after disposal.	The septage pit is unfenced

4	No change.	Uncontrolled dumping is present
5	A temporary waste disposal permit has been issued for the Airport Upgrade project to dispose of construction debris	There is no facility to house hazardous wastes such as waste oil and batteries.
6	Sufficient cover material is available within the landfill facility.	There is no stockpiled fill on site to cover the waste with once it is burned.

## 5.2 Planning Conditions

### 5.2.1 Population Growth Rates

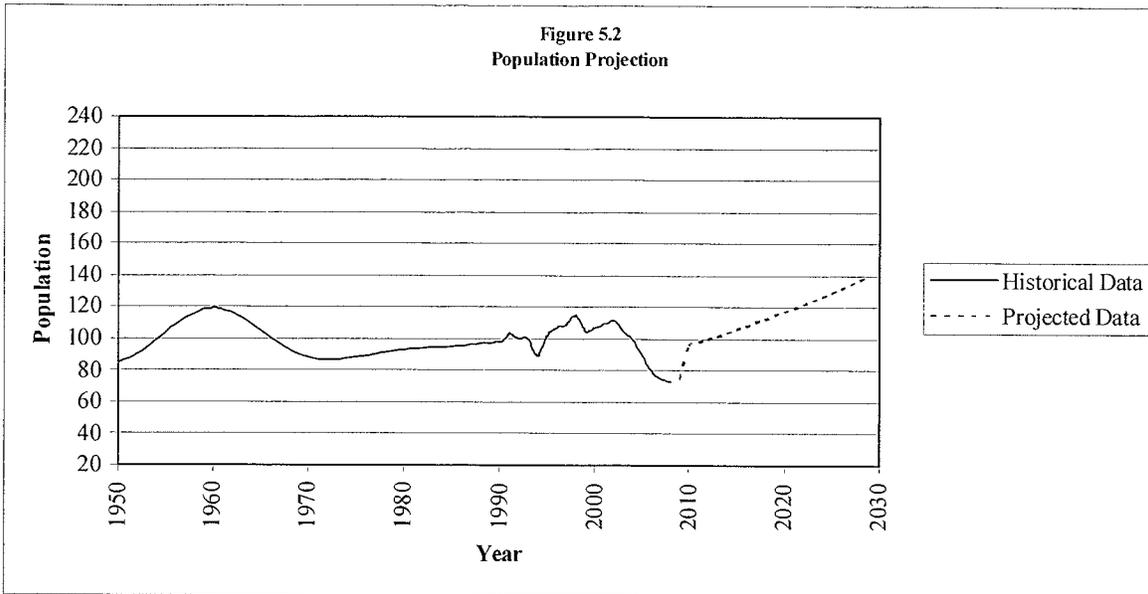
The current population of Atka is 73 (DCCED Certified 2006). The population of the City of Atka has remained steady for the past 5 years but has changed erratically during the course of its history.

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. This is higher than being used to plan for many other rural Alaskan communities.

Population projections for Atka are shown in Figure 5.2 below. The population spike in year 2010 is a result of projected fish plant expansion requiring more full time labor.

Figure 5.2  
Population Projection



### 5.2.2 Residential Expansion

There has been minimal residential expansion since the original study was completed. A duplex is planned for construction during the 2008 – 2009 construction season and several vacant homes are being upgraded and will be re-occupied in late 2008.

### 5.2.2 Development of Fishing Industry

The expansion of the Atka Pride Seafood plant is being constructed so that brown crab can be added to the seafood processed. Periodically, water demand is expected to increase by 50,000 gallons to a total of 62,000 gallons per day. At the end of the design period, this is estimated to increase to 75,000 gallons per day.

### 5.3 Design Criteria

The proposed system design criteria have been updated to reflect the current population and water demands. A summary of this information is provided in the table below.

Table 5.3 Proposed Design Criteria

DESIGN CRITERIA	Value
Planning period (through 2028)	20 years
Design population	140
<b>Water</b>	
Average daily per capita usage (100 gpcd)	14,000
Average daily fish plant usage (gpd)	75,000
Total average daily usage (gpd)	89,000
Total maximum daily usage (gpd), 1.5 Peak Factor	133,500
<b>Wastewater</b>	
Estimated Daily Per Capita Flow (gpcd)	150
Total Estimated Daily Flow (gpd)	21,000
<b>Solid Waste</b>	
Average per capita daily production (pcpd):	4.5

## 6.0 LAND STATUS

*No changes made.*

## 7.0 SANITATION FACILITY ALTERNATIVES

Design of many of the proposed sanitation facilities proposed in the 2001 Sanitation Facilities Study are substantially complete (agency approval level) or finalized. The components designed include:

- Water Reservoir Improvements
- Water Impoundment Structure
- Water Treatment Plant
- Old Village Water Distribution System Replacement (construction completed in 2008)
- Old Village Wastewater Treatment and Outfall Replacement

Current design drawings are included in Appendix B.

## 8.0 IMPROVEMENT PLAN

The Improvement Plan presented in the 2001 study continues to represent the community's needs well. To date, the implementation of the plan has resulted in the completion of necessary design work and replacement of the Old Village watermain. The continuing construction schedule and estimated costs, in 2008 dollars, is presented in the table below.

Table 8.1: Atka Sanitation Improvement Plan

Item	Capital Improvement	Estimated Cost	Funding Status	Anticipated Construction
1	Old Village Septic Tank & Outfall Upgrade	\$ 180,000	Funded	2008
2	Vacuum Truck	\$ 125,000	Funded	2008
3	New Water Treatment Plant	\$ 1,800,000	Funded	2009
4	Old Village Atxax Road Wastewater Collection System Improvements	\$ 242,000	Unfunded	2009
5	Old Village Water Storage Tank, 100,000 Gal, (\$4.00/Gal)	\$ 500,000	Unfunded	2009
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8	New Village Water Storage Tank and Access Road, 60,000 Gal	\$ 914,827	Unfunded	2010
9	Water Transmission Main Upgrade (1,800 LF) and Metering Structure along Atxax Road	\$ 643,500	Unfunded	2011
10	New Village Septic Tanks and Outfall Upgrades (new diffuser assembly)	\$ 25,000	Unfunded	2011
11	Water Transmission 4000' Water Transmission Line Upgrade	\$ 660,000	Unfunded	2011
12	New Village School Service Reconfiguration	\$ 412,500	Unfunded	2011
	<b>Total Estimated Cost</b>	<b>\$ 6,539,912</b>		
	<b>Total Unfunded Estimated Cost</b>	<b>\$ 4,434,912</b>		

## 9.0 UTILITY RATES

Utility rates and costs associated with operating the water, sewer and solid waste utilities are provided in the 2008 Atka Business Plan, adopted May 2008. The Business Plan is provided in Appendix C.

## 10.0 POTENTIAL FUNDING SOURCES

*No changes made.*



UPDATED ATKA COST  
ESTIMATES

**ATKA WATER STORAGE TANKS PROJECT 2008 COST ESTIMATE**

Budget Item	Description	Quantity	Unit	Unit Cost	Budget Subtotal	Cost to Date	Cost to Complete	Cost at Completion	Budget Variance
1	Construction Management Contract	1	LS	\$ 36,855	\$ 36,855	\$ -	\$ -	\$ -	\$ -
2	Supplied Labor	1	LS	\$ 116,150	\$ 116,150	\$ -	\$ -	\$ -	\$ -
3	Force Account Labor	1	LS	\$ 212,700	\$ 212,700	\$ -	\$ -	\$ -	\$ -
4	Small Procurement (\$5,000 and less)	1	LS	\$ 123,500	\$ 123,500	\$ -	\$ -	\$ -	\$ -
5	Material over \$5,000 *	1	LS	\$ 409,814	\$ 409,814	\$ -	\$ -	\$ -	\$ -
6	Freight	1	LS	\$ 120,000	\$ 120,000	\$ -	\$ -	\$ -	\$ -
7	Equipment	1	LS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	Subcontractors	1	LS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**Sub Total** \$ 1,019,019 \$ - \$ - \$ - \$ -

\*This includes 10% steel tank markup

**Project Estimate** \$ 1,019,019

67 40%  
101 60%  
168

**10% Contingency** \$ 233,040

**Total Project Budget** \$ 1,252,059

EMT @ 8% \$ 100,165

Inflation - 5% \$ 62,603

Total \$ 1,414,827

Prorate by Tank \$848,896 101K Gallon Tank

Prorate by Tank \$565,930 67K Gallon Tank

Build in Yr 2 \$ 665,930

**Assumptions:**

- 1) Local Force Account Labor will continue to be available
  - 2) Local Equipment purchased by the project in 2007 will continue to be available
- \*Item 5 includes 10% markup for rising steel costs.

**Scope of Work for this Estimate**

2008 WATER STORAGE TANKS COST ESTIMATE

This estimate is based on the HDR City of Atka water and Sewer Improvements Phase 2 October 2007 Drawings





**ATKA WATER STORAGE TANKS PROJECT 2008 COST ESTIMATE**

Budget Item	Description	Quantity	Unit	Unit Cost	Budget Subtotal	Cost to Date	Cost to Complete	Cost at Completion	Budget Variance
5	<b>Tank Number 1 - 101,000 gallon</b>								
	3/4 Plywood	30	Sht	\$ 28.00	\$ 840				
	2 X 4 X 16	60	EA	\$ 12.00	\$ 720				
	Misc Rebar Shapes	1	Lot	\$ 1,000.00	\$ 1,000				
	#4 Rebar	70	EA	\$ 16.00	\$ 1,120				
	#5 Rebar	20	EA	\$ 18.00	\$ 360				
	Pre-Mix Concrete	28	CY	\$ 250.00	\$ 7,000				
	2" Insulation Board Foam	16	EA	\$ 12.00	\$ 192				
	Liquid Waterproofing	1	Lot	\$ 250.00	\$ 250				
	4" ADS Perf Pipe	150	LF	\$ 3.00	\$ 450				
	2" Washed Gravel	25	CY	\$ 75.00	\$ 1,875				
	Class D Backfill	100	CY	\$ 45.00	\$ 4,500				
	Clean Sand	25	CY	\$ 100.00	\$ 2,500				
	30# Asphalt Paper	6	Roll	\$ 75.00	\$ 450				
	3/4" Epoxy Anchor Bolt	1	Lot	\$ 600.00	\$ 600				
	101,000 Gallon Bolted Steel Water Tank	1	EA	\$ 110,000.00	\$ 110,000				
	Inlet Piping	1	Lot	\$ 7,500.00	\$ 7,500				
	Outlet Piping	1	Lot	\$ 7,500.00	\$ 7,500				
	Overflow Assembly	1	Lot	\$ 4,500.00	\$ 4,500				
	Tank Insulation Package	1	Lot	\$ 60,000.00	\$ 60,000				
	7' x 10' Valve Vault Assembly	1	Lot	\$ 7,500.00	\$ 7,500				
	6" Altitude Valve Assembly	1	Lot	\$ 4,800.00	\$ 4,800				





**ATKA RESERVOIR IMPROVEMENTS PROJECT 2008 COST ESTIMATE**

Budget Item	COMBINED TOTALS	Quantity	Unit	Unit Cost	Budget Subtotal	Cost to Date	Cost to Complete	Cost at Completion	Budget Variance
1	Construction Management Contract	1	LS	\$ 23,815	\$ 23,815	\$ -	\$ -	\$ -	\$ -
2	Supplied Labor	1	LS	\$ 88,400	\$ 88,400	\$ -	\$ -	\$ -	\$ -
3	Force Account Labor	1	LS	\$ 128,700	\$ 128,700	\$ -	\$ -	\$ -	\$ -
4	Small Procurement (\$5,000 and less)	1	LS	\$ 123,500	\$ 123,500	\$ -	\$ -	\$ -	\$ -
5	Material over \$5,000	1	LS	\$ 74,390	\$ 74,390	\$ -	\$ -	\$ -	\$ -
6	Freight	1	LS	\$ 55,000	\$ 55,000	\$ -	\$ -	\$ -	\$ -
7	Equipment	1	LS	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ -	\$ -
8	Subcontractors	1	LS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**Sub Total** \$ 518,805 \$ - \$ - \$ -

**Project Estimate** \$ 518,805

**10% Contingency** \$ 233,040

**Total Project Budget** \$ 751,845

EMT \$ 60,148

INFLATION (5% to 2010) \$ 37,592

**Total Project Budget** \$ 849,585

W-SW

31 Homes Served

3 Severity (regulatory Violation)

**Assumptions:**

- 1) Local Force Account Labor will continue to be available
- 2) Local Equipment purchased by the project in 2007 will be available

**Scope of Work for this Estimate**  
 2008 RESERVOIR IMPROVEMENT COST ESTIMATE

This estimate is based on the HDR City of Atka water and Sewer Improvements Phase 2 October 2007 Drawings





**ATKA RESERVOIR IMPROVEMENTS PROJECT 2008 COST ESTIMATE**

	1	Lot	\$	15,000.00	\$	15,000		
12" Intake screen assembly	1	Lot	\$	15,000.00	\$	15,000		
Temporary Water Intake Assembly	1	Lot	\$	7,500.00	\$	7,500		
Class II rip Rap	50	CY	\$	95.00	\$	4,750		
Class B back fill	100	CY	\$	45.00	\$	4,500		
Chain Link Fence	670	LF	\$	20.00	\$	13,400		
		Roll	\$	75.00	\$	-		
		Lot	\$	600.00	\$	-		
		EA	\$	110,000.00	\$	-		
Inlet Piping		Lot	\$	7,500.00	\$	-		
Outlet Piping		Lot	\$	7,500.00	\$	-		
Overflow Assembly		Lot	\$	4,500.00	\$	-		
		Lot	\$	60,000.00	\$	-		
		Lot	\$	7,500.00	\$	-		
		Lot	\$	4,800.00	\$	-		

Budget Item	Quantity	Unit	Unit Cost	Budget Subtotal	Cost to Date	Cost to Complete	Cost at Completion	Budget Variance
6	1	LS	\$ 45,000	\$ 45,000.00				
Barge Freight	1	Lot	\$ 10,000.00	\$ 10,000.00				
Air Freight								
				Subtotal \$ 55,000	\$ -	\$ -	\$ -	

Budget Item	Quantity	Unit	Unit Cost	Budget Subtotal	Cost to Date	Cost to Complete	Cost at Completion	Budget Variance
7								
Rock Drill	1	EA	\$ 25,000	\$ 25,000				
				Subtotal \$ 25,000	\$ -	\$ -	\$ -	

Budget Item	Quantity	Unit	Unit Cost	Budget Subtotal	Cost to Date	Cost to Complete	Cost at Completion	Budget Variance
8								
		LS		\$ -				
		LS						
		N/A						
				Subtotal \$ -	\$ -	\$ -	\$ -	

