

CITY OF DILLINGHAM, ALASKA

RESOLUTION NO. 2015-65

A RESOLUTION OF THE DILLINGHAM CITY COUNCIL ACCEPTING THE STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S (DEC) MUNICIPAL MATCHING GRANT (MMG) # 28308 FOR WATER SYSTEM IMPROVEMENTS

WHEREAS, Michael L. Foster & Associates updated the City's Water System Master Plan, and

WHEREAS, the plan includes adding three new wells, adding circulating loops, installing additional water hydrants, upsizing water mains in core areas, replacing AC pipe and adding another water storage tank for an estimated cost of \$8 million; and

WHEREAS, the City has had an MMG grant for \$2,140,119 pending with the State waiting for the plan to be updated and the projects prioritized; and

WHEREAS, City staff has listed the new wells, circulating loops and upsizing the water mains in core areas as its priority projects; and

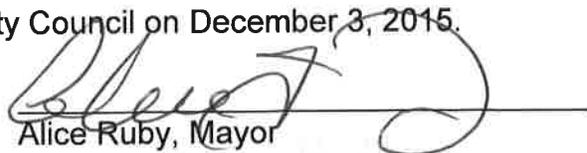
WHEREAS, the MMG grant requires a 30% match so in order to receive the full grant funding available eligible project costs must total at least \$3,057,313; and

WHEREAS, the MMG grant was a re-appropriation of State Fiscal Year 2014 funds which must be spent by June 30, 2017; and

WHEREAS, City staff will be looking to apply for funds with ANTHC in the New Year 2016;

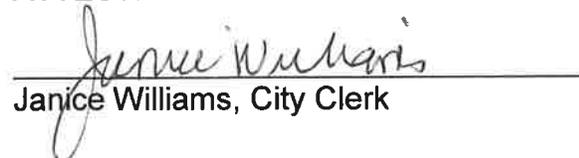
NOW, THEREFORE, BE IT RESOLVED that the Dillingham City Council accepts DEC's Grant Offer – MMG # 28308 for Water System Improvements and the responsibility to operate and maintain the proposed water utility improvements and agrees to the terms and conditions of the grant offer.

PASSED and ADOPTED by the Dillingham City Council on December 3, 2015.


Alice Ruby, Mayor

ATTEST:

[SEAL]


Janice Williams, City Clerk

City of Dillingham Information Memorandum

Agenda of: December 3, 2015

Attachment to:

Ordinance No. _____ / Resolution No. 2015-65

Subject:

A RESOLUTION OF THE DILLINGHAM CITY COUNCIL ACCEPTING THE STATE'S DEC MUNICIPAL MATCHING GRANT (MMG) # 28308 FOR WATER SYSTEM IMPROVEMENTS

City Manager: Recommend Approval

Signature: *Roseberry*

Fiscal Note: Yes No

Funds Available: Yes No

Other Attachments:

- Executive Summary of Water System Master Plan

Summary Statement:

The City had a Municipal Matching grant in the amount of \$2,140,119, with DEC that was re-appropriated during the 2015 legislative session as it was expiring. DEC required us to update our Water System Master Plan to prioritize the projects we would be doing with the grant. The grant has a 30% match requirement that we will be seeking an ANTHC grant for the match.

Michael L. Foster & Associates updated the plan and we prioritized new wells, circulating loops and upsizing water mains. Including additional fire hydrants was also mentioned as a priority in the plan, but DEC will not fund fire hydrants so did not include them in this funding.

The State requires the City Council to adopt a resolution accepting the grant offer – MMG # 28308 for Water System Improvements and in acceptance the City accepts responsibility to operate and maintain the proposed water utility improvements and agrees to the terms and conditions of the grant offer.

Attachment to:
Ordinance No. _____ / Resolution No. 2015-65 _____

Summary Statement continued:

Route to	Department Head	Date
X	Finance Director	12/4/15
X	City Clerk	12/4/15

EXECUTIVE SUMMARY

The City of Dillingham retained Michael L. Foster & Associates, Inc. (MLFA) to assist them with a Master Plan / Preliminary Engineering Report (PER) for water system improvements. The purpose of the Master Plan / PER is to evaluate the existing public water system, including but not limited to, the water source(s), wells, treatment facility, storage, and distribution; identify required improvements; and evaluate the need for future expansion. The Plan will also be used to obtain funding from state and federal programs for the necessary water improvements. Therefore, the Plan was prepared in accordance with the guidelines in the United States Department of Agriculture (USDA) Rural Utilities Service (RUS) Bulletin 1780-2 *Preliminary Engineering Reports for the Water and Waste Disposal Program* dated April 4, 2013.

The project planning area focuses on improvements to the existing City of Dillingham piped water systems in the townsite area. Most of the residences, businesses, and public facilities located outside the townsite area have private wells. Expanding the piped water system beyond the current service area is a lower priority.

Additional water supplies are needed. It is estimated the primary well (CD #2) produces 216,000 per day at 150 gpm, and the backup well (CD #5) produces 72,000 gallons per day at 50 gpm. However, CD #5 has been pumped dry so it is used only on an as needed basis.

- If CD #5 fails due to sand or recharge issues, CD #2 may not be able to keep up with summer season water use demands that occasionally exceed 200,000 gallons.
- If CD #2 fails or is taken off line for an extended period of time, CD #5 does not have the capacity to keep up with the daily demands.
- If a fire event requiring 3,500 gpm for 3 hours occurs during the peak summer season, it is estimated that if both wells were continuously pumped, it would take more than three days to replenish the system.

Additional water supplies would improve the capacity of the water distribution system during the peak summer season; provide additional capacity for fire control; and provide backup water supplies if a well needs to be taken off line for equipment repairs, rehabilitation, or due to water quality concerns.

Additional water storage would improve the capacity of the water system during the peak summer season and during fire events. If both wells were shut off when the storage tank and stand pipe were full, the existing storage capacity would provide a peak average daily demand of 150,000 gallons per day at the full service pressure (35 pounds per square inch (psi)) for 3.3 days and the pressure would drop to the minimum operating pressure (20 psi) in 5.5 days. Increasing the volume of water stored and imposing water restrictions would lengthen the amount of time available to remedy the water supply situation.

There have been complaints about the taste of the water in areas near dead ends. Eliminating dead ends by adding mains to create circulating loops will improve the taste of the water in those areas.

Water mains need to be added and some mains need to be upsized (increased in diameter) to improve circulation for daily demands and fire flow, and more hydrants are needed to improve coverage. The asbestos cement (AC) pipe, which was installed between 1964 and 1980, is brittle and needs to be replaced. There are concerns that increased pressures on some of the AC pipe might cause it to fail.

Some of the water main valves and a number key boxes and valves for service connections need to be added or replaced. Some of the valve riser pipes are full of debris or bent over; valves have corroded and are stuck or difficult to operate.

The improved water supply and the construction of looped water mains in the townsite area will allow the City water utility to keep up with the growing demands on the existing water system, especially during the peak summer fishing season.

The prioritized list of recommended improvements and the capital cost estimates are summarized in Table ES1.

Table ES1 – Prioritized List of Improvements and Capital Cost Estimates

Priority and Description	Construction Cost Estimate	Engineering / Construction Management / Administration (20%)	Subtotal	Contingency (30%)	Total Cost Estimate
#1 - Add Three New Wells	\$350,235	\$70,047	\$420,282	\$126,084	\$546,366
#2 - Add Circulating Loops	\$1,432,899	\$286,580	\$1,719,479	\$515,844	\$2,235,322
#3 - Install Additional Fire Hydrants	\$189,604	\$37,921	\$227,525	\$68,257	\$295,782
#4 - Upsize Mains In the Core Area	\$821,410	\$164,282	\$985,692	\$295,708	\$1,281,400
#5 - Replace AC Pipe	\$700,132	\$140,026	\$840,158	\$252,048	\$1,092,206
#6 - Upsize Main in the Small Boat Harbor Area	\$313,711	\$62,742	\$376,453	\$112,936	\$489,389
#7 - Add Water Storage Tank	\$1,313,304	\$262,661	\$1,575,965	\$472,789	\$2,048,754
Grand Total	\$5,121,295	\$1,024,259	\$6,145,554	\$1,843,666	\$7,989,219

Add Three New Wells

Three new 8-inch diameter wells approximately 250 feet deep will be installed in the lower aquifer shown on Figures 15 and 16. The proposed locations are described below.

- The high school parking lot near CD #5 and approximately 500 feet from CD #2.
- On or near the old airstrip park on E Street West half way between CD #2 and the water treatment plant.
- A location near the water treatment plant.

Prior to finalizing the well locations, MLFA recommends the water levels in CD #2 be monitored during and after pumping to obtain drawdown and recharge information. The data is needed to determine the impacts of pumping on the aquifer. We also recommend the collection of raw water data to evaluate the chemical signature and changes in water quality. The water level and water quality information will be used to adjust the proposed well locations and manage sustainable yields in the aquifer.

Add Circulating Loops

Approximately 5,770 feet of new water main will be installed to eliminate dead ends and improve fire flow in the areas shown on Figures 18 and 19. The preliminary design includes

1,070 linear feet of 8-inch ductile iron pipe; 4,700 linear feet of 10-inch ductile iron pipe; and four fire hydrants.

Install Additional Fire Hydrants

Figure 21 shows the locations of 18 fire hydrants that will be added to the existing infrastructure. All but two of the hydrants are within 50 feet of an existing water main. One hydrant requires 368 linear feet of service line and one requires 277 linear feet of service line.

Upsize Mains In the Core Area

Approximately 3,349 linear feet of water main will be upsized in the core area. This includes 136 linear feet of 6-inch ductile iron pipe; 2,031 linear feet of 10-inch ductile iron pipe; and 1,182 linear feet of 12-inch ductile iron pipe.

Replace AC Pipe

Approximately 2,965 feet of AC pipe will be replaced with 8-inch diameter ductile iron pipe. As shown on Figure 17, some of the locations of the existing ductile iron pipe have not been verified. Although the replacement of AC pipe is listed as a lower priority, the City replaces the old AC pipe whenever it is exposed and will continue to do so.

Upsize Main in the Small Boat Harbor Area

As shown on Figure 19, approximately 1,241 linear feet of water main will be upsized to 10-inch or 12-inch ductile iron pipe in the small boat harbor area. The size of pipe required will be evaluated during the design process. Cost estimates assume 12-inch diameter ductile iron pipe will be installed.

Add Water Storage Tank

The preliminary design assumes an insulated 500,000 gallon welded steel water storage tank will be installed near the existing 500,000 gallon water storage tank and water treatment plant.

Schedule

The projects will be scheduled based on the availability of funding.

Recommendations and Conclusions

The design information and cost estimates presented are preliminary and will be further developed and updated during the design phase for each project.

To develop and manage sustainable water supplies the City of Dillingham needs to monitor and evaluate the immediate and long-term responses to pumping on water levels, groundwater flows, and water quality.