



CITY OF WASILLA

290 E. HERNING AVE.
WASILLA, ALASKA 99654-7091
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COUNCIL MEMORANDUM NO. 93-19

From: Deputy Administrator
Date: March 17, 1993
Subject: East Parks Highway Water

Now that Wal-Mart has confirmed its intentions to construct within the City, Public Works has again raised the issue of a City water project for the Parks Highway area. Council may recall our earlier Public Works proposal to investigate and secure a water tank site in that area.

Wal-Mart will probably expend some \$200,000 to construct their own on-site storage and class B water well. Considering the existing development (Windbreak, Nye, El Toro, Theater, etc.) and expected future development this could be a timely project. Wal-Mart plans a fall opening and a project time table would be extremely tight.

Public water in the area is desirable to developers for at least two reasons. High capacity fire protection reduces insurance rates and makes fire sprinkler systems more reliable. Domestic water would be provided without the need for individual private testing and operator certification.

The greatest obstacle to this water project is that it serves a significant undeveloped area and therefore is somewhat speculative. Local improvement district (L.I.D.) financing would provide some capital but a significant contribution would be required from grant funding.

Attached is a memo sent to Mr. Bernie Richert of the Federal Economic Development Administration. Mr. Richert believes that grant funding through his programs could only occur if President Clinton's jobs legislation passes and makes money available for projects able to be completed in 90 to 120 days. This could qualify.

To be ready the City would have to commission the design and permitting of the \$2,000,000 water extension now estimated at about \$200,000.

Does the council wish to pursue this project at this time?

John C. Stein, Mayor



GILFILIAN ENGINEERING, INC.

Professional Environmental Consultants

Main Office: 255 E. Fireweed Lane, Suite 102, Anchorage, Alaska 99503
(907) 277-2021 • FAX (907) 274-8683

Mat-Su Office: 1800 E. Parks Highway, Suite D-100, Wasilla, Alaska 99654
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January 28, 1993

Mr. Bob Harris
Administrative Assistant
City of Wasilla
290 E. Herning Avenue
Wasilla, AK 99687

RE: Wasilla Water Main Extension to Seward Meridian
City of Wasilla Work Order No. G93-01
GEI Project No. 93004

Dear Mr. Harris:

Gilfilian Engineering, Inc. (GEI) has completed a computer model evaluation of two alternatives for providing municipal water to Tax Parcel D-11 located in Section 12, Township 17 North, Range 1 West, Seward Meridian, Alaska. The evaluation included a cost estimation for a main line extension and a separate water system with a reservoir, the potential impact to the City's Insurance Services Office (ISO) ratings, and a preliminary computer analysis of the potential impact to the flow in the existing City water distribution system.

The pipe network computer model uses routine simulations of steady state pressure and flow in a pipe distribution system. The computer program is also capable of generating extended period simulations which simulate the operation of the water system over a period of time selected by the user. The program can be configured to handle a limited number of storage tanks, pumps, valves, and meters.

It should be understood that the computer model program for the City's water distribution system has not been calibrated since 1986, and flow patterns, demands, and uses may have changed, causing some element of error in the final analysis. If it is the City's decision to further evaluate the alternative of extending the water main (Alternative I) along the Parks Highway, we recommend calibration of the entire water system computer network be done to ensure the computed flows are as accurate as possible. The calibration would also provide critical design information for identifying locations for pressure reducing valves (PRV) and sizing of booster pumps.

ALTERNATE I - MAIN EXTENSION ALONG PARKS HIGHWAY

The first alternative consists of a water main extension from the intersection of the Parks Highway and the Palmer-Wasilla Highway to the intersection of the Parks Highway and Seward Meridian Road, approximately 8,800 feet in length. Per your request, the proposed main extension will be a 16-inch ductile iron pipe (DIP) and meet the water demand of approximately the same daily flow rates as the existing Cottonwood Creek Mall. Based on these conditions, a computer generated analysis was done on the entire City water distribution network. The following is a summary of the computer model results:

1. A booster pump station would be needed to maintain adequate in-line pressures in the Mountain Village Plaza area. The approximate size of the booster pump to provide minimum fire flows was 35 hp.
2. The main line pressure at Tax Parcel D-11, Section 12, would be very high and would require the installation of a pressure reducing valve (PRV) with an air release valve along the Parks Highway.
3. The extended fire flows of 700 gallons per minute (gpm) at Tax Parcel D-11 may cause some pressure reductions in the Spirit Ridge distribution system if those flows are long term.

The cost estimate for this alternative assumes that the proposed branch extension would have a constant pressure station with three booster pumps. These pumps would be used in low flows, mid-range flows, and fire flows. The extension would also have a PRV station, fifteen fire hydrants, and would cross Wasilla Creek by means of a boring. Also, the purchase of one-half acre of land is needed for the construction of the booster pump station on the east side of Cottonwood Creek, Tax Parcel D-11, Section 11, Township 17 North, Range 1 West, Seward Meridian, Alaska. An estimated budget for the construction of 8,800 lineal feet of 16-inch DIP water main along the Parks Highway is attached to this report. The total estimated budget is **\$2,269,688.00**.

The primary disadvantage of this alternative is that the terminus of the 8,800-lineal foot main extension lacks loops to circulate the main's flows. This limitation may impact the water quality and is a situation that reduces the system's capability for fire fighting and maintaining reasonable in-line pressures. A loop or grid system is usually preferred to a branch system since it would provide water flow to any point from at least two directions.

ALTERNATE II - SEPARATE WATER SYSTEM WITH RESERVOIR DEVELOPMENT

The second alternative is the development of a separate water system with a reservoir and water distribution system located east of Cottonwood Creek. This alternative would not be connected to the existing City water system.

In 1991 Gilfilian Engineering, Inc. conducted a preliminary evaluation of potential sites in the northeast quadrant of the Wasilla City limits for the placement of a new reservoir. These sites included Tax Parcel C-1, Section 11, Township 17 North, Range 1 West, Seward Meridian, Alaska (Smith property); Lot 6, Block 1, Maney Acres; and, Lot 13, Block 3, Mountain Village Plaza. The only site that met the site selection criteria (approximately 5 acres or more and located east of Cottonwood Creek) was Lot 13, Block 3, Mountain Village Plaza. This property is located directly northeast of Nye Frontier Ford and is approximately 4.4 acres.

As a task under the current work order, we again evaluated other alternative sites closer to Tax Parcel D-11, Section 12; however, all of the properties were either smaller than needed; had topographic features that would restrict the ability to extend the separate reservoir distribution system without additional booster pumps; or larger tracts in which the City would be subdividing out a portion of the tract leaving the owner with a less than marketable tract.

This alternative consists of the development and construction of a 1-million gallon reservoir, a 750 gpm production well, and a 3,800-lineal foot water main extension. We did not complete a separate computer analysis for this alternative because of the simplicity of the layout and the data generated from the first alternative could be used in reviewing the grade line of the proposed main.

For the purpose of estimating the cost for this alternative, it was assumed the reservoir to be similar to that of the Spruce Avenue reservoir site, includes seven fire hydrants, five possible main junction/laterals, and consists of 16-inch DIP. The estimated budget for the construction of the reservoir and the branch extension is attached to this report. The estimated total budget for this alternative was **\$2,830,324.00**. The high capital costs for this alternative are the result of land acquisition and reservoir construction.

DISCUSSION ON ISO RATING

On January 22, 1993, Wasilla Fire Chief Jack Krill informed an Insurance Service Office (ISO) representative of the City's request for a rating comparison between the two alternatives and received a response from an ISO Western representative. The ISO representative, based in San Francisco, stated it was ISO's policy not to give an unofficial estimate on rate changes based on preliminary information.

During Chief Krill's teleconference, it was determined that the last official ISO inspection and rating for Wasilla occurred in 1982. The 1982 inspections were before several improvements to the City's overall network system were completed and included in the 1985 construction of both the Cottonwood Creek Malls (with their internal sprinkler systems) and the 1987 addition of the Spruce Avenue reservoir. The new water system improvements would significantly improve the City's overall ISO ratings, which were rated at 6.0 based on the 1982 inspection. Chief Krill and Mr. Bill Harvey of the City of Wasilla, Public Works Department, requested an official ISO inspection of the water system be done by this summer and include the new improvements for determination of a revised ISO rating for the City.

In addition, Chief Krill obtained unofficial information on ISO ratings from the San Francisco representative. It may be possible for the City's ISO rating to be reduced as much as a point with the recalculation of these existing improvements. The ISO representative also stated that the ISO does not look favorably on branch extensions with booster pumps to maintain fire flows, but prefers the addition of reservoirs to increase the water system's total water volume.

CLOSURE

The information provided in this letter was completed for the development of a preliminary conceptual planning purpose only. The estimated costs need to be better defined and the computer model program calibrated to account for the current condition of the City's water system.

We appreciate the opportunity to provide the City with this preliminary evaluation. If you have any questions regarding this letter, please do not hesitate to give us a call.

Sincerely,

GILFILIAN ENGINEERING, INC.



C. Peter Curtis
Project Engineering Assistant

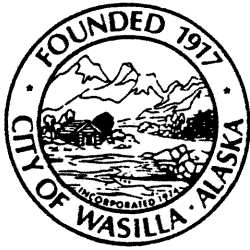
Attachments: Alternate I and II

ALTERNATE I - MAIN EXTENSION ALONG PARKS HIGHWAY

Excavation, Backfill and Boring	\$304,400.00
16-Inch DIP Fire Hydrants and Other Miscellaneous Piping	\$803,600.00
Topsoil, Seeding and Paving	\$281,750.00
Constant Pressure System and PRV Station	\$96,800.00
Electrical Upgrading	\$15,000.00
Land Acquisition (Pump Station)	<u>\$65,000.00</u>
Subtotal	\$1,566,550.00
Engineering and Contract Administration 20%	\$313,100.00
City Administration 5%	\$78,327.00
Legal Fees 1%	<u>\$15,665.00</u>
Subtotal	\$1,973,642.00
Contingency 15%	<u>\$296,046.00</u>
ESTIMATED CONSTRUCTION BUDGET	<u>\$2,269,688.00</u>

**ALTERNATE II - SEPARATE WATER SYSTEM WITH
RESERVOIR DEVELOPMENT**

Site Development	\$173,650.00
Production Well and Reservoir	\$1,151,600.00
Trench Excavation and Backfill	\$106,345.00
16-Inch DIP Hydrants and Other Miscellaneous Piping	\$304,300.00
Topsoil, Seeding and Paving	\$58,100.00
Electrical Upgrading	\$15,000.00
Land Acquisition	<u>\$144,300.00</u>
Subtotal	\$1,953,295.00
Engineering and Contract Administration 20%	\$390,659.00
City Administration 5%	\$97,665.00
Legal Fees 1%	<u>\$19,533.00</u>
Subtotal	\$2,461,152.00
Contingency 15%	<u>\$369,172.00</u>
ESTIMATED CONSTRUCTION BUDGET	<u><u>\$2,830,324.00</u></u>



CITY OF WASILLA

290 E. HERNING AVE.

WASILLA, ALASKA 99654-7091

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February 26, 1993

Mr. Bernhard E. Richert, Jr.
Economic Development Representative
Economic Development Administration
U. S. Department of Commerce
605 West 4th Avenue, Room G-80
Anchorage, Alaska 99501

Re: Proposed Water Line Project

Dear Berney:

As you may be aware, Wal Mart is proposing a new 112,000 square foot store in Wasilla. Part of their development plan includes installation of an on-site water system with 150,000 gallons storage.

Wasilla has long considered the extension of a 16" - 20" water main to serve the commercial development along the east Parks Highway. Such an extension would include a pressure pumping station and would serve about one and one-half miles of commercial real estate on both sides of the highway. Potential customers for domestic water and fire protection include Wal Mart, Meridian Center, Tony Chevrolet, Nye Ford, Homesteaders Hardware Lumber Yard, El Toro II Motel/Restaurant/Bar, and Mat-Su Cinemas Theater.

We have considered several means to finance the extension but its "trunk line" nature begs a large general system contribution. Local improvement district assessments based on say \$0.05 per square foot or about \$2,200 per acre for an assessment depth of 1,000 feet from the main, adjusted for right-of-way, etc. could provide about \$500,000. Wal Mart might contribute some of their estimated well and storage costs, say \$100,000. The City could revenue bond perhaps \$100,000 or seek state legislative grants. Our engineer estimates costs at roughly \$2,000,000.

Could the City qualify for EDA grant funds for the balance of \$1,300,000? Could such a grant meet the proposed construction schedule of July - October, 1993.

Sincerely,

John C. Stein, Mayor

Enclosures: Map
Gilfilian Estimate

cc: Bob Harris
Wasilla Planning and Utilities Commission

ALINEE - VALERIEA HIGHWAY

ASILLA

LAKE BROOK (103-4)

BRANT BROOK PR 72-E1

COTTONWOOD CREEK MALL

MANEY ACRES MO. VACANT

NEW CENTRAL DRIVE

ELIZABETH VILLAGE P. G. A. VACANT

VACANT

New Wal-Mart

CINEMA

OFFICES

NEW PROPOSED WATER TRANSMISSION LINE

POTENTIAL BENEFITED AREA
EAST PARKS HIGHWAY WASHUA
WATER MAIN LINE
JCS 2-25-93

VAC.

↑ 7,000 ↓

TONY SCHECH

SEWER TREATMENT PLANT

