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REPORT TO CEDARS OF TUAM WATER SERVICE COMMITTEE
MEETING OF MONDAY 23 FEBRUARY 2009

SUBJECT **PROGRESS ON EVALUATION OF WATER SUPPLY OPTIONS**

PURPOSE

To provide for information to the Cedars of Tuam Water Service Committee (CTWSC) a report on the status of evaluation of options for developing a new source of water for the service area.

BACKGROUND

The Capital Regional District (CRD) has been working for several years to locate and develop a cost-effective alternative water source for the Cedars of Tuam water utility. The existing well and pumphouse were renovated in 2008, including the installation of a control loop for chlorine dosing. Although significant operating problems were resolved by this work, well production during the dry fall period remains inadequate for the needs of the community.

On Saturday, 24 January 2009 staff presented a report including a review of efforts to identify a new water source, the findings of those efforts, and preliminary financial implications of developing three potential sources. Two of the three are well sites near the service area, and the third is interconnection with the Fulford water system via submarine pipeline. The costs of the three options were presented as follows:

Option	Total Project Expense	Total Annual Debt Cost	Parcel Tax for Debt	Fulford Parcel Tax	Annual User Charge for Operation	Total Annual Cost per Parcel	Current Annual Cost per User	Net Increase
Meadow wellsite by road	\$ 581,813	\$ 58,149	\$ 3,825	\$ -	\$ 1,002	\$ 4,827	\$ 1,238	\$ 3,589
Ruby Alton wellsite	\$ 380,263	\$ 35,991	\$ 2,368	\$ -	\$ 1,002	\$ 3,370	\$ 1,238	\$ 2,132
Fulford interconnect	\$ 257,246	\$ 22,466	\$ 1,478	\$ 545	\$ 730	\$ 2,753	\$ 1,238	\$ 1,515

The total project expense includes all construction costs, engineering, project management, and legal and real estate costs associated with securing rights of way. The total annual debt cost is the cost of principal and interest for borrowing funds to cover the total project expense at 6% per annum through the Municipal Finance Authority. The actual interest rate may be slightly less, but is unlikely to be greater. The parcel tax for debt is the amount that each connected parcel would pay to finance the project, including a levy of 5.25% charged by the province for collecting parcel tax on behalf of local governments. In the case of the Fulford interconnection option, Cedars of Tuam residents would also pay the Fulford parcel tax in order to participate in financing the newly completed Fulford water treatment plant. The user charge for operation recovers all costs of water service except capital works, and is lower for the Fulford option due to the much larger number of participants in the service. The total annual cost per parcel is the sum of the parcel taxes and the annual user charge for operation. Of the three options presented, interconnection with the Fulford system is the least expensive in terms of both capital and operating cost.

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Following discussion of the options with the community, the CTWSC directed staff to further develop both the Fulford interconnection option and the option to develop a well near the intersection of Meadow Drive and Isabella Point Road.

Meadow Drive Well Site

The area of the intersection of Meadow Drive and Isabella Point Road was identified by the engineering consultant to the CRD as having the greatest potential for a productive well in the vicinity of the Cedars of Tuam service area. However, connecting this site to the Cedars of Tuam water system via public road right of way would require nearly 800m of pipeline at an estimated cost of \$300 per metre plus repaving and rock removal costs. Thus it is the most expensive of the options presented to the committee. Project costs for this option are estimated as follows:

Costing Option - Meadow Drive wellsite via road

Construction Item	Lump Sum	Length (m)	Unit Cost	Total Cost
Well Drilling	\$ 10,000			\$ 10,000
Land Negotiation	\$ 10,000			\$ 10,000
Well Testing (72 hour)	\$ 15,000			\$ 15,000
Well Development, pump, well house	\$ 40,000			\$ 40,000
Electrical, Controls	\$ 32,000			\$ 32,000
Access	\$ 15,000			\$ 15,000
watermain construction		775	\$ 300	\$ 232,500
Pavement Reinstatement		700	\$ 45	\$ 31,500
Rock Allowance		50	\$ 175	\$ 8,750
Interconnection to existing				\$ 6,500
Total Construction				\$ 401,250
Contingencies 25%				\$ 100,313
Engineering @ 20%				\$ 80,250
Total Estimated Project Expense				\$ 581,813

With this option, there is significant uncertainty (risk) associated with the cost and timeline for negotiation of right of way to develop a well and pumphouse, and significant risk that a well developed in the area does not yield adequate water capacity or quality to serve the Cedars of Tuam area. CRD staff are in the process of negotiating access to a site in this area for the purpose of developing a well. If right of way is secured, a well may be drilled and tested to determine the feasibility of proceeding further with this option. The cost of negotiating access, developing and testing a well is estimated to be \$35,000 plus engineering and contingency, or \$50,000 overall. If a well can be developed and verified to yield sufficient water, the risks associated with the remainder of the project would be low.

Interconnection with Fulford Water System

The Fulford water service, which is also a CRD water service, is considering opportunities to expand its user base as its new water treatment plant enters service early in 2009. The new plant has significant excess capacity, and the Fulford service also has significant unused license capacity on Weston Lake. Although the distance between the Fulford and Cedars of Tuam service areas is much greater than the distances to potential well sites for Cedars of Tuam (3 km versus 300-800m), most of the interconnection between the systems would be made using a weighted pipeline laid on the seafloor, at a much lower cost than in a roadway. Once connected, water from the Fulford system would provide daily and peak flow requirements. The present water tank and well would be retained to provide balancing for the system as

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required, and to provide water in the event of an interruption of service from Fulford. Project costs for this option are estimated as follows:

Costing Option - Fulford Water Interconnection

Construction Item	Lump Sum	Length (m)	Unit Cost	Total Cost
Underwater main, Fulford - Cedars		3,000	\$ 28	\$ 84,990
overland construction - Cedars terminus		100	\$ 150	\$ 15,000
Valves, Metering	\$ 9,000			\$ 9,000
Interconnection to existing	\$ 6,500			\$ 6,500
Pipe, on dock, Fulford Terminus		60	\$ 100	\$ 6,000
Interconnection to existing	\$ 6,500			\$ 6,500
Reinstatement		40	\$ 45	\$ 1,800
Valves, Metering	\$ 9,000			\$ 9,000
Total Construction				\$ 138,790
Contingencies 25%				\$ 34,698
Engineering @ 20%				\$ 27,758
Capacity purchase				\$ 56,000
Total Estimated Project Expense				\$ 257,246

As a condition of connecting Cedars of Tuam to the Fulford system, an engineering study would be required in order to evaluate the present and future water needs of the Fulford community and the sufficiency of the Weston Lake source to provide for servicing both the Cedars of Tuam water area and the long term development objectives for the Fulford area.

Although not yet approved by Fulford, a capacity purchase of \$56,000 has been included in the costing of this option, for the purpose of compensating existing Fulford users for the value of infrastructure for which they have already paid. Cedars of Tuam users would also begin to pay the Fulford parcel tax once connected to the Fulford system, in order to pay an equal share of the cost of financing the new Fulford treatment plant. Effectively, Cedars of Tuam would become part of the Fulford system, and Cedars users would share costs equally with Fulford users, as is reflected in the significantly lower operating cost of this option. The only cost to Cedars of Tuam users that would not be shared by Fulford users is the cost of the interconnection, which provides no benefit to Fulford users. This cost would be repaid through parcel taxes on the Cedars of Tuam area only.

With this option, there is significant uncertainty (risk) associated with the cost and timeline for determination of the conditions for interconnection of the systems, and a small risk that an engineering study concludes that Weston Lake does not have adequate capacity to serve the long-term needs of both Fulford and Cedars of Tuam. If the CTWSC agree to support this option for the purpose of planning and preliminary design, the work would include verification of cost estimates and recovery structures, preliminary design and project costing, and completion of the engineering study of source capacity and demand on Weston Lake. The estimated cost to complete these steps is \$10,000-15,000. With these steps completed, the risks associated with the remainder of the project would be low.

Total Costs of Options

The following table provides the total nominal cost (2009 dollars) of each option over a span of 15 years (the amortization period of the debt), including the project expense, interest and taxation charges, and operating costs.

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Option	Total Project Expense	Interest and Parcel Tax Costs*	Total Capital Cost of Option**	Total Capital Cost per User***	Operating Cost per User for 15 Years	Total per User
Meadow wellsite by road	\$ 581,813	\$ 336,214	\$ 918,027	\$ 57,377	\$ 15,030	\$ 72,407
Ruby Alton wellsite	\$ 380,263	\$ 187,938	\$ 568,201	\$ 35,513	\$ 15,030	\$ 50,543
Fulford interconnect	\$ 257,246	\$ 228,308	\$ 485,554	\$ 30,347	\$ 10,946	\$ 41,293

*Total of interest on 15-year MFA debt at 6% per annum and parcel tax levy at 5.25% paid over 15 year amortization period

**Total project expense, interest and tax levy paid over 15 year amortization period

***Total capital cost / 16 connected parcels

ALTERNATIVES

1. That the Cedars of Tuam Water Service Committee receive this report for information.
2. That the Cedars of Tuam Water Service Committee direct staff to proceed with alternate actions to those set out at the 24 January 2009 meeting.

FINANCIAL IMPLICATIONS

It is estimated that the cost of proceeding with the Meadow Drive option to the point that a well is developed and tested will be in the range of \$50,000, and that the cost of proceeding with the Fulford option to the point that the conditions for interconnection are established will be \$10,000-15,000. Assuming that both of these proceed, the balance of available capital funds will be reduced to \$10,000-15,000.

SUMMARY/CONCLUSIONS

This report describes the analysis to date of the two options selected by the CTWSC at its 24 January 2009 meeting for further development. The cost to develop the Meadow Drive option to the point that its viability can be verified (drilling and testing a new well) is estimated to be \$50,000. The cost to develop the Fulford interconnection option to the point that its viability can be verified (completing an engineering study and establishing financial terms with both committees) is estimated to be \$10,000-15,000. These expenditures would reduce the balance of available capital to \$10,000-15,000.

RECOMMENDATION

That the Cedars of Tuam Water Service Committee receive this report for information.

Colwyn Sunderland, ASCT
 Local Services Engineering Coordinator

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